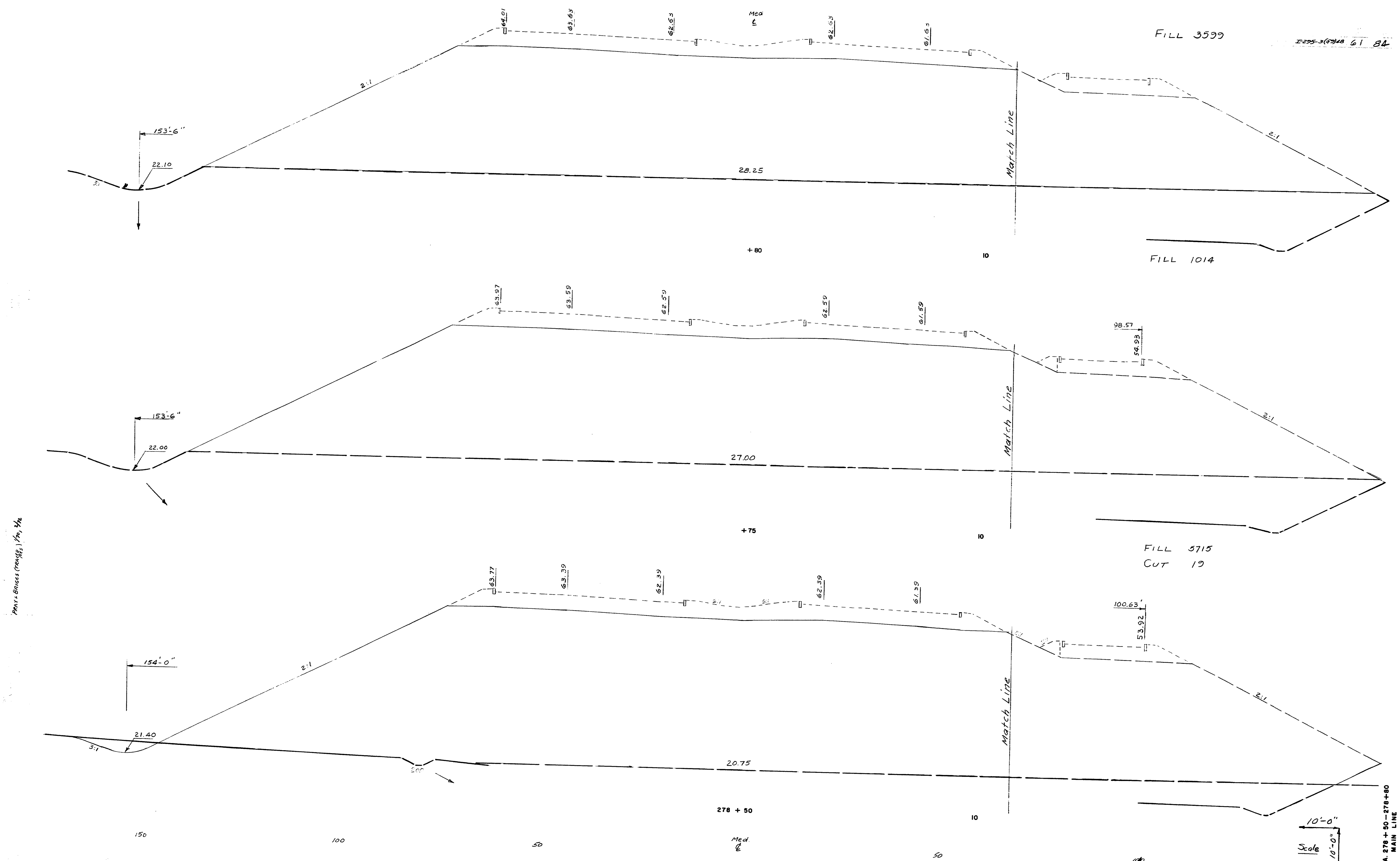
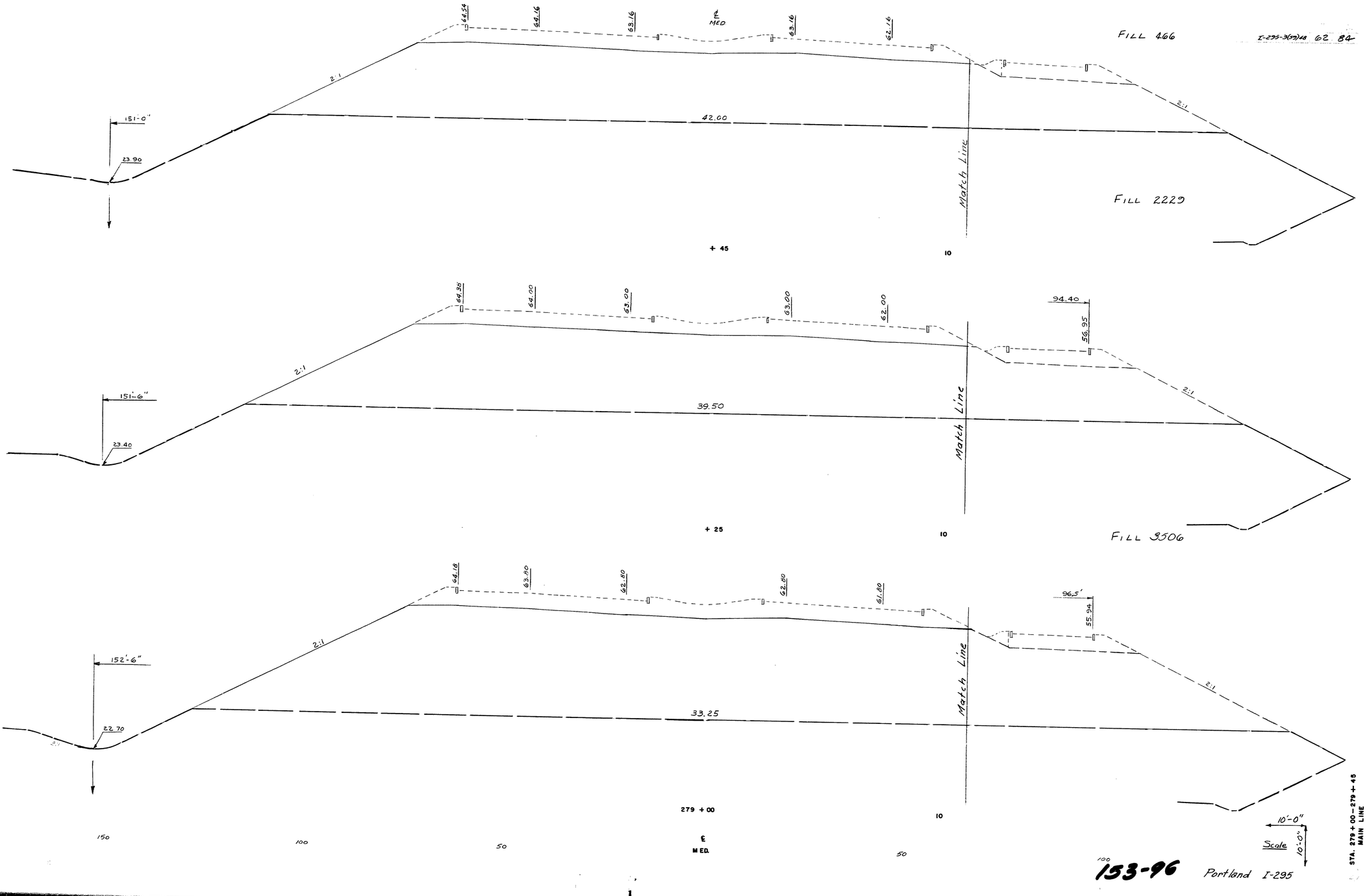
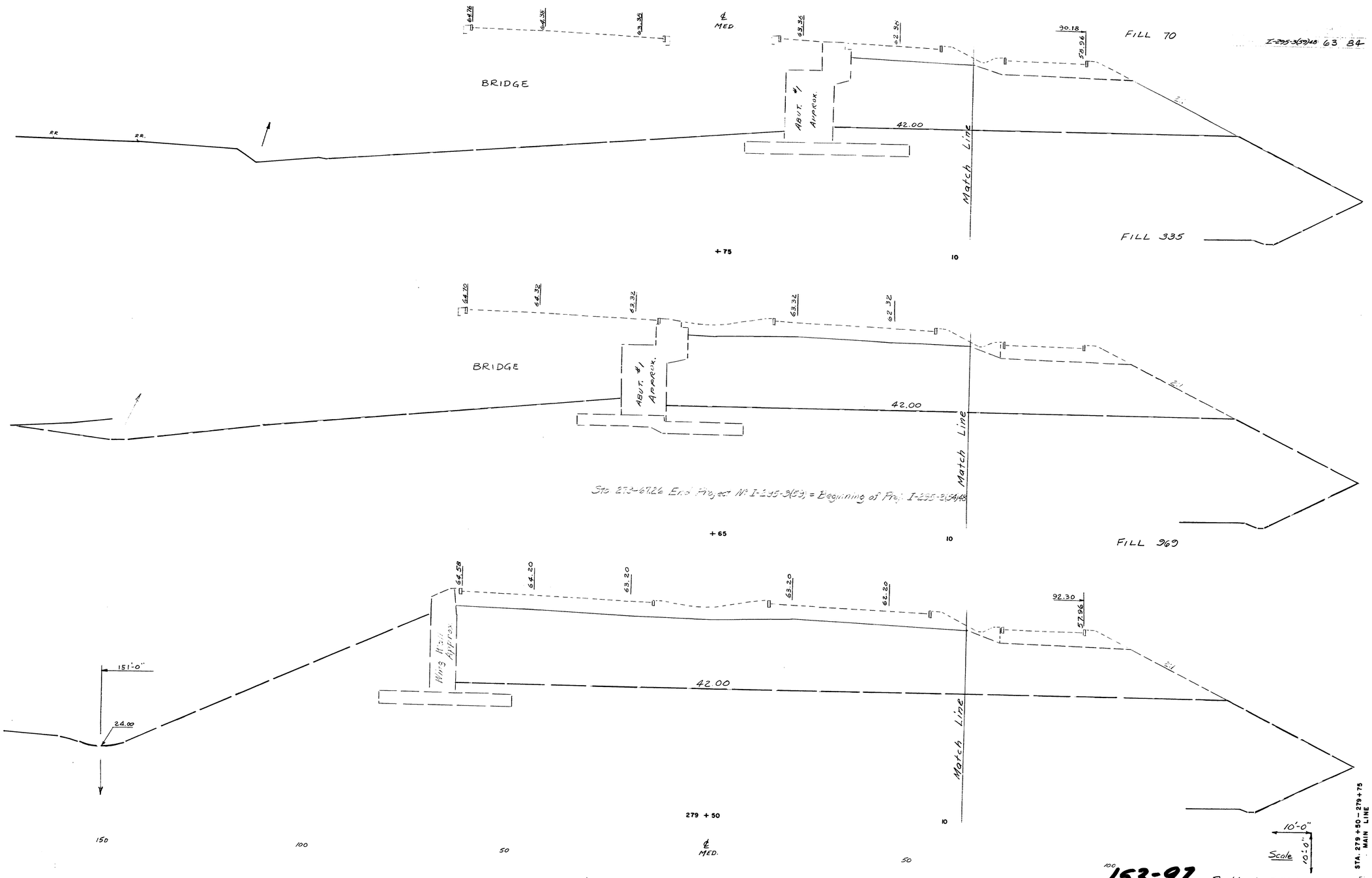
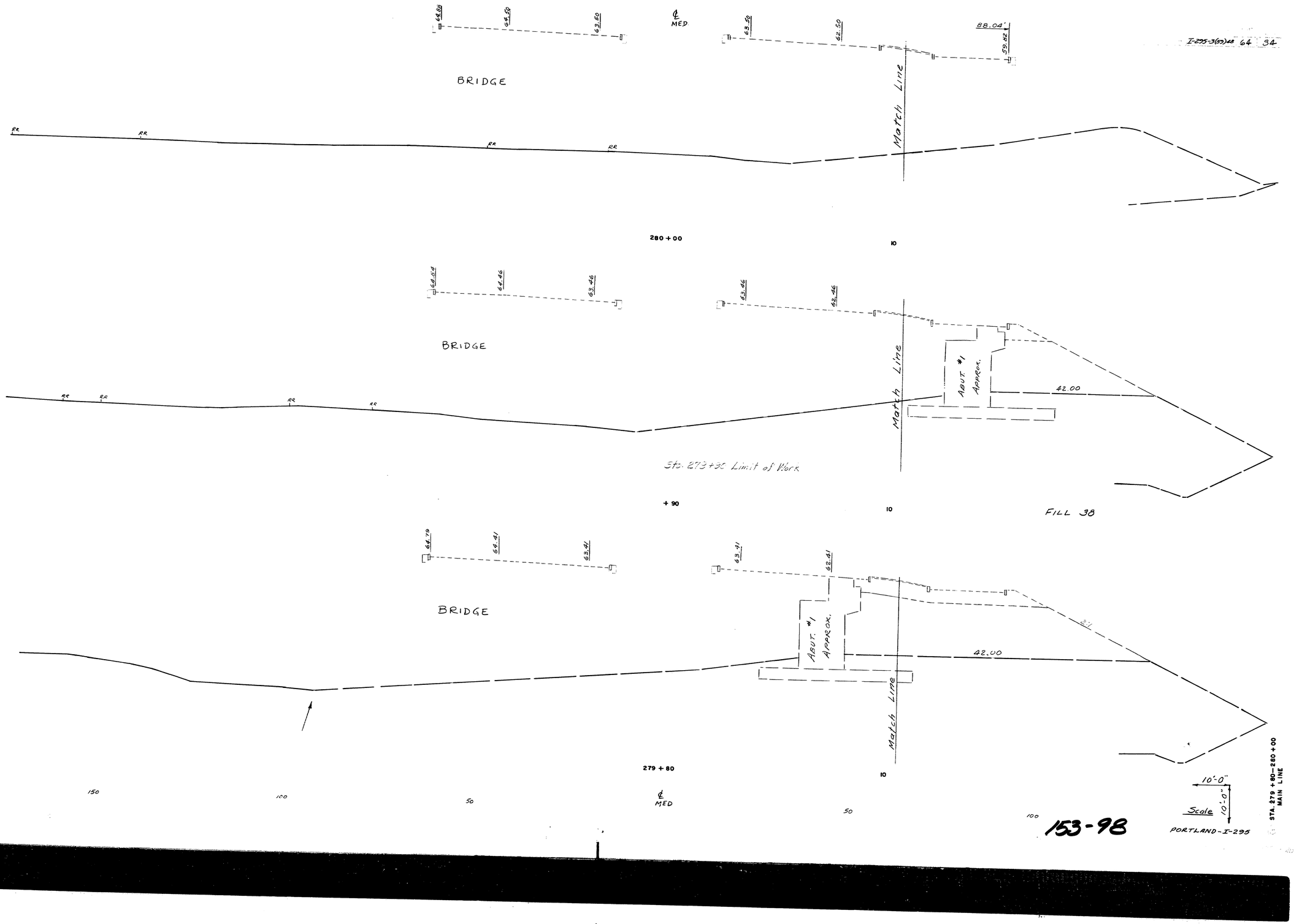


153-95 Portland I-295

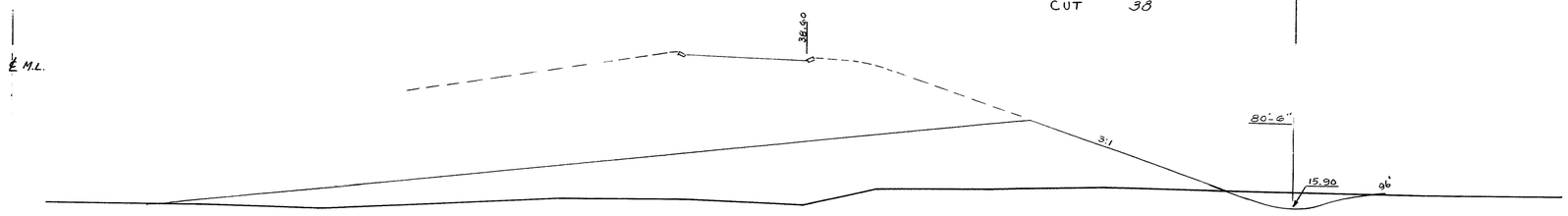

FILL 466
I-295-3(69)48 62 84
64.24
64.16
63.16
℄ MED
63.16
62.16
2:1
151'-0"
23.90
42.00
2:1
Match Line
FILL 2229
+ 45
10
64.38
64.00
63.00
63.20
62.00
94.40
56.95
2:1
151'-6"
23.40
39.50
2:1
Match Line
FILL 9506
+ 25
10
64.18
63.80
62.80
62.20
61.80
96.5'
55.94
2:1
152'-6"
22.70
33.25
2:1
Match Line
279 + 00
10
150
100
50
℄ MED.
50
100
10'-0"
Scale
10'-0"
STA. 279 + 00 - 279 + 45 MAIN LINE
133-96 Portland I-295


64.76
64.36
63.36
℄ MED
63.36
62.36
30.18
58.36
FILL 70
BRIDGE
RR
RR
ABUT. #1 APPROX.
42.00
Match Line
FILL 335
+75
10
64.20
64.32
63.32
63.32
62.32
BRIDGE
ABUT. #1 APPROX.
42.00
Match Line
Sta. 273+67.22 End Project No. I-295-3(53) = Beginning of Proj. I-295-3(54)
+65
10
FILL 969
64.58
64.20
63.20
63.20
62.20
92.30
57.96
WING WALL APPROX
42.00
Match Line
FILL
151'-0"
24.00
279 + 50
10
150
100
50
℄ MED.
50
10'-0"
10'-0"
Scale
STA. 279+50 — 279+75 MAIN LINE
100
153-97 Portland I-295


64.89
64.59
63.20
℄ MED
63.50
62.50
88.04'
59.42'
I-295-3(63)48 64 34
BRIDGE
RR
RR
RR
RR
MATCH LINE
280 + 00
10
64.04
64.46
63.46
63.46
62.46
BRIDGE
RR
RR
RR
RR
ABUT. #1 APPROX.
42.00
MATCH LINE
Sta. 279+30 Limit of Work
+ 90
10
FILL 38
64.79
64.41
63.41
63.41
62.41
BRIDGE
ABUT. #1 APPROX.
2:1
42.00
MATCH LINE
279 + 80
10
150
100
50
℄ MED
50
100
10'-0"
10'-0"
Scale
PORTLAND-I-295
STA. 279+80-280+00 MAIN LINE
153-98

℄

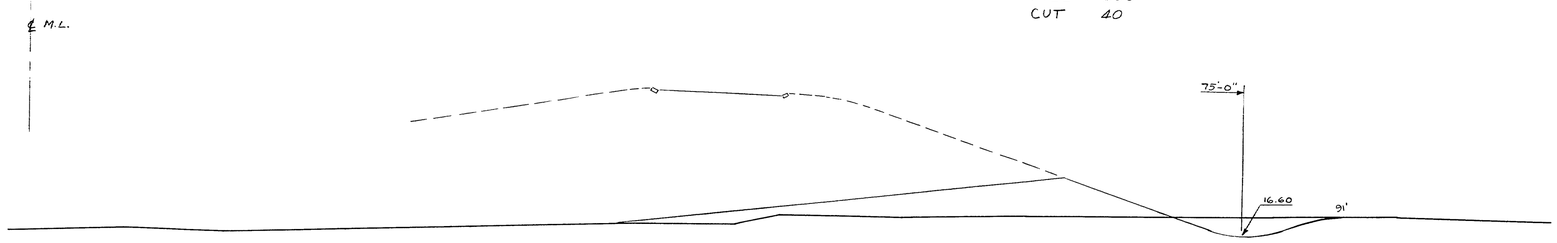
FILL 1238
CUT 38



2+75

10

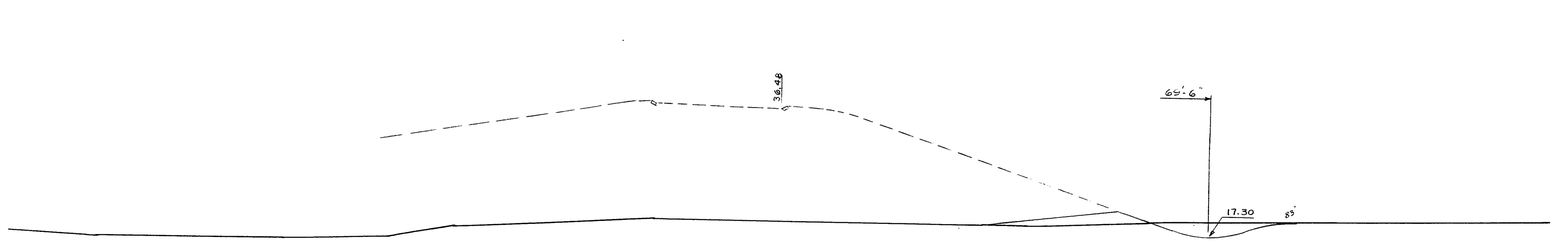
FILL 339
CUT 40



2+50

10

FILL 144
CUT 38



2+25

10

FILL 15
CUT 15

Std Sta Limit of Work - CST

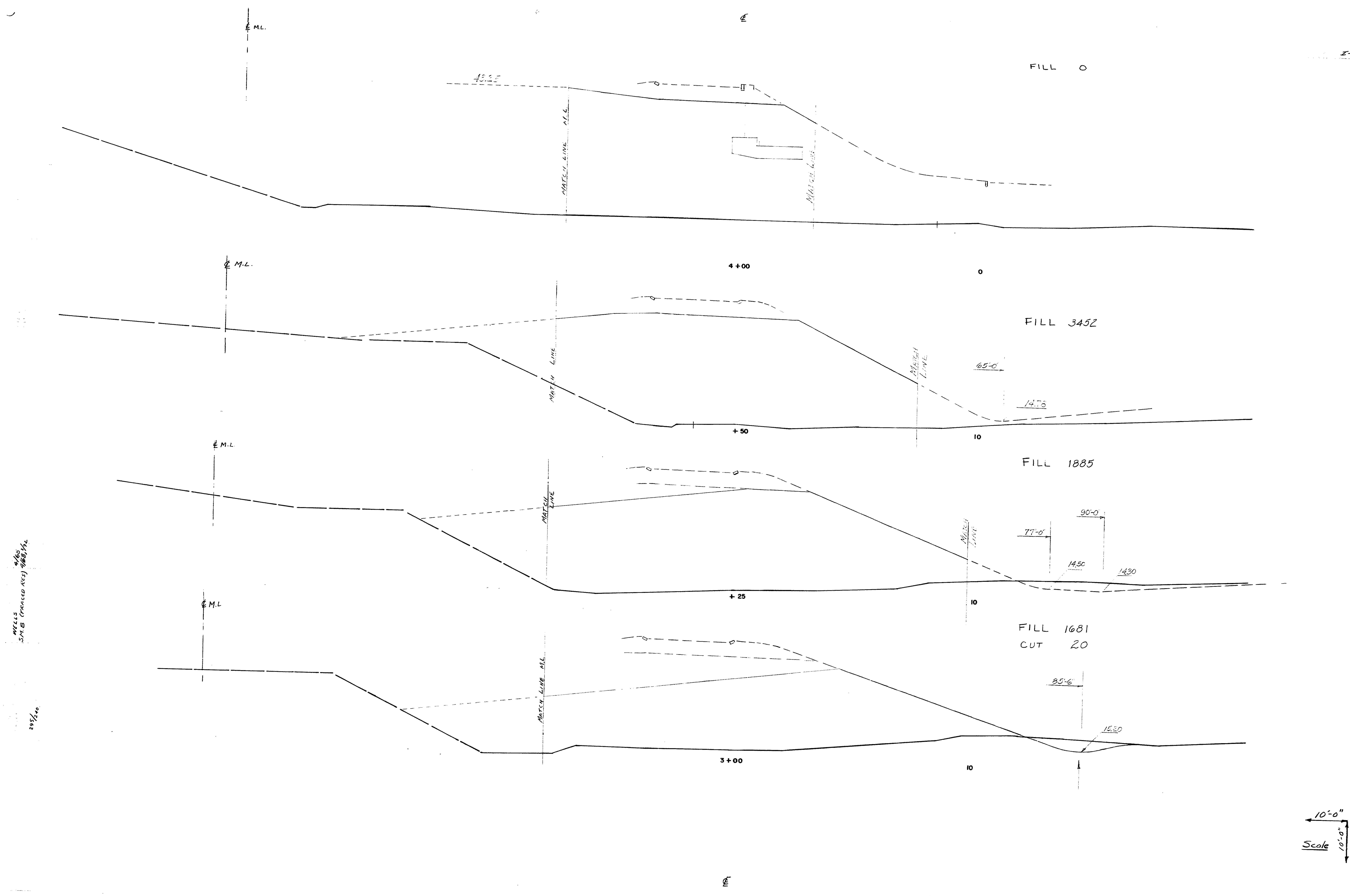
℄

10'-0"
10'-0"
Scale

CS-7 STA 2+25 to 2+75

153-99 PORTLAND-I-295

I-295-3(57)48 66 84

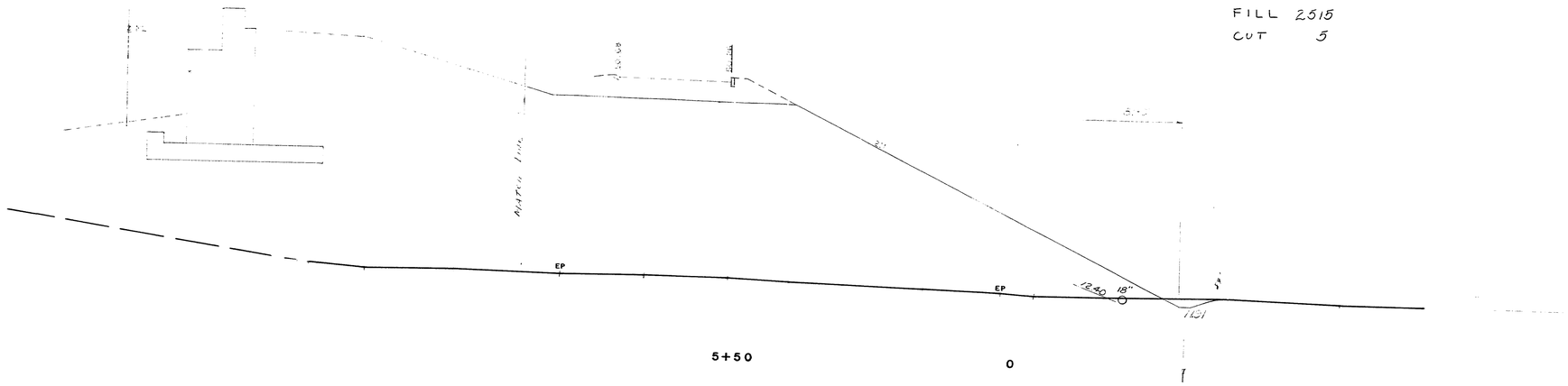


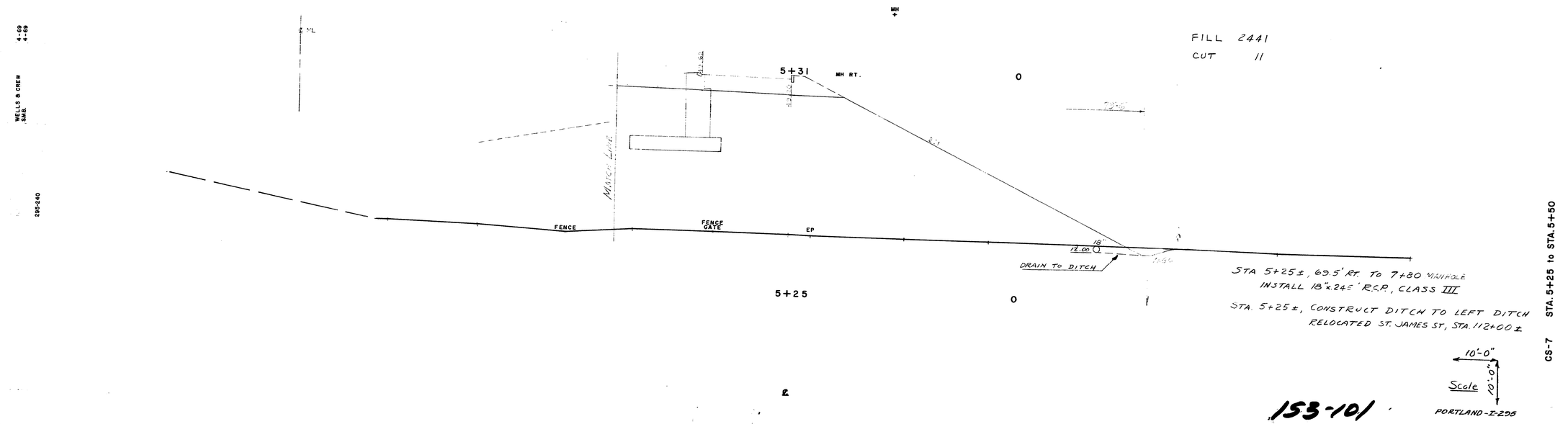
153-100

PORTLAND - I-295

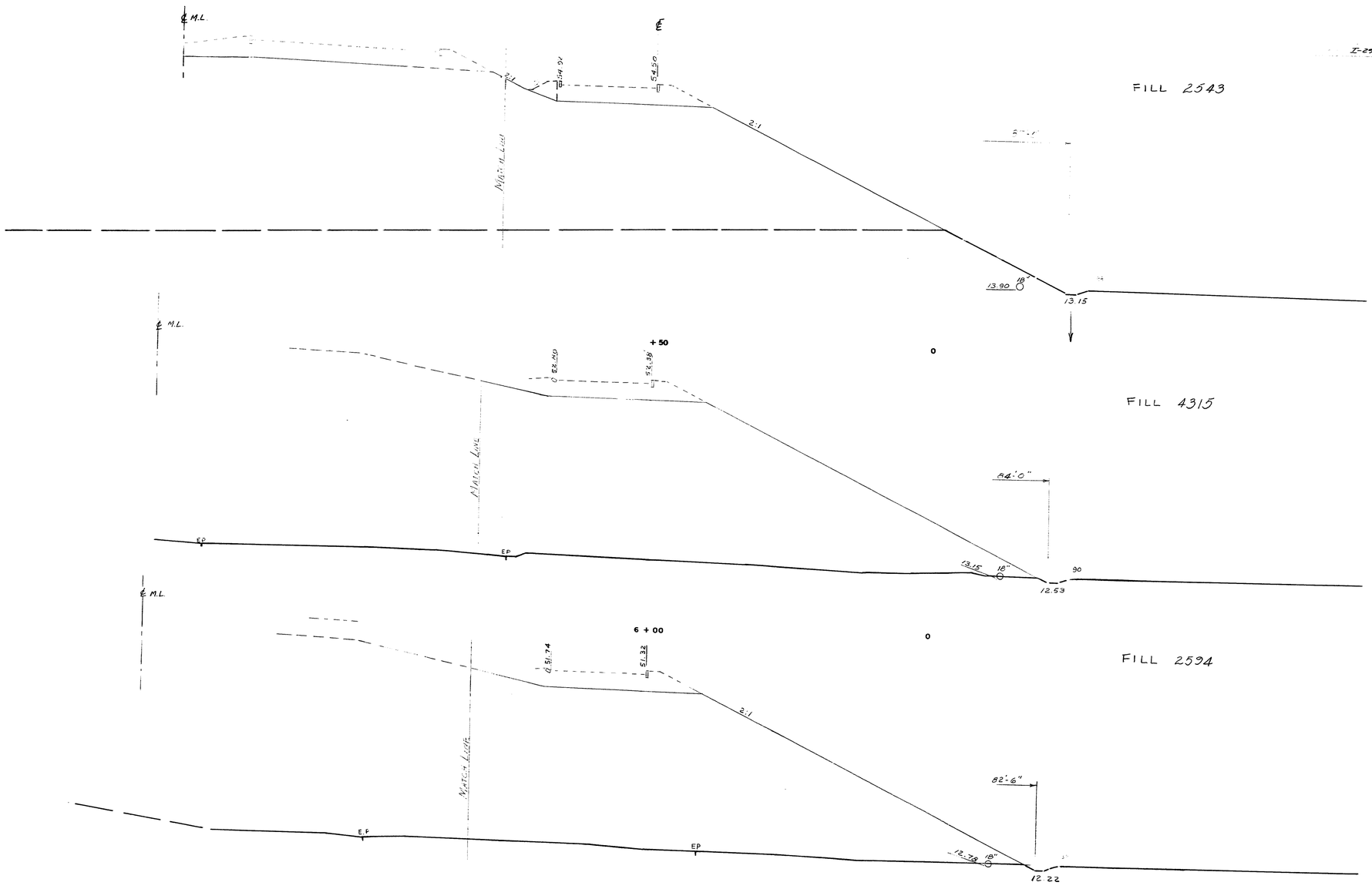
STA. 3+00 - 4+00
RAMP CS-7

I-295-3(69)48 69 St





I-205-3(6)210 68 84



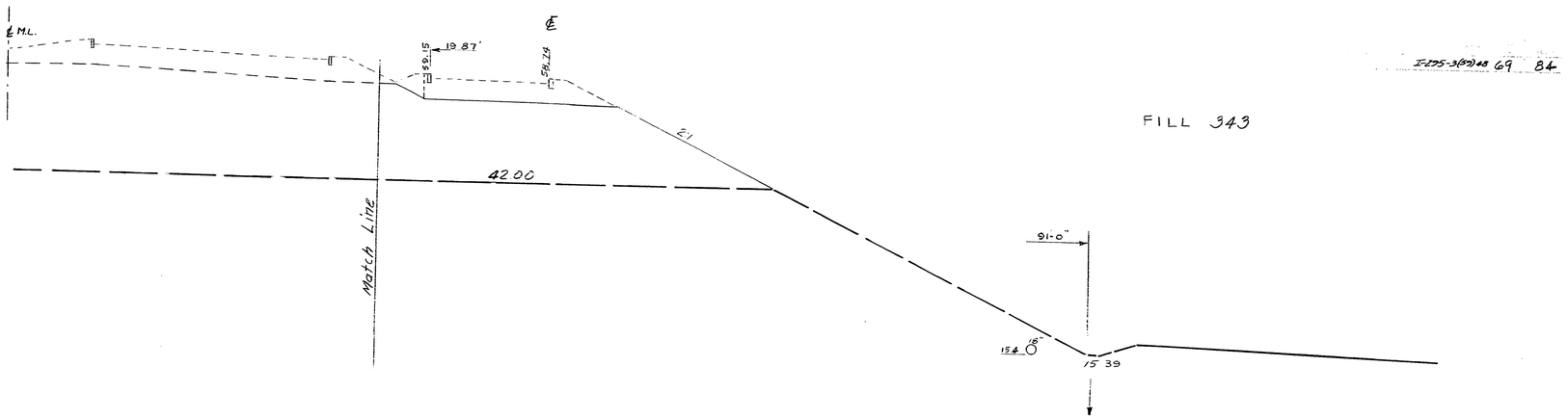
WELLS
SMB (PROJECT REF.) 4-69
4-82) 2/12

295/240

STA. 5+75 — 6+50
RAMP C 9 — 7

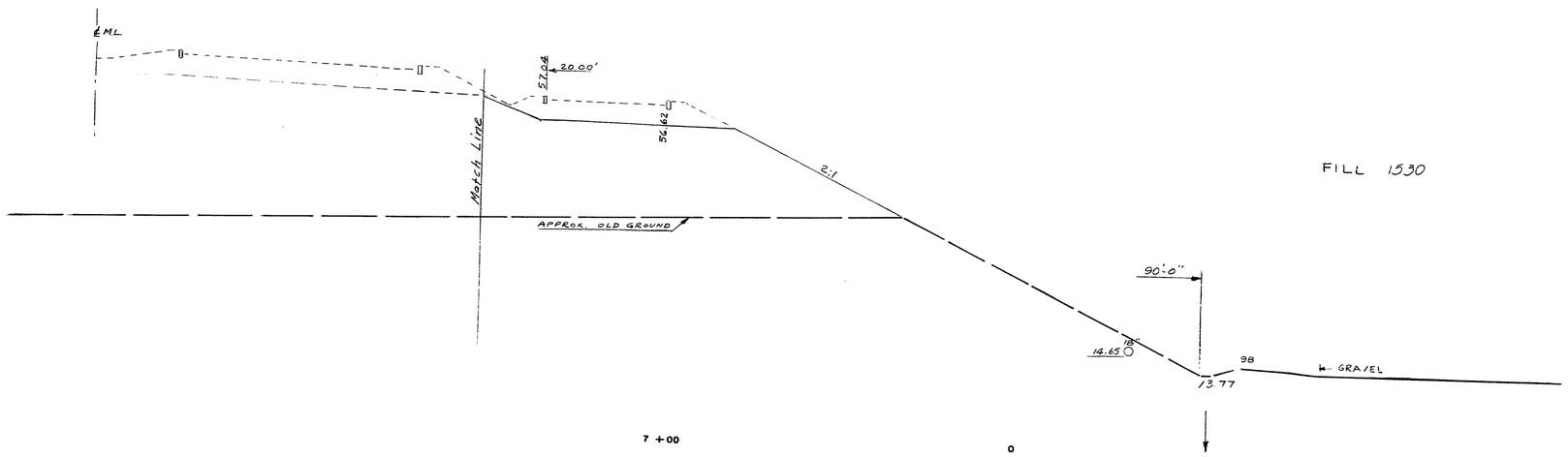
153-102 1

ISC PORTLAND - I-205



I-295-3(89)48 69 84

FILL 343



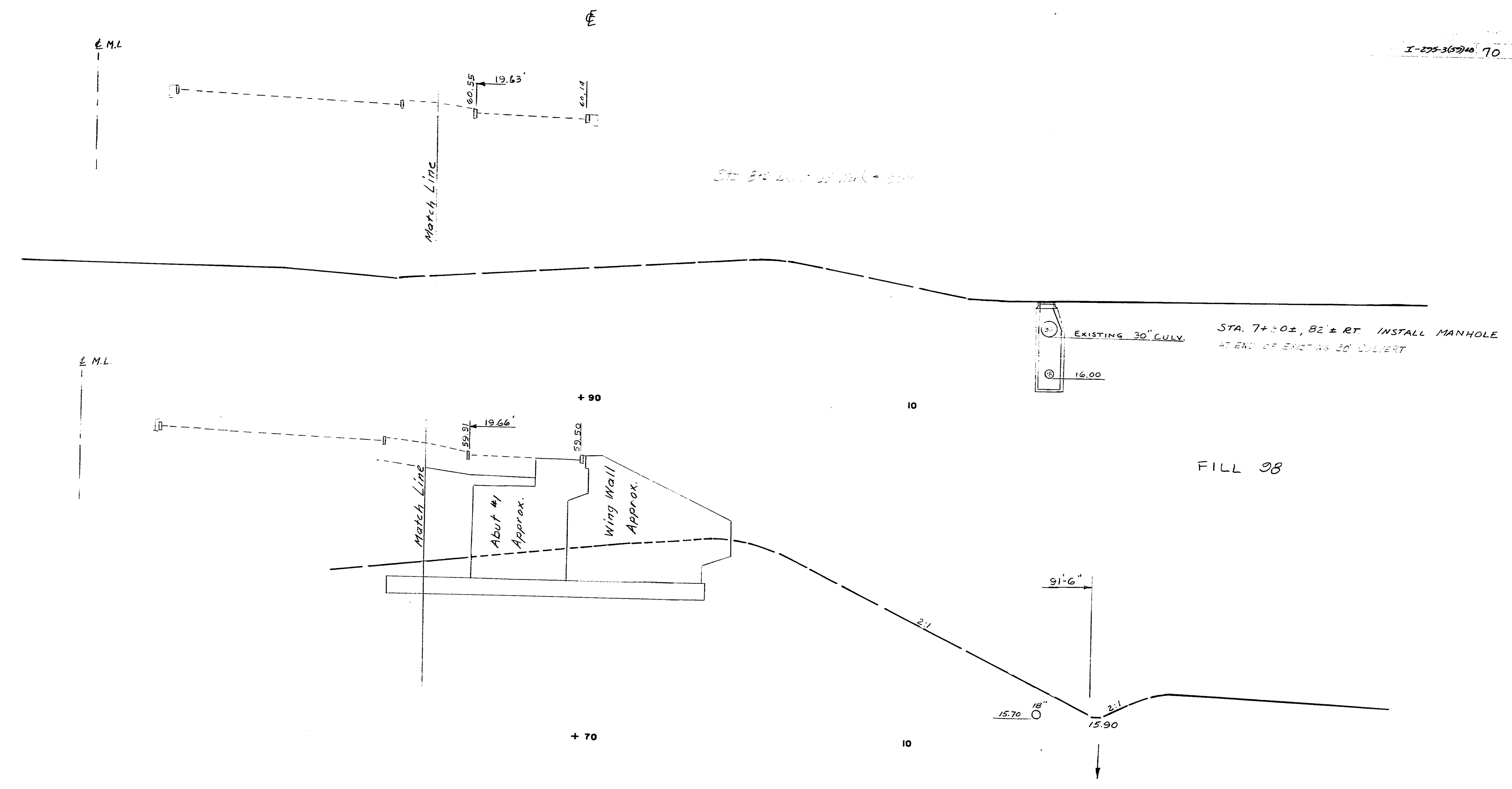
WELLS
SMB (TRACED REEL) 4/89
4/91, 9/92

295/Me

153403A PORTLAND-I-295

STA. 7+0 — 7+50
RAMP C8 — 7

I-275-3(59)40 70 84



7 +51

0

℄

Scale 10'-0" 10'-0"

153-1038 PORTLAND-I-295

STA. 7+51—7+90 RAMP CS-7

WELLS 4/69
S.M.B. (TRACED KRS) 4/69, 4/70

295/240

B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-295-3(69)48	71	84

FINAL SURVEY
NOTE BOOK NO. ____
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK NO. 5524
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

℄

STA. 2+00, 105 RT = RELOCATED ST. JAMES ST. STA. 108+25, 185' RT

INSTALL ~~12'x 30'~~ 12'x 31' R.C.P. CLASS III
FROM CATCH BASIN TO PROPOSED CITY ~~MH~~
Tee by Others

STA. 2+10, 105 RT. CS-4
Install 12 Tee

STA. 2+00, 105' RT.
INSTALL CATCH BASIN, TYPE E-1
TO BE ALTERED IN FUTURE.

2+00 10

1+75 10

℄ M.L.

1+50 10

℄

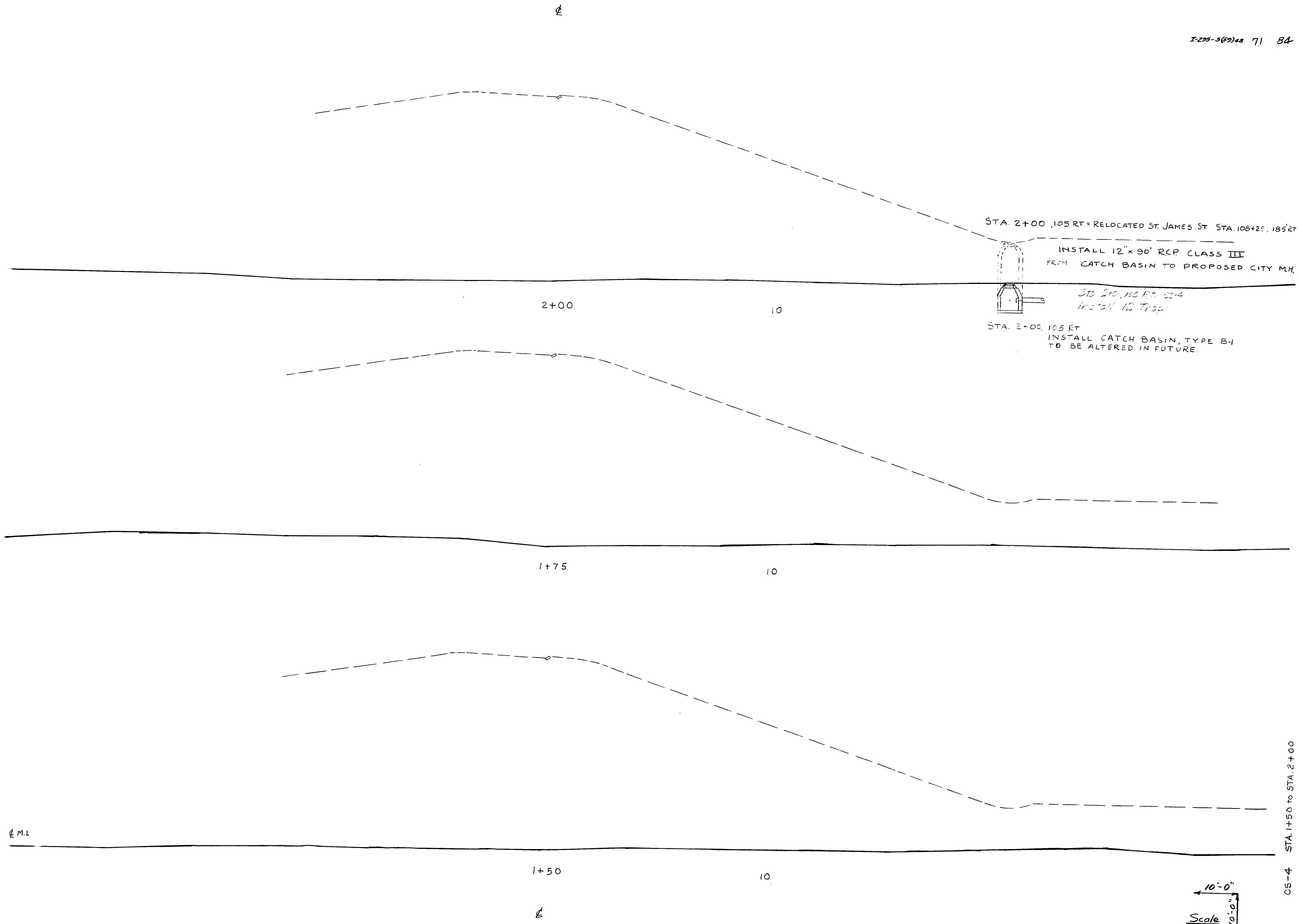
CS-4 STA. 1+50 to STA. 2+00

10'-0"
10'-0"

Scale

REVISED 6/16/72
Portland I-295

153-104

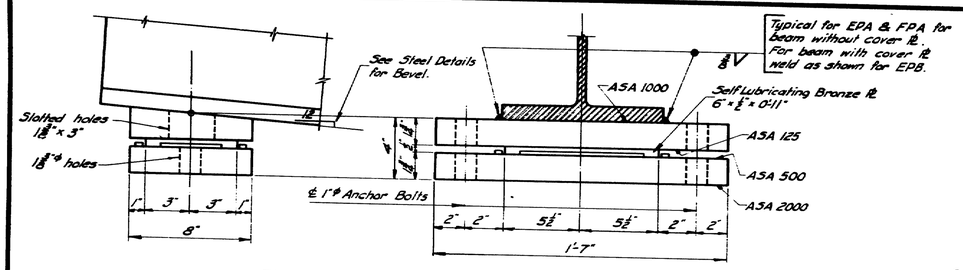


CS-4 STA. 1+50 to STA. 2+00

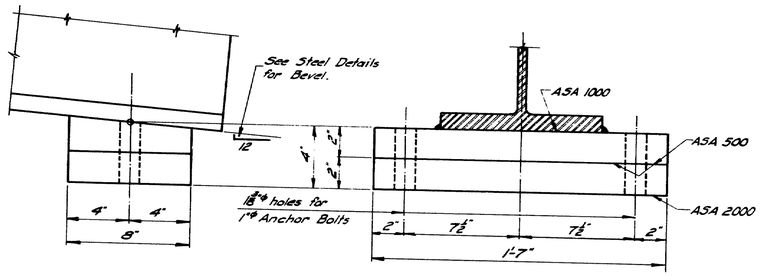
10'-0"
Scale
10'-0"

153-105 Portland I-295

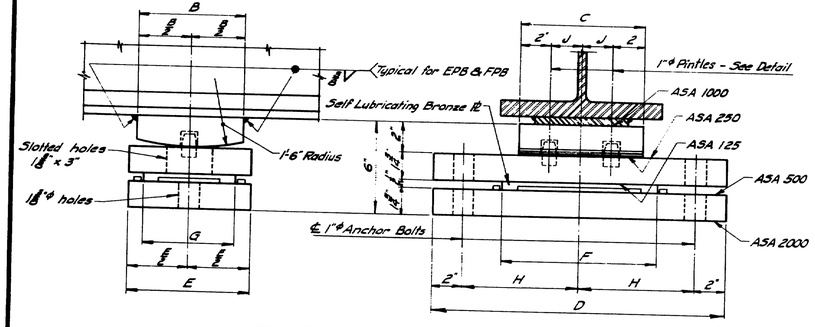
B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I 295-3 (59)	72	84



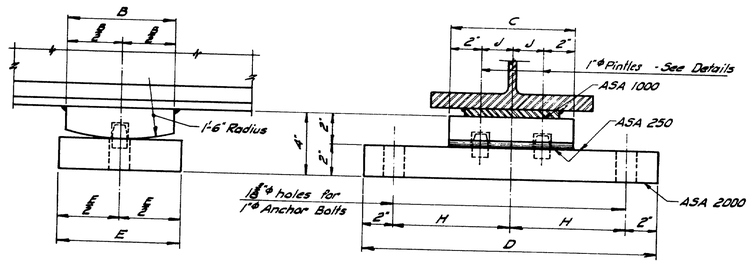
EXPANSION PEDESTAL – EPA



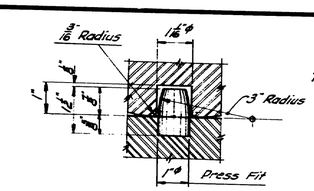
FIXED PEDESTAL – FPA



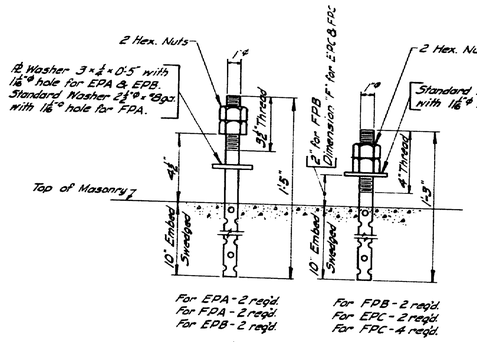
EXPANSION PEDESTAL – EPB



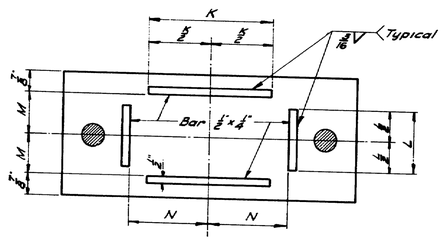
FIXED PEDESTAL – FPB



PINTLE DETAIL

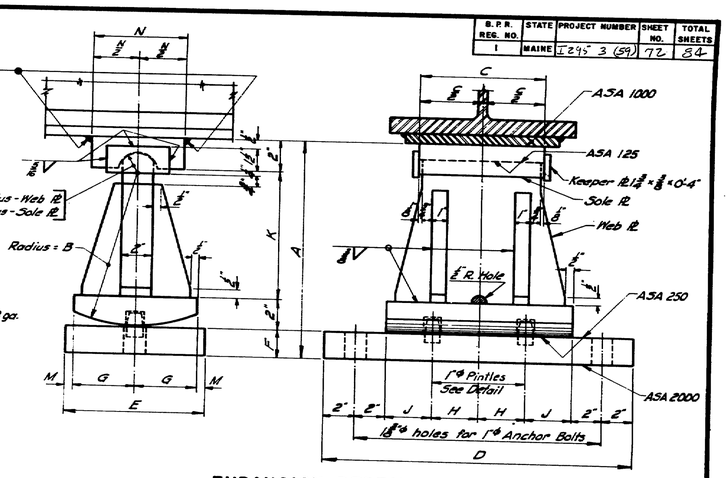


ANCHOR BOLT DETAIL

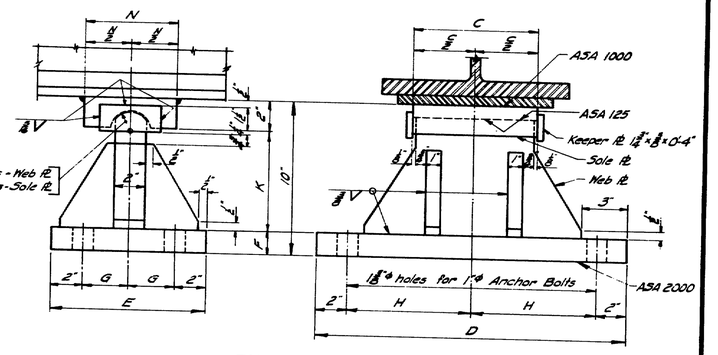


For EPA & EPB

MASONRY PLATE



EXPANSION PEDESTAL – EPC



FIXED PEDESTAL – FPC

NOTE: At the location of bearing pedestals the concrete bridge seats shall be dressed one inch larger all around than size of masonry plates and to exact elevations shown on the plans. If dressed areas are below the surface of the surrounding bridge seat a small channel shall be cut to the edge of the bridge seat for drainage where required by the Engineer. Channels shall have a min. width of 2", and min. slope of ¼ inch per foot. No separate payment for this work will be made as it shall be considered incidental to contract items.

PEDESTALS – ALLOWABLE LOADS & DIMENSIONS

Pedestal	Load	A	B	C	D	E	F	G	H	J	K	L	M	N
EPA	132 K	–	–	–	–	–	–	–	–	–	8"	4"	3½"	5½"
FPA	190 K	–	–	–	–	–	–	–	–	–	–	–	–	–
EPB-1	120 K	–	6"	8"	1'-7"	8"	10"	6"	7½"	2"	8"	4"	3½"	5½"
EPB-2	165 K	–	7"	10"	1'-8"	9"	1'-0"	7"	8"	3"	10"	5"	3½"	6½"
EPB-3	224 K	–	8"	1'-1"	2'-0"	10"	1'-4"	7"	10"	4½"	1'-2"	5"	3½"	6½"
FPB-1	120 K	–	6"	8"	1'-7"	8"	–	–	7½"	2"	–	–	–	–
FPB-2	165 K	–	7"	10"	1'-8"	9"	–	–	8"	3"	–	–	–	–
FPB-3	224 K	–	8"	1'-2"	2'-0"	10"	–	–	10"	5"	–	–	–	–
EPC-1	70 K	9½"	6"	8"	1'-8"	8"	1½"	3½"	3"	3"	4½"	–	1"	6"
EPC-2	100 K	11½"	8"	8"	1'-8"	8"	1½"	3½"	3"	3"	6½"	–	1"	6"
EPC-3	130 K	1'-2"	10"	8"	1'-8"	9"	1½"	4"	3"	3"	8½"	–	1"	7"
EPC-4	160 K	1'-2"	10"	8"	1'-10"	9"	1½"	4"	4"	3"	8½"	–	1"	7"
EPC-5	190 K	1'-2½"	10"	9"	2'-0"	10"	2"	4½"	5"	3"	8½"	–	1"	7"
EPC-6	220 K	1'-4½"	1'-0"	10"	2'-0"	1'-0"	2½"	5"	5"	3"	10½"	–	1"	8"
EPC-7	250 K	1'-4½"	1'-0"	1'-0"	2'-2"	1'-0"	2½"	5"	5"	4"	10½"	–	1"	8"
FPC-1	100 K	–	–	8"	1'-8"	9"	1½"	2½"	8"	–	6½"	–	–	6"
FPC-2	160 K	–	–	8"	1'-8"	10"	1½"	3"	8"	–	6½"	–	–	7"
FPC-3	190 K	–	–	9"	2'-0"	10"	1½"	3"	10"	–	6½"	–	–	8"
FPC-4	220 K	–	–	10"	2'-0"	1'-0"	1½"	4"	10"	–	6½"	–	–	8"
FPC-5	250 K	–	–	1'-0"	2'-0"	1'-0"	2"	4"	10"	–	6"	–	–	8"

DESIGN SPECIFICATIONS

A.A.S.H.O., Standard Specifications for Highway Bridges, 1969

A.S.T.M. STEEL CLASSIFICATION

Anchor Bolts - A36
All other - A36

Revised- Design Specifications and A.S.T.M. Steel Classification 1969

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

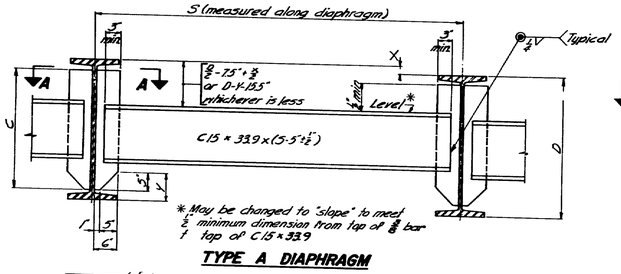
STANDARD DETAILS
(BD 101 – 70)

BEARING PEDESTALS

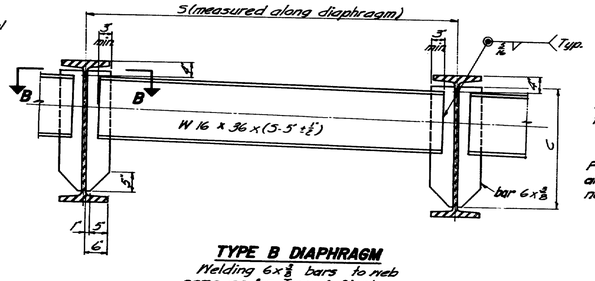
JANUARY 1970

153-106

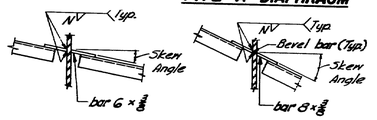
B.P.R. DIV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I295-3(69)	73	84



TYPE A DIAPHRAGM



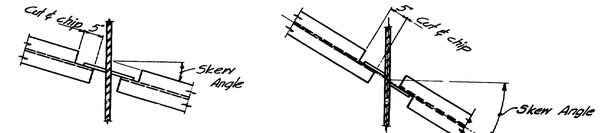
TYPE B DIAPHRAGM
Welding 6 x ⅜ bars to web same as for Type A Diaphragm.



SECTION A-A
Skew Angle 0° to 10°-00'

SECTION A-A
Skew Angle over 10°00' to 20°00'

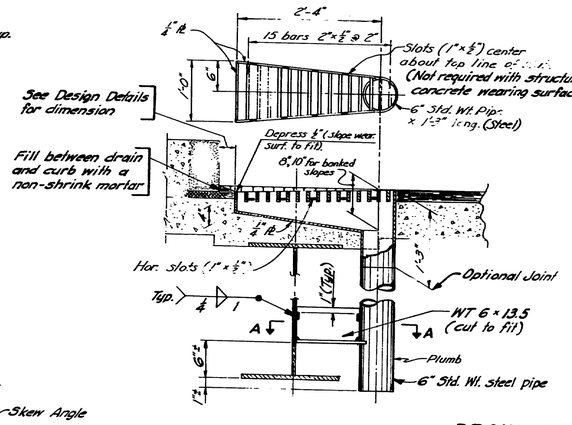
FILLET WELD SIZE "N" & DIMENSION "C" FOR DIAPHRAGM BARS		
BEAM	C	N
W 21 x 84 to 114 incl.	1'-11"	¼"
W 30 x 99 to 132 incl.	2'-2"	¼"
W 33 x 118 to 152 incl.	2'-5"	¼"
W 36 x 135 to 194 incl.	2'-7"	¼"
W 36 x 230 to 300 incl.	2'-6"	⅜"



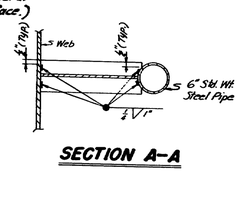
SECTION B-B
Skew Angle 0° to 10°-00'

SECTION B-B
Skew Angle over 10°00'

NOTE
See design details for diaphragm type, location and skew.



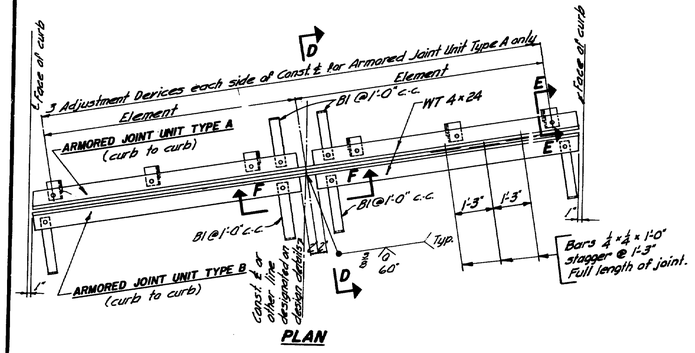
DRAIN NO. 1



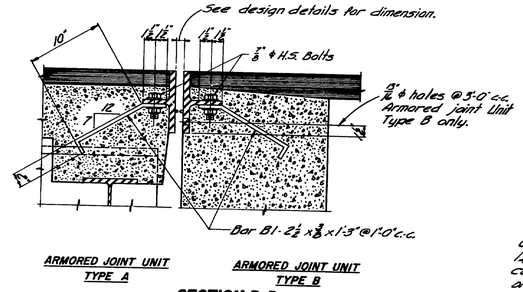
SECTION A-A

NOTE:
See design details for location and number of drains and beam size to which it is connected.

DIAPHRAGMS



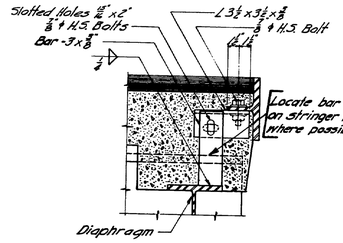
PLAN



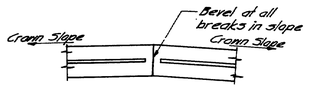
ARMORED JOINT UNIT TYPE A

ARMORED JOINT UNIT TYPE B

SECTION D-D



SECTION E-E
Showing Adjustment Device Armored Joint Unit Type A only - After Unit is in final position weld ⅜ bar to angle with ¼ Fillet

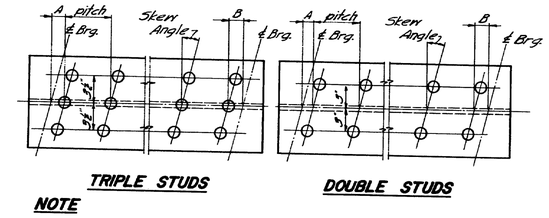


SECTION F-F
Note: See design details for Const. ℄ to curb dimensions, skew, crown slope, slab thickness, other dimensions necessary to complete the fabrication details, and location.

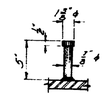
NOTE

1. Type A Armored Joint Units are intended to be used for attachment to superstructures. Type B Armored Joint Units are intended to be used for attachment to abutments. At armored joints over piers, two (2) Type A Armored Joint Units shall be used.
2. If more elements than the two shown in the "Plan" are required by the design details, there shall be three adjustment devices for each element for Armored Joint Unit Type A and the elements of both units shall be field welded together in the same manner as shown in the "Plan".
3. Armored Joints to be paid for as Structural Steel.

ARMORED JOINT
An armored joint consists of two armored joint units. See note 1.



TRIPLE STUDS **DOUBLE STUDS**

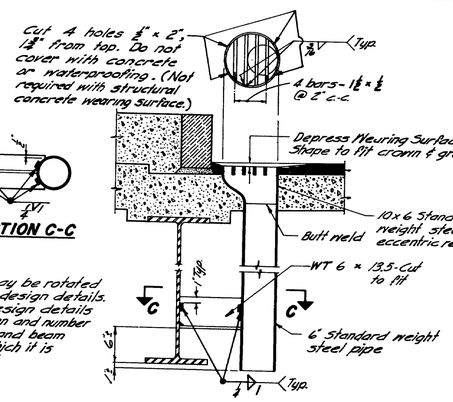


STUD DETAIL

NOTE

1. Studs shall be granular or solid flux filled and automatically end welded to top flange in the shop or field.
2. See the design details for Dimensions "A" & "B", stud pitch and skew angle for studs.

SHEAR CONNECTORS



DRAIN NO. 2

SECTION C-C

NOTE

1. Drain may be rotated 180°. See design details.
2. See design details for location and number of drains and beam size to which it is connected.

GENERAL NOTE
Use only those items called for on design details. In case of conflict between these Standard Details and the design details, the requirements of the design details shall be followed.
Drains to be incidental, see Section 502.20

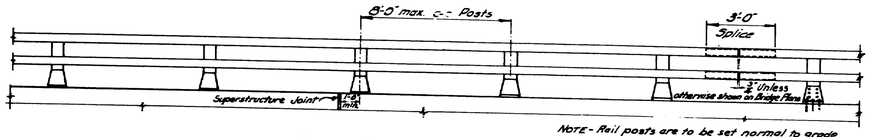
MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

STANDARD DETAILS
(BD 104-71)
DIAPHRAGMS, ARMORED JOINT, SHEAR CONNECTORS, DRAIN

DECEMBER 1971

153-107

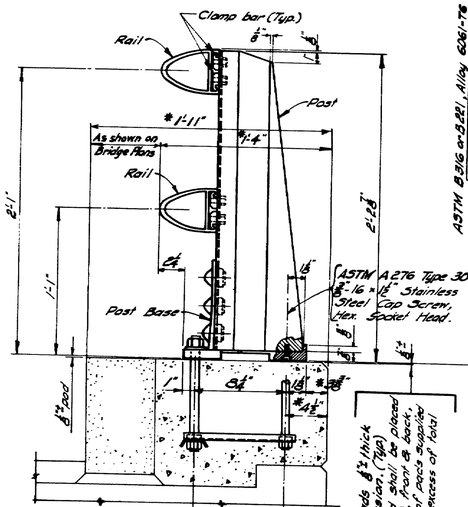
B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I 295-3(59)	14	34



NOTE - Rail posts are to be set normal to grade unless otherwise shown on Bridge Plans.

RAIL - ELEVATION

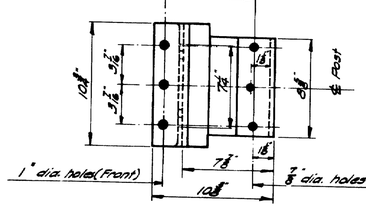
Lengths of rail shall be attached to a minimum of (4) four rail posts, wherever possible, and in any case never less than (2) two.



BRIDGE RAIL

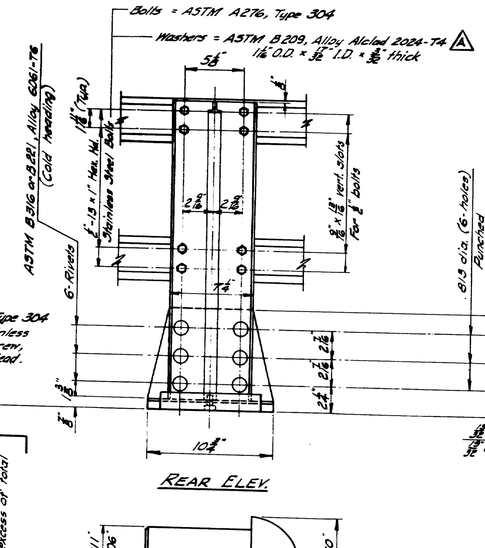
Assembly

* Preferable minimum dimensions.

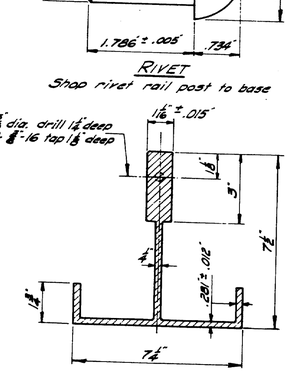


POST BASE

(Bottom View)



REAR ELEV.

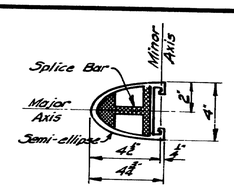


RIVET

Shop rivet rail post to base

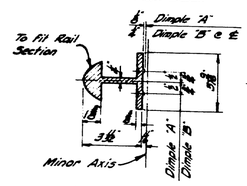
POST SECTION

Post & Post Base = ASTM B221, Alloy 6061-T6.

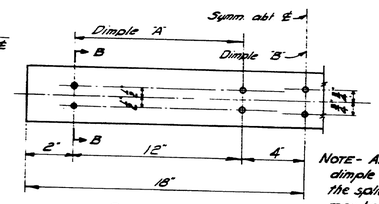


RAIL SECTION

See "Rail Detail"



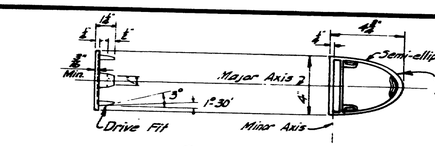
SECTION B-B



SPLICE BAR

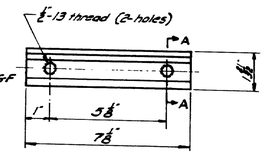
△A Rail, Splice Bar, & Clamp Bar = ASTM B221, Alloy 6351-T5 or 6061-T6.

NOTE - An alternate to the dimple system for holding the splice bar in position may be used if approved by the Engineer.

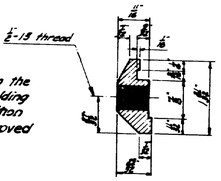


RAIL CAP

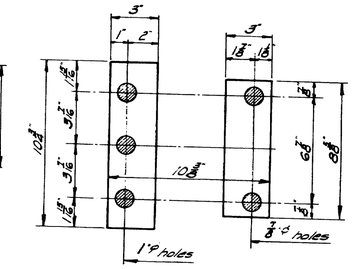
ASTM B26 or B108; Aluminum Assoc. Alloy 43-F or 356-F



CLAMP BAR

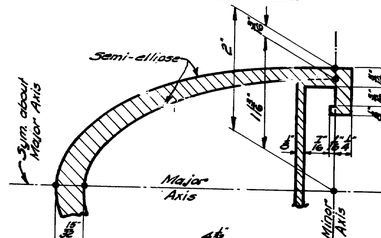


SECTION A-A

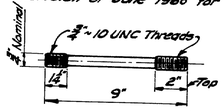


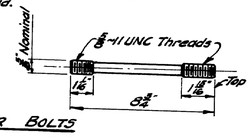
PREFORMED PADS

See Subsection 713.03 Standard Specifications Revision of June 1968 for pad.



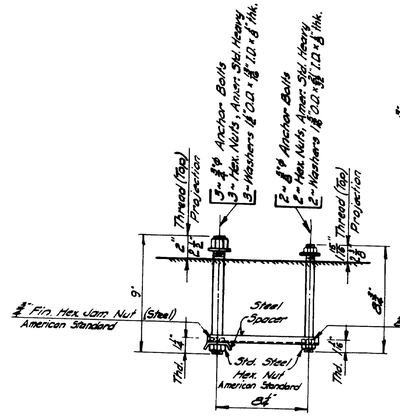
RAIL DETAIL





ANCHOR BOLTS

If cut threads are used bolt diameter shall be not less than nominal diameter.
If rolled threads are used bolt diameter shall be not less than root diameter of nominal diameter.

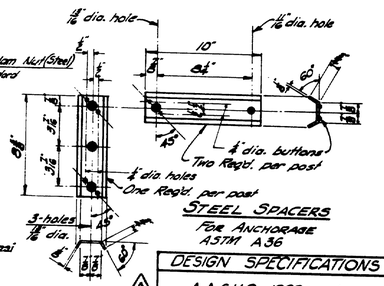


RAIL POST ANCHORAGE

Assembly

NOTE: Anchor Bolts, exposed Hex. Nuts (Amer. Std. Heavy) and washers shall conform to Designation "Stainless Steel Designation ASTM A 307.

* See Supplemental Specification.



STEEL SPACERS

For ANCHORAGE ASTM A 36

DESIGN SPECIFICATIONS

A.A.S.H.O. 1969 and Interim Specifications.

MARK	ALTERATIONS
	Changed ASTM B221, to include Alloy 6351-T5 for Rail, Splice & Clamp Bars.
△A 3-25-70	Changed ASTM Designations A276 & B209 A276 ~~Type 304 SS~~ (Post Anchorage) B209 - T4 to T4 (Washers) Changed AASHO Design Specifications from 1965 to 1969.

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

STANDARD DETAILS

(BD 106 - 69)

ALUMINUM RAILING

2 - BAR (SEMI-ELLIPSE) EXTRUDED POST

JANUARY 1969

153-108

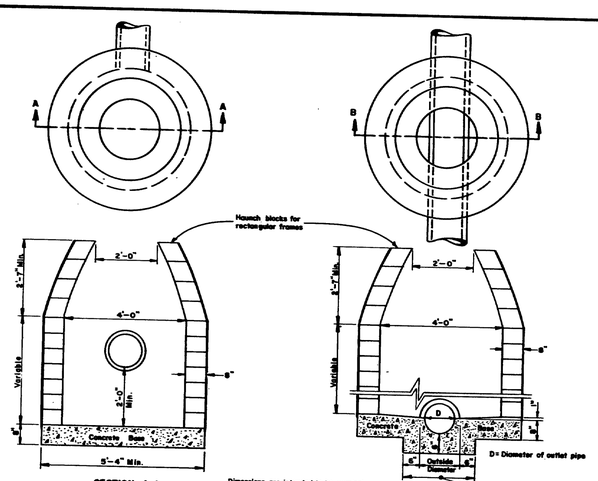
B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-295-3(87)48	75	84

GENERAL NOTES — ALL CATCH BASINS AND MANHOLES

1. Any Catch Basin in excess of 8' in depth shall, if directed be provided with steps similar to those detailed for Manholes.
2. Frames, Grates & Covers shall be considered as part of the structure, and no separate payment shall be made.

GENERAL NOTES — PRECAST CATCH BASINS AND MANHOLES

1. Drain holes in precast sumps to be not over 3" in diameter, and shall be plugged with mortar when constructed.
2. All precast sections of less than 8" wall thickness shall have tongue and groove joints.
3. Cone and Ring sections wall thickness min. 4", max. 6"
4. Minimum wall thickness of sump may be 4" as specified in A.S.T.M. C-478, however, if concrete blocks are used around the inlet and outlet pipes, the wall thickness of sump shall be 6".
5. Wall around inlet and outlet pipes may be built of 6" concrete blocks or a precast ring with an opening 2" larger than the outside diameter of the pipe may be used.
6. Lift Holes shall be provided.



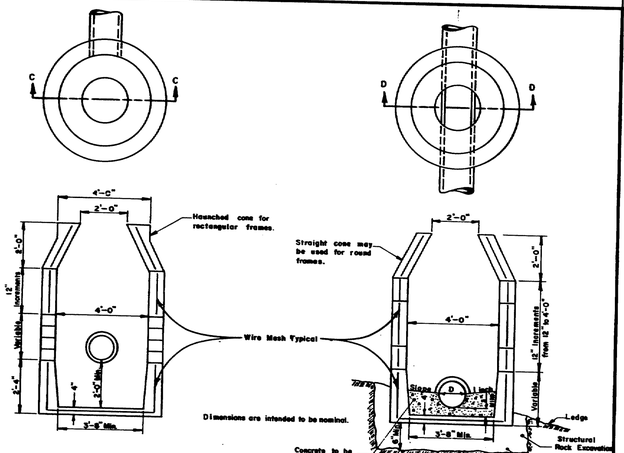
SECTION A-A
SHAPE "1"

Dimensions are intended to be nominal.

SECTION B-B
SHAPE "2"

CATCH BASINS (Concrete Blocks or Bricks)

A

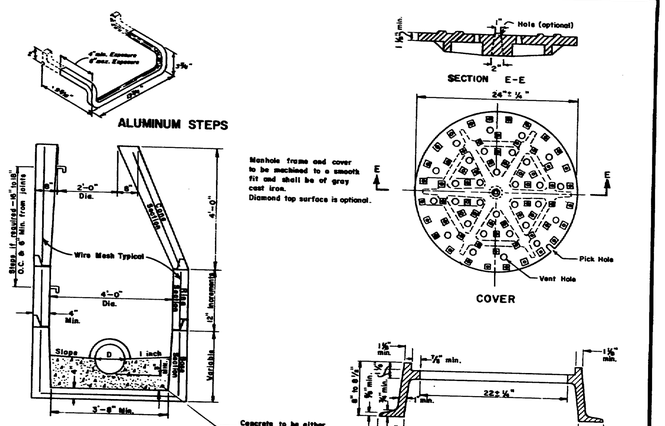


SECTION C-C
SHAPE "3"

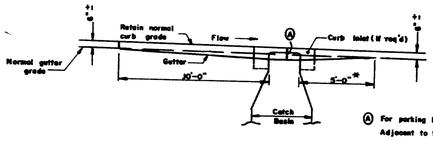
SECTION D-D
SHAPE "4"

CATCH BASINS (Precast Units)

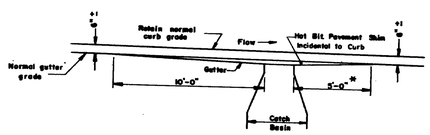
B



C



AT CURB INLETS



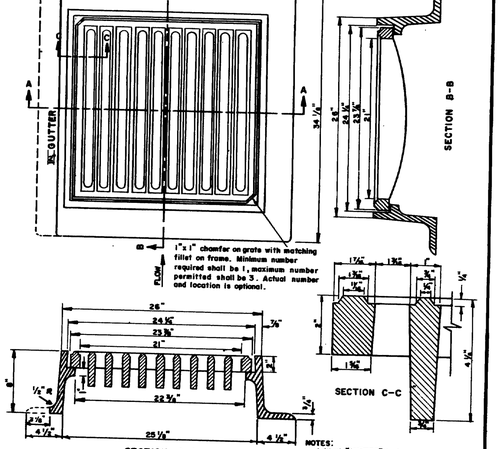
AT CURB WITHOUT INLET STONES

* If at bottom of sag, this dimension to be 10'-0"

NOTE:
All grates shall be installed on a level grade. The grates shall be depressed 3" below the normal gutter grade unless this depression interferes with traffic. Dimensions are intended to be nominal.

GUTTER GRADE TRANSITION AT CATCH BASIN

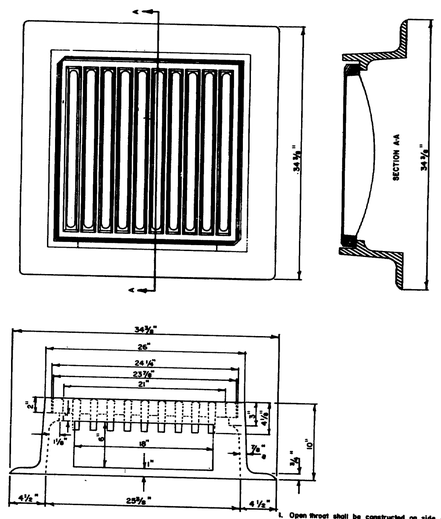
D



NOTES:
1. Word "GUTTER" to be moulded into back flange - Type "B" top only.
2. Type "A" grate to have 3 flanges
3. Type "B" grate to have 4 flanges.
4. Frame and grate to be of gray cast iron.
5. Dimensions are intended to be nominal.

TYPE "A" & "B" CATCH BASIN TOPS

E



1. Open throat shall be constructed on side away from the direction of traffic. All other sides shall be graded flush with the top of C.B. grate.
2. Frame shall be gray cast iron.
3. Grate shall be same as type "A" and "B".
4. Dimensions are intended to be nominal.
5. When volume of water warrants, 6" opening may be increased.

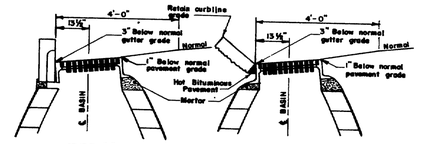
TYPE "C" CATCH BASIN TOPS

F

STRUCTURE	TOP				SHAPE				
CATCH BASIN	A	B	C	D	1	2	3	4	5
Type A-1	X				X		X		
Type A-2	X					X		X	
Type B-1		X			X		X		
Type B-2		X				X		X	
Type C-1			X		X		X		
Type C-2			X			X		X	
MANHOLE				X		X		X	X

TABLE OF CATCH BASIN TYPES
(COMBINATION OF TOPS AND SHAPES)

For Type "E" & Type "F" C.B. See Sheet No. 3



Dimension are intended to be nominal.

CATCH BASIN TOP INSTALLATION

G

REVISIONS	
CATCH BASINS TOPS A, B, C	10-21-69
PLATE 'E'	4-21-71

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

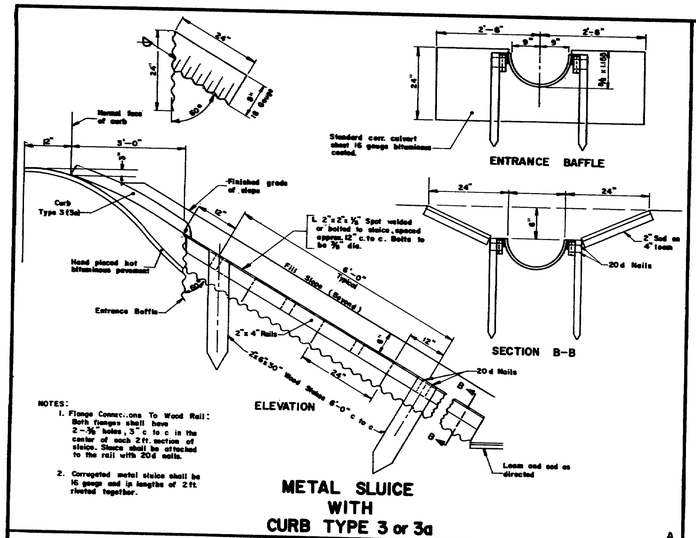
STANDARD DETAILS

CATCH BASINS
AND
MANHOLES

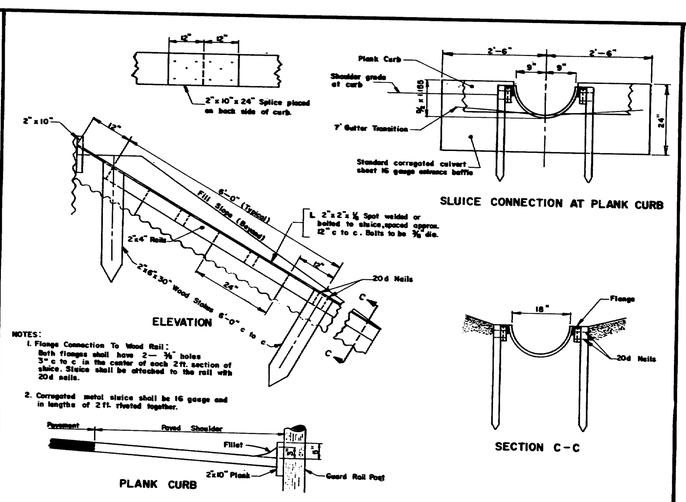
AUG. 1969 (1)

153-109

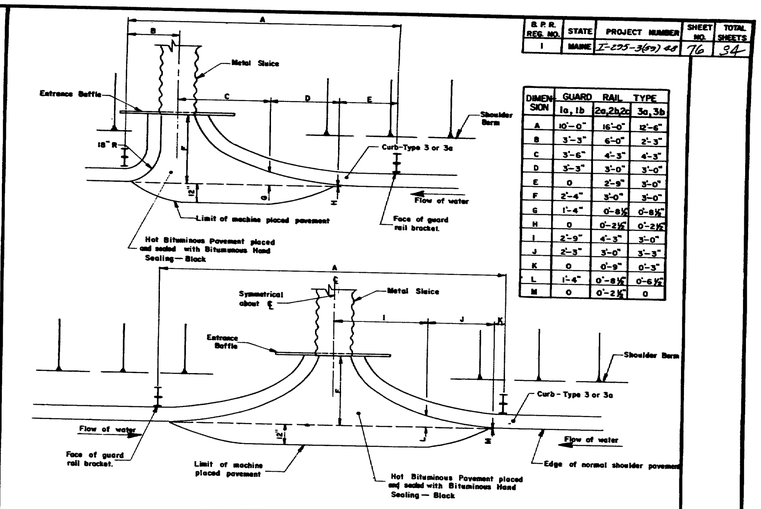
PORTLAND-I-295



A



B



DIMENSION	GUARD RAIL TYPE 1a, 1b	2a,2b,2c	3a,3b
A	10'-0"	16'-0"	12'-6"
B	3'-3"	6'-0"	2'-3"
C	3'-6"	4'-3"	4'-3"
D	3'-3"	3'-0"	3'-0"
E	0	2'-8"	3'-0"
F	2'-4"	3'-0"	3'-0"
G	1'-4"	0'-8½"	0'-8½"
H	0	0'-2½"	0'-2½"
I	2'-9"	4'-3"	3'-0"
J	2'-3"	3'-0"	3'-3"
K	0	0'-9"	0'-3"
L	1'-4"	0'-8½"	0'-6½"
M	0	0'-2½"	0

C

CIRCULAR

NOMINAL INSIDE DIAMETER	THICKNESS in INCHES CMP or BCCMP	CAP	CLASS and WALL RCP	CLASS ASBESTOS CEMENT PIPE
8 inch	.064	.060		
10 "	.064	.060		
12 "	.064	.060		
15 "	.064	.060		
18 "	.064	.060	Class III Wall A or B	
21 "	.064	.060		
24 "	.064	.060		
30 "	.079	.075		
36 "	.079	.075		CLASS III
42 "	.109	.105		
48 "	.109	.105		
54 "	.109	.105		
60	.138	.135		
66	.138	.135		
72	.168	.164		
84	.168	.164		

PIPE ARCH

NOMINAL SIZES	GAUGE BCCMPA-CMPA	THICKNESS (inches) CAPA
18" span x 11" rise	16	.060
22" " x 13" "	16	.060
25" " x 16" "	16	.060
29" " x 18" "	14	.075
36" " x 22" "	14	.075
43" " x 27" "	12	.105
50" " x 31" "	12	.105
58" " x 36" "	10	.135
65" " x 40" "	10	.135
72" " x 44" "	8	.164

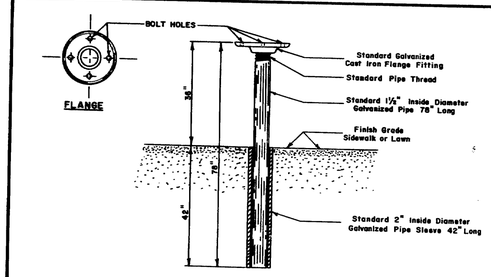
CMP = Corrugated Metal Pipe
BCCMP = Bituminous Coated Corrugated Metal Pipe
CAP = Corrugated Aluminum Pipe

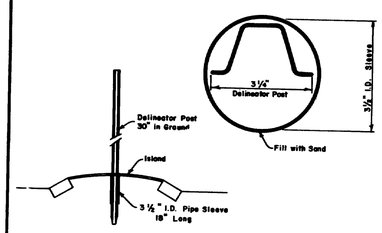
RCP = Reinforced Concrete Pipe

Above abbreviations followed by "A" indicate "Arch"
All RCPA shall be class III
Minimum thickness, class, and wall types for culvert pipe, unless otherwise designated.

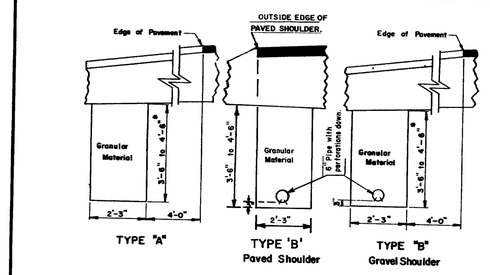
CULVERT PIPE DATA

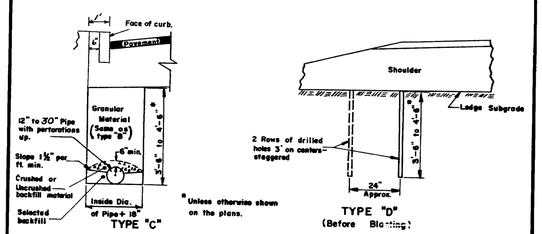
D



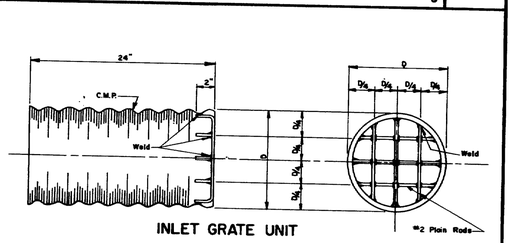


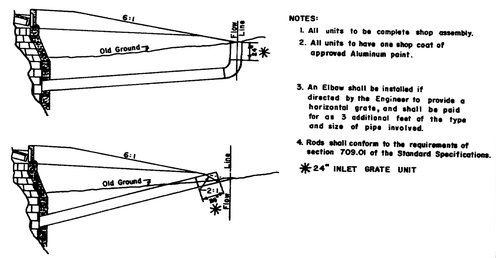
E





F





NOTES:
1. All units to be complete shop assembly.
2. All units to have one shop coat of approved Aluminum paint.
3. An Elbow shall be installed if directed by the Engineer to provide a horizontal grate, and shall be paid for as 3 additional feet of the type and size of pipe involved.
4. Rods shall conform to the requirements of section 709.01 of the Standard Specifications.

*24" INLET GRATE UNIT

G

REVISIONS	
PLATE 'F'	9-17-70
PLATE 'G'	8-15-71
PLATE 'D'	12-20-71

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

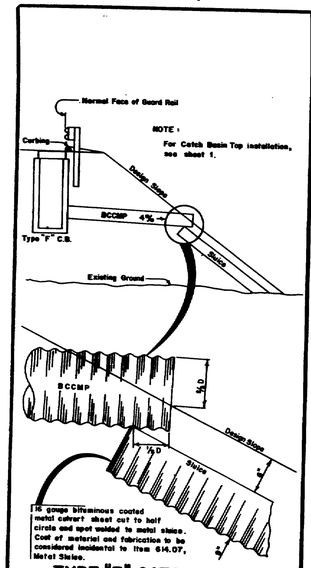
STANDARD DETAILS

METAL SLUICE — UNDERDRAIN — CULVERT PIPE DATA CULVERT INLET GRATE

AUG. 1969 (2)

B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-295-3(67) 48	76	94

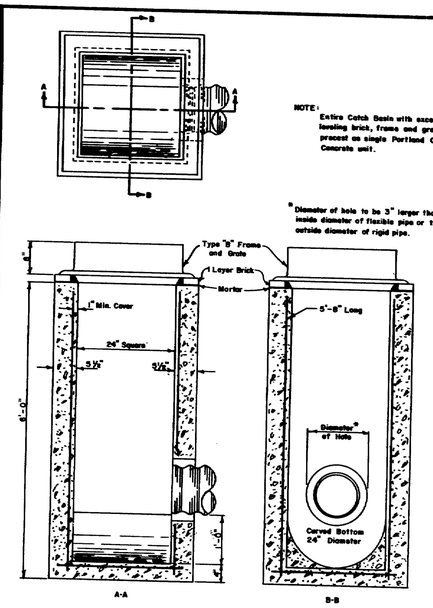
153-110 PORTLAND-I-295



TYPE "F" CATCH BASIN WITH OUTLET PIPE (SLUICE OPTIONAL)

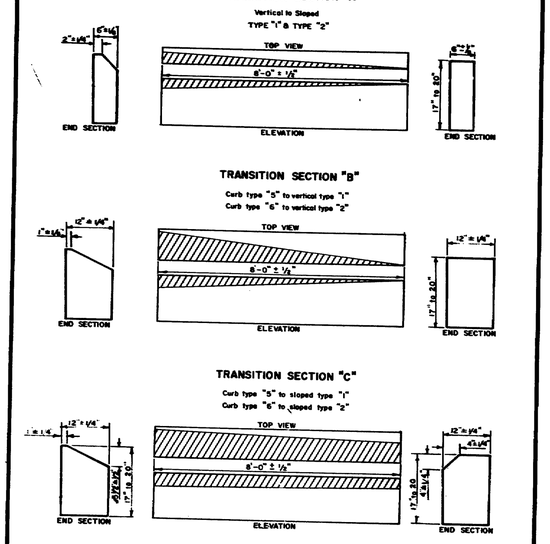
(SEE SHEET NO. 2 FOR STANDARD SLUICE DRAWING)

3-A



CATCH BASIN TYPE "F"

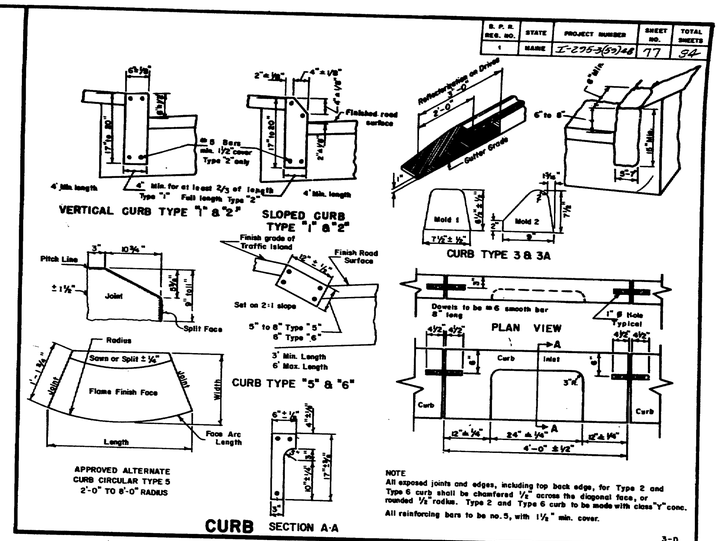
3-B



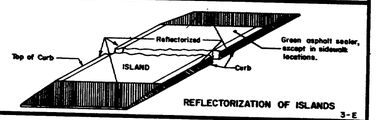
CURB TRANSITION

NOTE - TYPE 2 CURB
Precast concrete curb to be made with class "Y" concrete.
All reinf bars to be #5, 1½" min. cover.

3-C

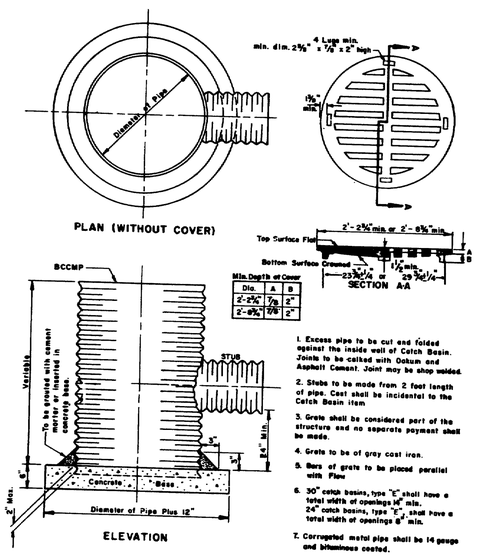


3-D



REFLECTORIZATION OF ISLANDS

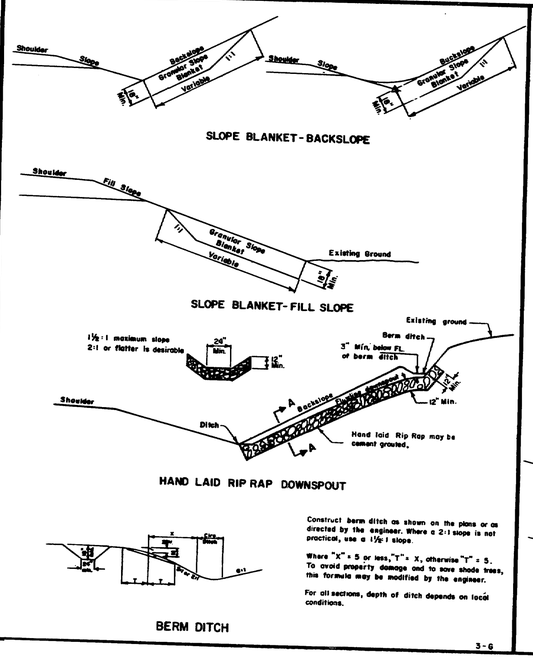
3-E



1. Excess pipe to be cut and folded against the inside wall of Catch Basin. Joints to be caulked with Oakum and Asphalt Cement. Joint may be shop welded.
2. Stubs to be made from 2 foot length of pipe. Cost shall be incidental to the Catch Basin item.
3. Grate shall be considered part of the structure and no separate payment shall be made.
4. Grate to be of gray cast iron.
5. Bars of grate to be placed parallel with Flow.
6. 30" catch basins, type "E" shall have a total width of openings 16" min. 24" catch basins, type "E", shall have a total width of openings 8" min.
7. Corrugated metal pipe shall be 14 gauge and bituminous coated.

CATCH BASIN TYPE "E"

3-F

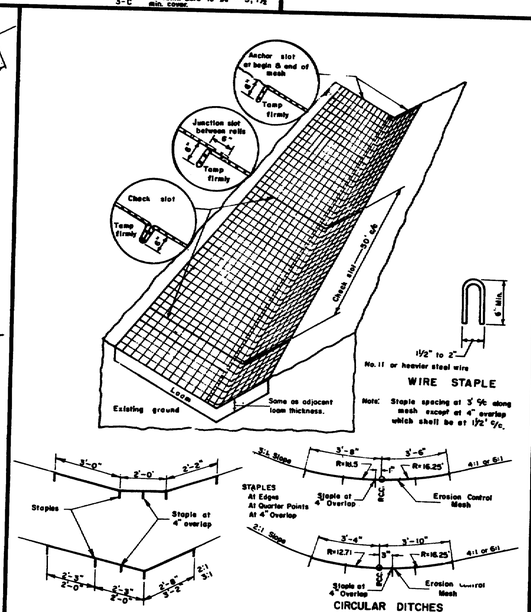


Construct berm ditch as shown on the plans or as directed by the engineer. Where a 2:1 slope is not practical, use a 1½:1 slope.

Where "X" = 5 or less, "Y" = X, otherwise "Y" = 5. To avoid property damage and to save shade trees, the formula may be modified by the engineer.

For all sections, depth of ditch depends on local conditions.

3-G



EROSION CONTROL MESH

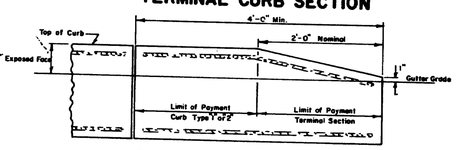
CIRCULAR DITCHES

3-H

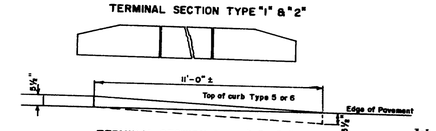
CURB TYPES (1&2),(5&6) ON CURVES			
RADIUS OF CURVE	LENGTH	PAID FOR AS	STONE IS CUT OR CAST
0' To 60' Incl.	4' Min.	Circular	Arc To Fit Curve
Over 60' To 160'	4' To 6'	Straight	Straight Pieces
0' To 8' Incl.	2' Min.	Circular	To Fit Curve
Over 8' To 30' Incl.	12' Min. Chord	Circular	Straight Pieces, Radial Ends
Over 30' And Under 160'	2' To 3'	Straight	Straight Pieces
160' And Over	3' To 6'	Straight	Straight Pieces

3-J

TERMINAL CURB SECTION



TERMINAL SECTION TYPE "1" & "2"



TERMINAL SECTION TYPE "5" & "6" (Use when shown on plans only)

3-I

REVISIONS	
Plate 3-G	12-23-69
Plate 3-F	5-27-70
Plate 3J	7-15-70
PLATE 3G	3-4-71

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

STANDARD DETAILS

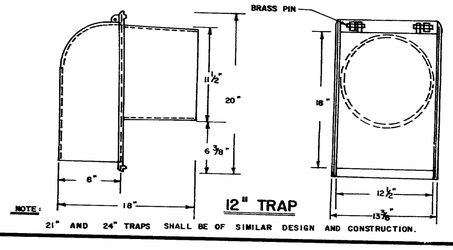
CURB, DITCHES AND SLOPES, AND CATCH BASINS TYPE "E"

AUG. 1969

3

153-111

PORTLAND - I-295



NOTE:
21" AND 24" TRAPS SHALL BE OF SIMILAR DESIGN AND CONSTRUCTION.

12" TRAP

4-A

NOTES:

1. Creosote ties through crossing.
2. Rail joints in crossing to be welded
3. Stone Ballast to extend along track beyond each side of the crossing approximately 40'-0". By Railroad.
4. Work to be done by Railroad
   A. Placement of Ballast.
   B. Placement of Ties and Rails.
   C. Placement of 1" max. Gravel over Ties.

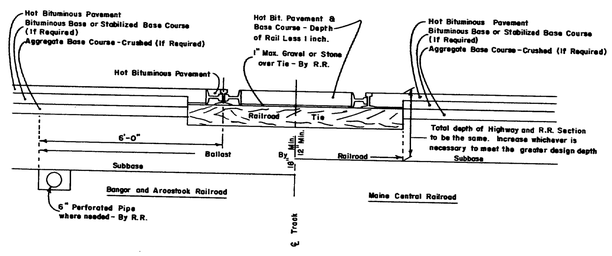


TABLE A

RIVETED PIPES		
SIZE	NO. HOOK BOLTS REQUIRED	"X" DIMENSION
60"	4	1.5
66"	4	1.5
72"	4	1.5
78"	5	1.5
84"	5	1.5

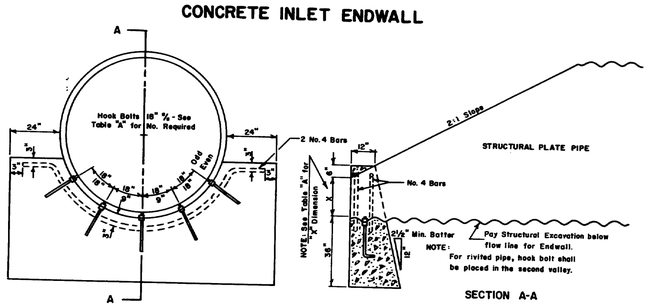
STRUCTURAL PLATE PIPE		
SIZE	NO. HOOK BOLTS REQUIRED	"X" DIMENSION
72"	4	1.5'
78"	5	1.625'
84"	5	1.75'
90"	5	1.875'
96"	6	2.0'
102"	6	2.125'
108"	6	2.25'
114"	7	2.375'
120"	7	2.5'
126"	7	2.625'
132"	8	2.75'
138"	8	2.875'
144"	9	3.0'
150"	9	3.125'
156"	9	3.25'
162"	10	3.375
168"	10	3.5'
174"	10	3.625'
180"	11	3.75'

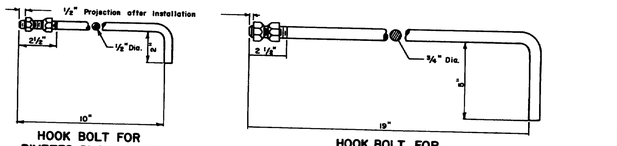
NOTES

1. Culverts installed under 2:1 slopes shall have riprap laid on 2:1 slope and no ditch transitions.
2. Excavation required to grade culvert inlets and outlets as shown will not be paid separately, but will be incidental to the culvert.
3. Hook bolts are required in metal pipes only and will be incidental to concrete item.
4. Concrete endwall shall be structural concrete class "A" and shall be paid for as item 502.32 structural concrete culvert endwalls.
5. All riprap as shown shall be hand laid.

4-B

CONCRETE INLET ENDWALL



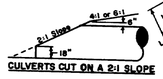


4-C

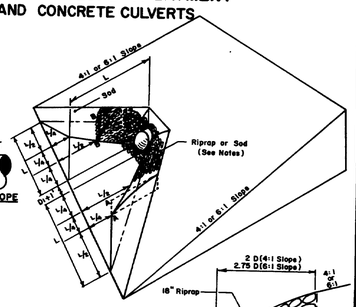
ROADWAY CULVERT END SLOPE TREATMENT FOR METAL AND CONCRETE CULVERTS

TABLE B

Culvert Diameter	L 4:1 Slope	L 6:1 Slope
18"	9'-0"	13'-0"
21"	10'-0"	15'-0"
24"	11'-0"	16'-6"
30"	13'-0"	20'-0"
36"	15'-6"	23'-0"
42"	17'-6"	26'-0"
48"	19'-6"	29'-6"
54"	22'-0"	32'-6"
60"	24'-0"	36'-0"
66"	26'-0"	39'-6"
72"	28'-6"	42'-6"
84"	32'-6"	49'-0"



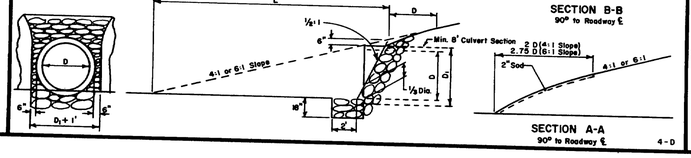
CULVERTS CUT ON A 2:1 SLOPE



SECTION B-B
90° to Roadway ℄

NOTES:

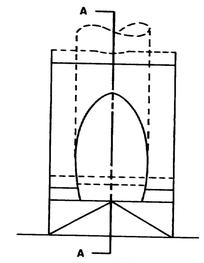
1. The dimensions shown are approximate and may be modified by the resident engineer.
2. Culverts installed under 2:1 slopes shall have riprap laid on 2:1 slope around the inlet and outlet; and no ditch transitions.
3. Riprap will be required on the portions of the culvert end treatment 1:1 and steeper. The remaining portion shall be sodded or loamed, seeded and hay mulched as directed by the engineer.
4. 24" diameter culverts and under may be sodded around ends of culvert.



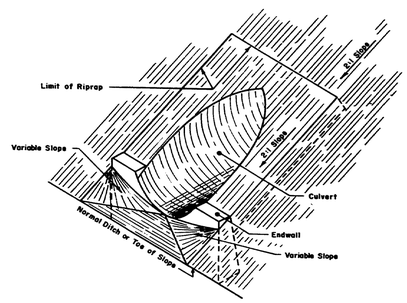
SECTION A-A
90° to Roadway ℄

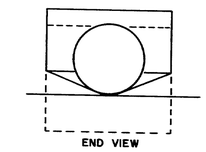
4-D

CONCRETE INLET ENDWALLS FOR RIVETED AND STRUCTURAL PLATE PIPES 60" TO 180" IN 2:1 SLOPES

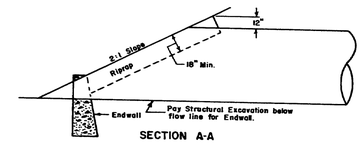


PLAN VIEW





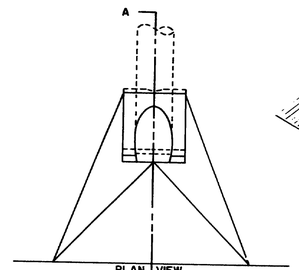
END VIEW



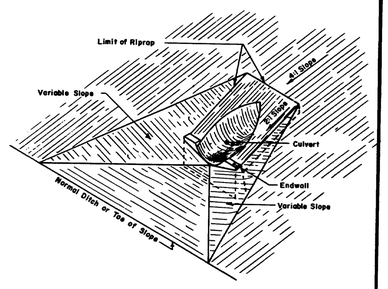
SECTION A-A

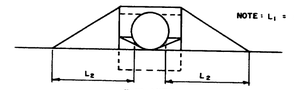
4-E

CONCRETE INLET ENDWALLS FOR RIVETED AND STRUCTURAL PLATE PIPES 60" TO 180" IN 4:1 SLOPES

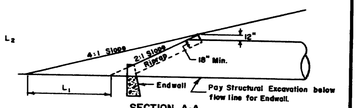


PLAN VIEW





END VIEW



SECTION A-A

4-F

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-295-3(67)48	78	84

REVISIONS	
Plate 4-D	12-23-69

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

STANDARD DETAILS

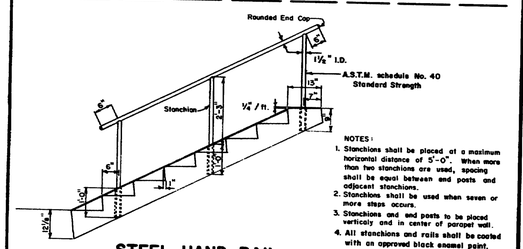
CULVERT INLETS & OUTLETS AND TRAPS

AUG. 1969

4

153-112 PORTLAND-I-295

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-295-5(69)48	79	84



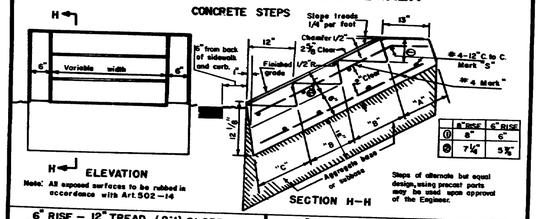
STEEL HAND RAIL

NOTES:
1. Stanchions shall be placed at a maximum horizontal distance of 5'-0". When more than two stanchions are used, spacing shall be equal between end posts and adjacent stanchions.
2. Stanchions shall be used when seven or more steps occurs.
3. Stanchions and end posts to be placed vertically and in center of parapet wall.
4. All stanchions and rails shall be coated with an approved black enamel paint.

5-A

CONCRETE STEPS & SIDEWALK

CONCRETE STEPS



	"A" RISE	"B" RISE
①	8"	6"
②	7 1/16"	5⅞"

Note: All exposed surfaces to be rubbed in accordance with Art. 502-14

Slope of alternate but equal design, using precast parts may be used upon approval of the Engineer.

6" RISE – 12" TREAD (2:1) SLOPE

8" RISE – 12" TREAD (1½:1) SLOPE

REINFORCING STEEL

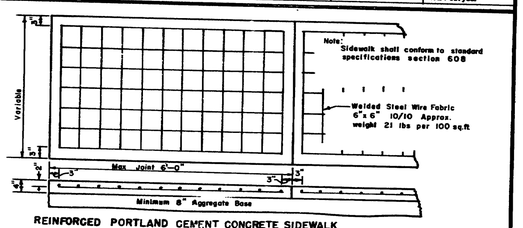
Mark	Size	Number	Length (Each)
R	Φ 4 .668 lbs. per ft.	2 Each parapet 1 Each ft. of width	11' For "A" +13.4 For each "B" +12" For "C"
S	Φ 4 .668 lbs. per ft.	2 For "A" 2 For each "B" 2 For "C"	4 Each parapet + 12" per ft. of width

Mark	Size	Number	Length (Each)
R	Φ 4 .668 lbs. per ft.	2 Each parapet 1 Each ft. of width	11' For "A" +16½" For each "B" +12" For "C"
S	Φ 4 .668 lbs. per ft.	2 For "A" 2 For each "B" 2 For "C"	4 Each parapet + 12" per ft. of width

CONCRETE CLASS A

Section	Steps per ft. of width	Parapet each wall
"A" Header	.030 cu. yds.	.015 cu. yds.
"B" Each intec step	.030 cu. yds.	.020 cu. yds.
"C" Footer	.030 cu. yds.	.020 cu. yds.

Section	Steps per ft of width	Parapet each wall
"A" Header	.035 cu. yds.	.018 cu. yds.
"B" Each intec step	.035 cu. yds.	.024 cu. yds.
"C" Footer	.035 cu. yds.	.024 cu. yds.



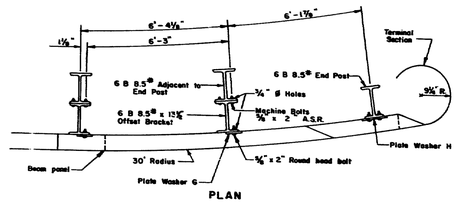
Note: Sidewalk shall conform to standard specifications section 608

Welded Steel Wire Fabric 6" x 6" 10/10 Approx. weight 21 lbs per 100 sq ft

REINFORCED PORTLAND CEMENT CONCRETE SIDEWALK

5-B

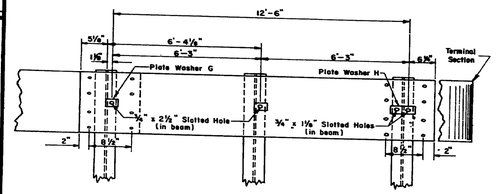
END BEAM ASSEMBLY - SPACING OF POSTS GUARD RAIL TYPE 3a and 3b



PLAN

To be used in all locations except on the end away from traffic on 4 lane divided.

NOTE: Offset Bracket shall be installed on all posts, except end post.

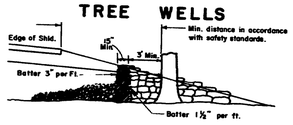


ELEVATION

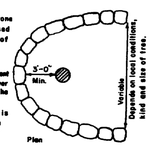
5-C

5-D

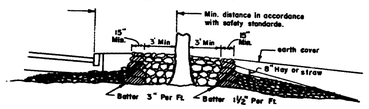
TREE WELLS

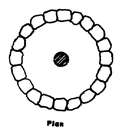


NOTES:
1. Selected ledge excavation, crushed stone or other porous material shall be used to fill around the old ground area of the tree from the tree wall to the perimeter of the branches.
2. An 8" layer of hay or straw to prevent infiltration of fines shall be placed over the rock fill except in areas under the roadway and shoulders.
3. If drainage away from the tree well is necessary, underdrain outlet pipe shall be used, and will be paid for under item 605.10.



Plan

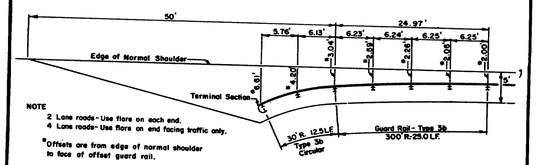




Plan

To be paid for under item
610.09 Hand laid riprap.
605.10 6" Underdrain Outlet

5-E



NOTE
2 Lane roads - Use flare on each end.
4 Lane roads - Use flare on end facing traffic only.

*Offsets are from edge of normal shoulder to face of offset guard rail.

GUARD RAIL END TRANSITION

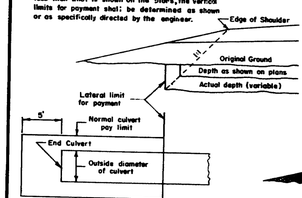
5-F

5-G

MUCK EXCAVATION

PAYMENT LIMITS

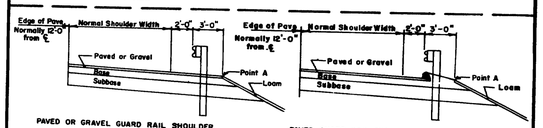
NOTE:
When muck is excavated to a depth greater or less than what is shown on the plans, the vertical limits for payment shall be determined as shown or as specifically directed by the engineer.



CULVERT EXCAVATION LIMITS IN MUCK AREAS
PLAN VIEW

When directed by the engineer, waste material shall be used in this area. No additional payment will be made for this work

DISPOSAL OF WASTE MATERIALS



PAVED OR GRAVEL GUARD RAIL SHOULDER

PAVED GUARD RAIL SHOULDER WITH CURB

Point A = Normal Slope Break

LOCATION OF GUARD RAIL

5-H

REVISIONS	
Plate 5-A	12-24-69
PLATE 5B	1-27-71
PLATE 5H	5-12-71
PLATE 5B	1-19-72

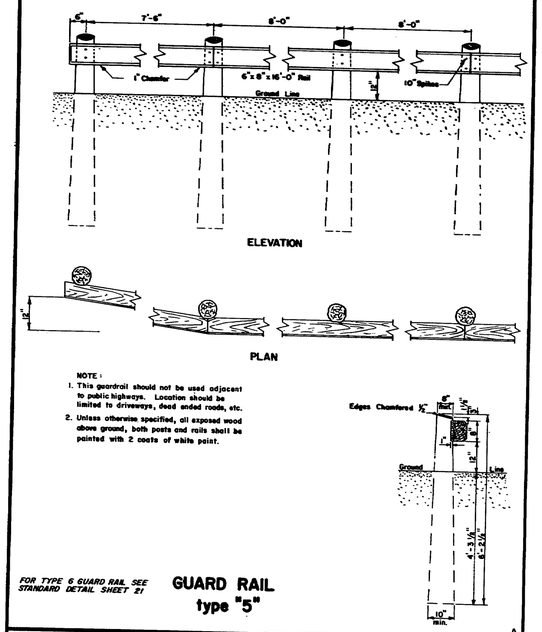
MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

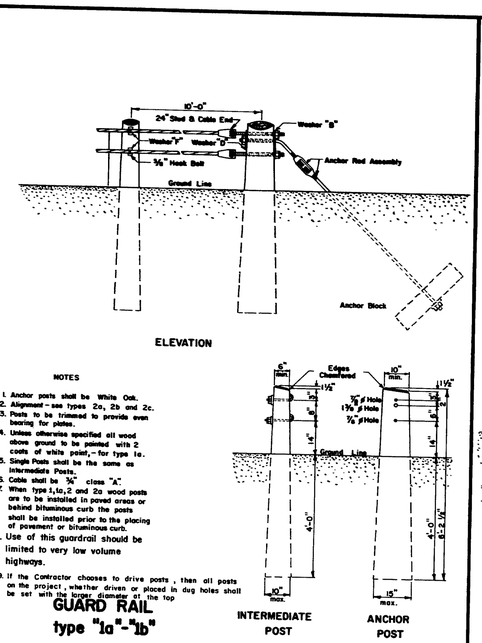
STANDARD DETAILS

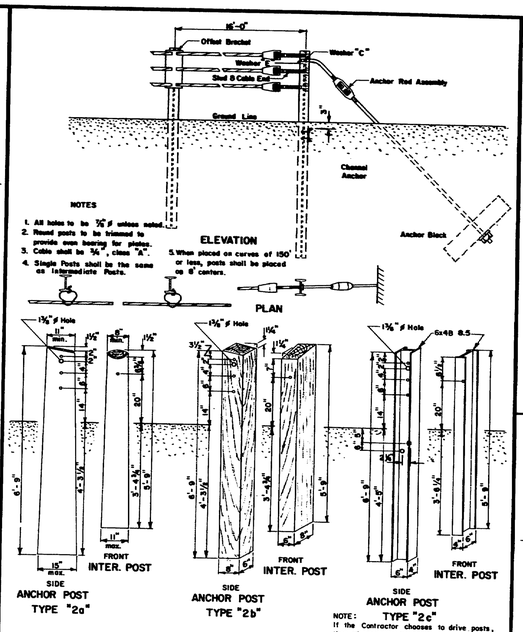
GUARD RAIL, MUCK EXCAVATION
CONCRETE STEPS & SIDEWALK
GUYING TREES
TREE WELLS

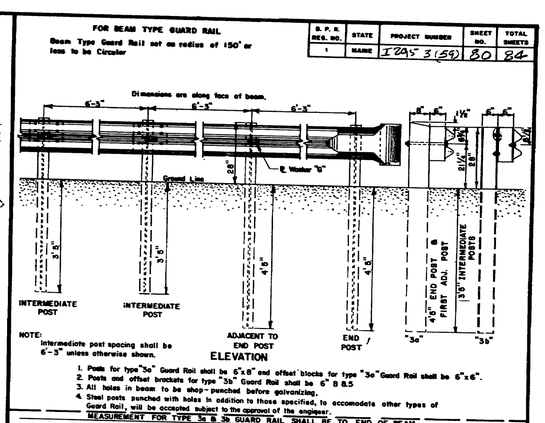
AUG. 1969 (5)

153-713 PORTLAND-I-295 ORIG.

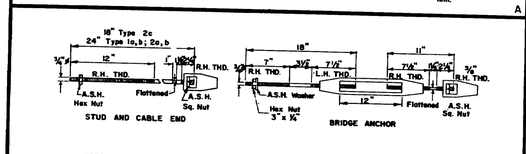


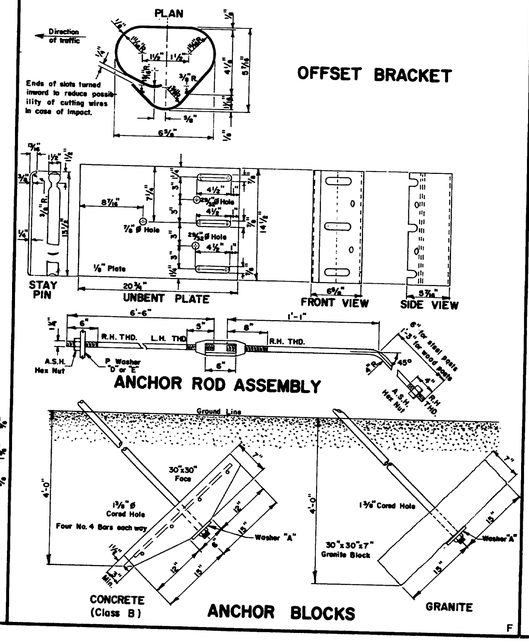


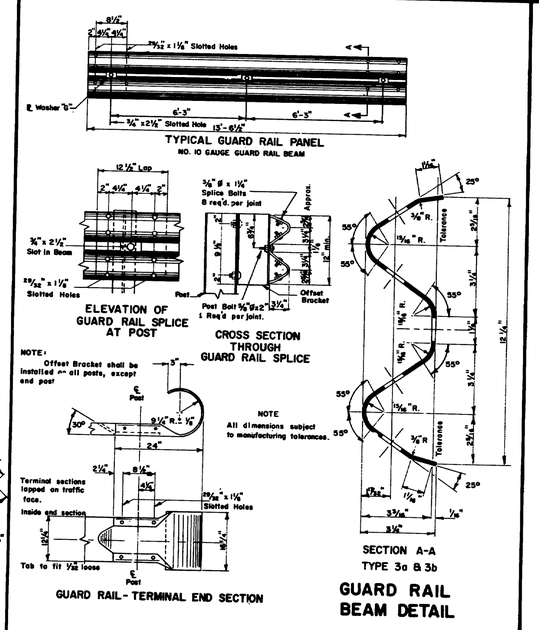


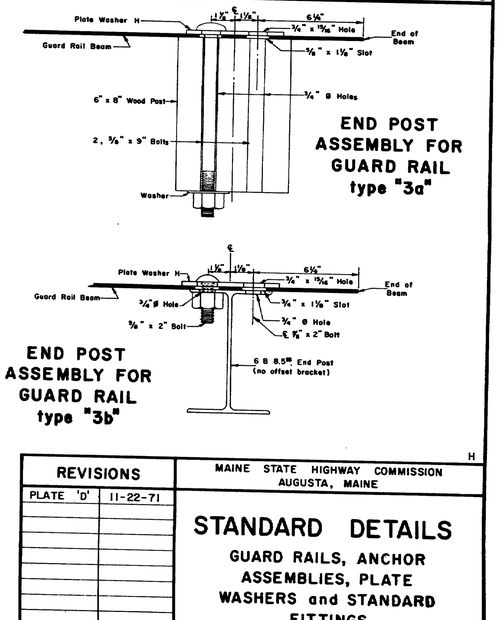


B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I 295-3(59)	80	84









REVISIONS	
PLATE 'D'	11-22-71

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

STANDARD DETAILS

GUARD RAILS, ANCHOR ASSEMBLIES, PLATE WASHERS and STANDARD FITTINGS

AUG. 1969 (6)

153-114

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
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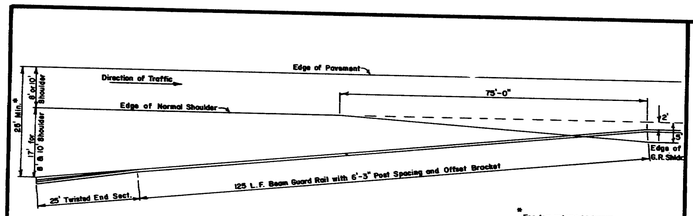
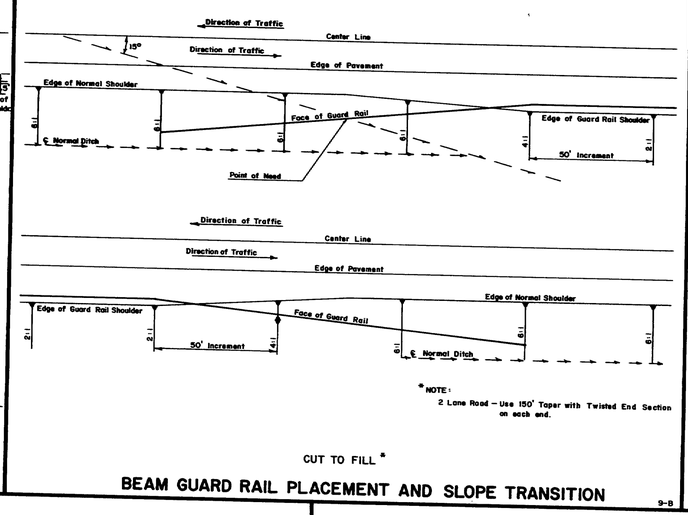


TWISTED END SECTION

* For low volume highways flare will not be required.

BEAM GUARD RAIL END TREATMENT

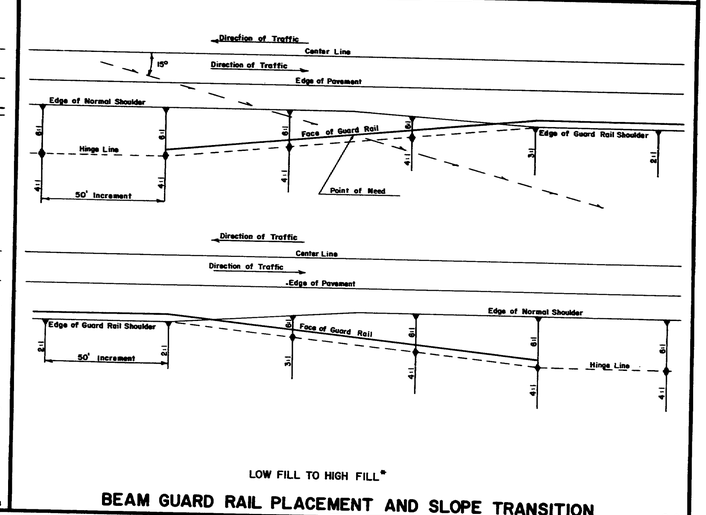
9-A



CUT TO FILL *

BEAM GUARD RAIL PLACEMENT AND SLOPE TRANSITION

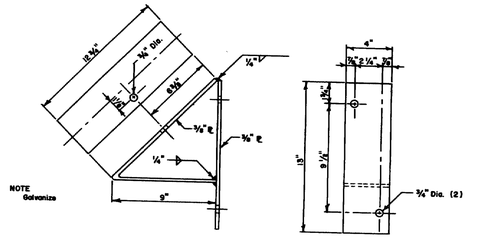
9-B



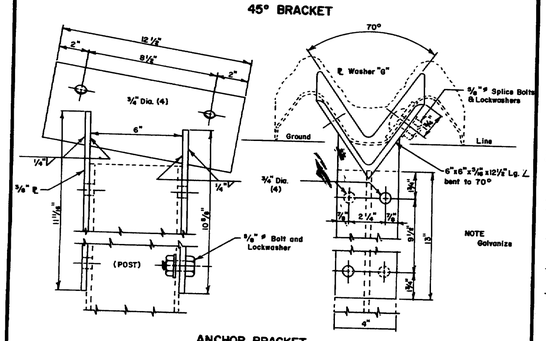
LOW FILL TO HIGH FILL*

BEAM GUARD RAIL PLACEMENT AND SLOPE TRANSITION

9-C



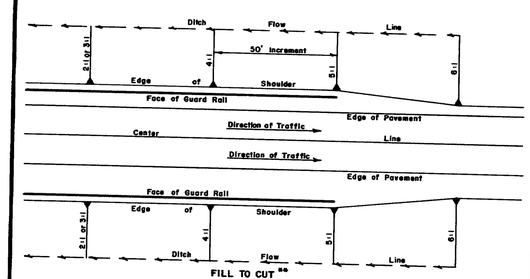
45° BRACKET



ANCHOR BRACKET

TWISTED END SECTION ANCHOR DETAIL

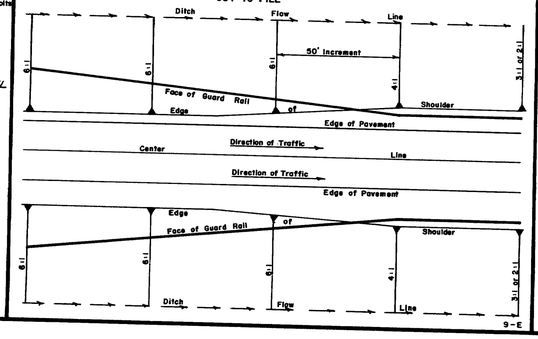
9-D



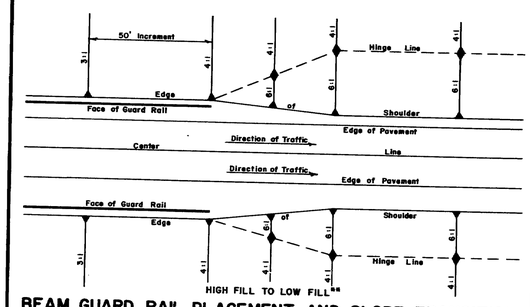
FILL TO CUT **

BEAM GUARD RAIL PLACEMENT AND SLOPE TRANSITION

CUT TO FILL **



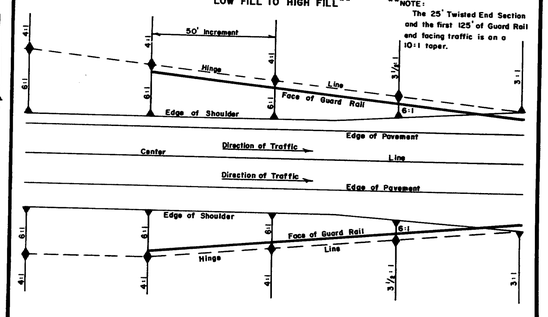
9-E



HIGH FILL TO LOW FILL **

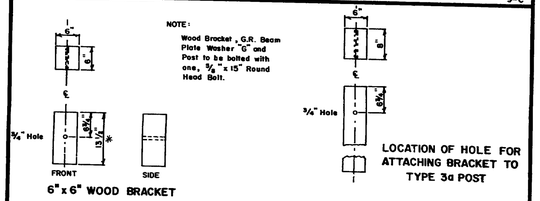
BEAM GUARD RAIL PLACEMENT AND SLOPE TRANSITION

LOW FILL TO HIGH FILL **



**NOTE:
The 25' Twisted End Section and the first 125' of Guard Rail and facing traffic is on a 10:1 taper.

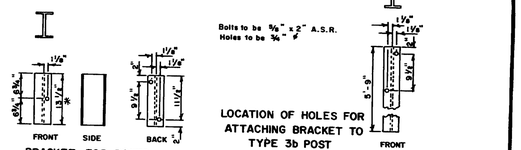
9-F



6" x 6" WOOD BRACKET

LOCATION OF HOLE FOR ATTACHING BRACKET TO TYPE 3a POST

OFFSET BRACKET FOR TYPE 3a GUARD RAIL POST



BRACKET FOR POSTS
W 6 x 8.5
* 14" Brackets Acceptable

LOCATION OF HOLES FOR ATTACHING BRACKET TO TYPE 3b POST

OFFSET BRACKET FOR TYPE 3b GUARD RAIL POST

9-G

REVISIONS	
Added Plates 9E & 9F	NOV. 1969
PLATE 9G	12-20-71
PLATE 9G	1-19-72

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

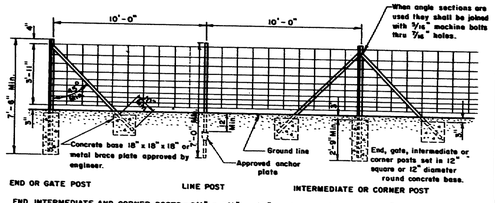
STANDARD DETAILS

BEAM GUARD RAIL END TREATMENT

AUG. 1969 (9)

153-115 PORTLAND-I-295 OR.G

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-295-3(59)48	82	84



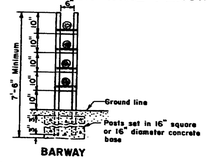
END, INTERMEDIATE AND CORNER POSTS - 2½" x 2½" x ¼" angle or nominal diameter 2" galvanized steel pipe minimum weight of 3.65 pounds per foot with approved top cap, length 7'-6"

GATE POSTS - 3½" x 3½" x 5/16" rolled angle section, or nominal diameter 2½" galvanized steel pipe with minimum weight of 5.79 pounds per foot. Pipe shall be filled with concrete and have an approved top cap, length 7'-6"

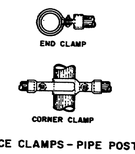
BRACES - 1¾" x 1¾" x ¼" rolled angle section, or nominal diameter 1¼" galvanized steel pipe with minimum weight of 2.27 pounds per foot.

LINE POSTS - Standard studded "T" post with minimum weight of 1.33 pounds per foot or standard lug "U" post with minimum weight of 1.12 pounds per foot, length 7'-0"

WOVEN WIRE FENCING - METAL POSTS



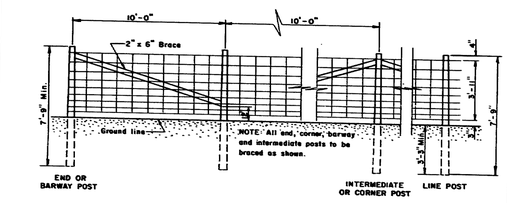
BARWAY



BRACE CLAMPS - PIPE POSTS

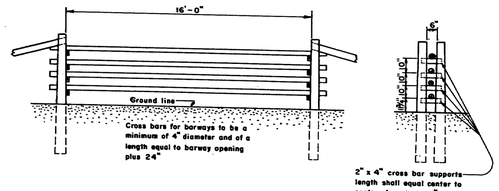
BARWAYS - Metal posts shall be installed for a 16'-0" opening. Barway posts and braces shall conform to requirements of "Gate Posts" and "Braces" under "Woven Wire Fencing - Metal Posts." Cross bar supports for barways shall be 1¾" x 1¾" x ¼" rolled angle section. When round gate posts are used, length of cross bar supports shall equal center to center of posts plus 2 inches and they shall be attached to the barway post with 7/16" x 4½" machine bolts. When angle section gate posts are used, the length of cross bar supports shall be equal to the out to out dimensions of the angle sections and shall be attached with 7/16" x 1" machine bolts. All bracing shall conform to the requirements of "Woven Wire Fencing - Metal Posts." Cross bars shall be as required for "Barways - Wood Posts."

BARWAYS - METAL POSTS

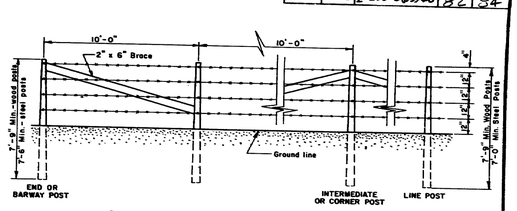


WOVEN WIRE FENCING - WOOD POSTS

Staples for wood posts to be 9 ga. 1½", placed according to the specifications.

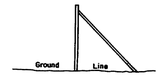


BARWAYS - WOOD POSTS



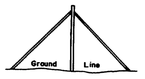
"Barbed Wire - Metal Posts" shall be constructed with the post and wire spacing shown above. Metal posts and braces shall conform to all the requirements noted and shown for "Woven Wire Fencing - Metal Posts," including concrete bases.

BARBED WIRE FENCING - WOOD POSTS AND BARBED WIRE FENCING - METAL POSTS



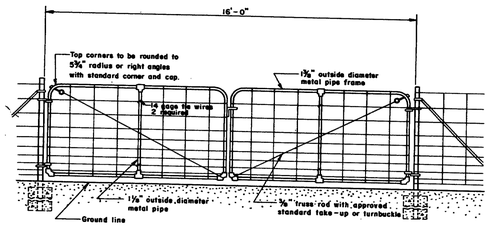
BRACING - TYPE I

Used at Gates, Barways and Terminals.



BRACING - TYPE II

Used at Corners, Intermediate Points, and changes in Vertical Alignment



Gate posts, braces and anchorages to be as specified under "woven wire fencing - metal posts."

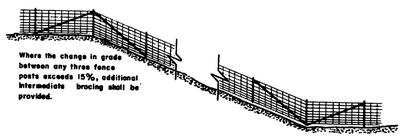
All gates shall be installed with the top hinge pin pointing down.

Wire for gates shall conform to A.S.T.M. A116, class 1, design no. 1047-12-11.

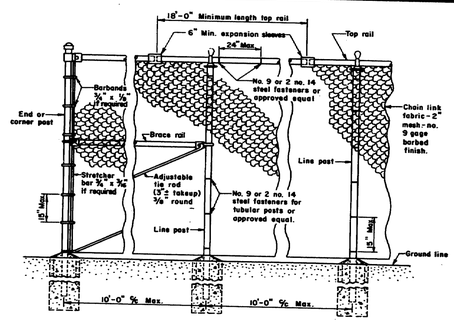
The required fittings for fence and gates shall be steel or malleable iron of approved standard type.

Gates shall be furnished with standard fork latch and one piece of 3/16" straight link, alloy steel chain, 24" long. One end shall be attached to gate frame and attached to the other end shall be a snap lock or other approved fastening device.

DRIVE GATEWAYS - 16 FEET



INTERMEDIATE BRACING

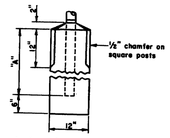


END OR CORNER POSTS: Nominal 2" diameter, galvanized steel pipe, minimum 3.65 pounds per linear foot or 2⅛" x 2" "H" section, 4.10 lbs./l.f., or 3½" x 3½" "L" section with with integral fabric loops 5.14 lbs./l.f.

LINE POSTS: Nominal 1⅞" diameter, galvanized steel pipe, minimum weight 2.72 pounds per linear foot or 1⅞" x 1⅝" steel "H" section 2.70 lbs./l.f.

TOP & BRACE RAILS: Nominal 1¼" diameter, galvanized steel pipe, minimum weight 2.27 lbs/l.f. or 1⅞" x 1⅛" ⌀ shaped, rolled formed section.

STRETCHER BARS: Length to be 1" less than full height of frabic. One stretcher bar for each gate end and post, and two stretcher bars for corner and bracing.

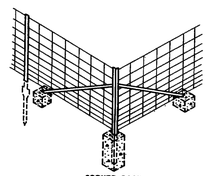


"A" = 2'-6" for 4' fence; 3'-0" for 6' fence and 5'-0" for all end and gate posts.

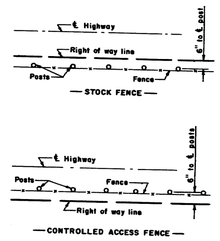
NOTE: Round bases may be substituted for the square bases shown by using fibre tubular forms.

LINE, GATE AND END POST BASE

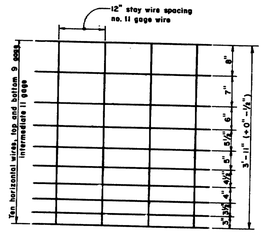
CHAIN LINK FENCE



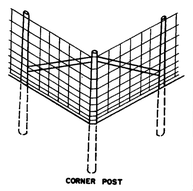
BRACING ASSEMBLY for METAL POST



FENCE LOCATION WITH RESPECT TO RIGHT OF WAY LINE



WOVEN WIRE FENCE



BRACING ASSEMBLY for WOOD POST

GENERAL NOTES: FENCING

1. When ledge is encountered, steel posts shall be set and grouted 12" deep unless the posts penetrate the ground to the depth indicated on the drawings.
2. When wood posts are used, braces shall be attached to posts with a minimum of 4, 40 penny nails per attachment.
3. When the word *"standard"* is used, it shall be interpreted as if it were followed by the expression *"to the fence industry."*
4. Woven Wire and Barbed Wire Fencing shall be attached to wood posts with 9 gauge 1½" galvanized staples.
5. Concrete for post foundations shall be class B.

SPACING OF FENCE POSTS ON CURVES:

Radius of curve at fence location	Normal post spacing
Over 500 feet	10 feet
Over 200 feet to 500 feet	8 feet
Over 100 feet to 200 feet	6 feet
100 feet or less	5 feet

REVISIONS	
PLATE F	8-10-70

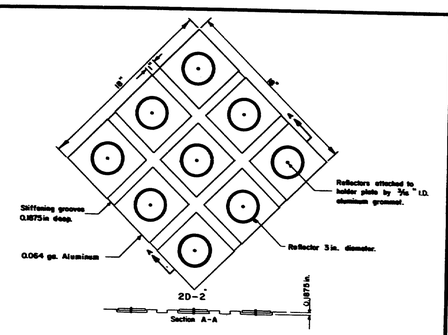
MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

STANDARD DETAILS

FENCING

AUG. 1969 (10)

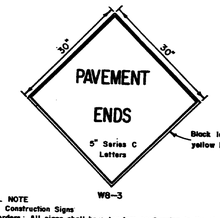
153-116 PORTLAND-I-295



HAZARD MARKER

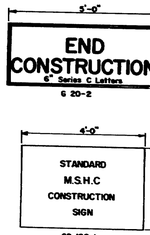
NOTE

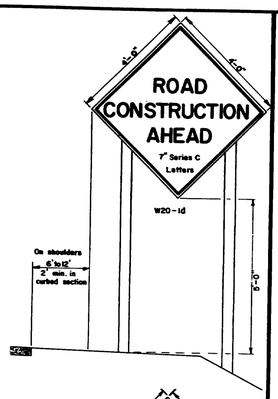
SIGNING IN AN AREA WHERE BLASTING IS NECESSARY SHALL BE PLACED AS OUTLINED IN THE "MANUAL", AND THE PRECAUTIONS OF SUBSECTION 107.12 OF THE STANDARD SPECIFICATIONS SHALL BE OBSERVED.



GENERAL NOTE
Construction Signs
1. Sign Borders: All signs shall have borders conforming to the sizes and spacing as shown below:
a. 30"x30" Sign - 3/4" Border, 1 1/2" Space from sign edge.
b. 2' x 5' Sign - 3/4" Border, 3/4" Space from sign edge.
c. 3' x 4' Sign - 3/4" Border, 1/2" Space from sign edge.
d. 4' x 4' Sign - 1 1/4" Border, 3/4" Space from sign edge.

A





CONSTRUCTION SIGNS

B

GENERAL NOTES - BARRICADES

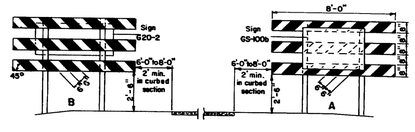
1. Unless otherwise designated, sign designation letters shall refer to the "Manual of Uniform Traffic Control Devices for Streets and Highways," published by the U.S. Department of Transportation, Federal Highway Administration, 1971.
2. White stripes shall be of silver reflective sheeting bonded to 0.019 minimum gauge aluminum, 16 minimum gauge galvanized steel, or 1/4" plywood. Individual white sheets may be attached to a black or orange painted background to form the black or orange and white stripes. At the Contractor's option the reflective sheeting and backing may extend the full width of the barricade with an opaque film or paint applied to form the stripes.
3. All signs shall be of reflective sheeting on 5/8" thick plywood. The plywood shall conform to subsection 712.25, Maine State Highway Commission, Standard Specifications, June 1968.
4. Pressure sensitive reflective sheeting will be an acceptable alternate to the reflective sheeting required by Maine State Highway Commission, Standard Specifications.

NOTES - PORTABLE BARRICADES

1. Lumber sizes for portable barricades shall be 2" x 8" except posts which shall be 4" x 4" (nominal sizes).
2. The detour sign shall be an oversized M4-10 sign with a demountable "DETOUR" message which shall be made of screened reflective sheeting on 1/4" plywood, masonite, sheet steel or sheet aluminum.
3. Hazard markers shall be attached to the barricade with a bolt assembly of steel cadmium plated 5/16" bolt, lock washer and vandal resistant nuts.
4. When two M1-6 signs are required, R11-2, R11-3, or R11-4 signs shall be omitted.
5. Flashing lights housings shall be mounted to permit rotating in a vertical axis to allow for adjustment to face oncoming traffic.
6. Location of electric service and meter to be determined after the power source has been located.

NOTES-WING BARRICADES

1. Lumber sizes for wing barricades shall be 1" x 8" except posts which shall be 4" x 4" (nominal sizes).
2. Wing barricades will not be required unless specifically called for in the special provisions.
3. Location of signs and barricades will be determined by the Engineer.

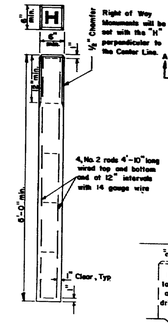


WING BARRICADES

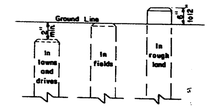
C

B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	F-025 3 (59)	83	84

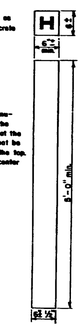
RIGHT OF WAY & SURVEY MONUMENTS



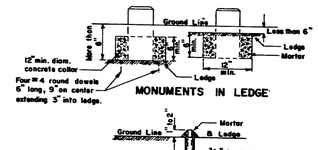
CONCRETE MONUMENT



MONUMENTS IN EARTH



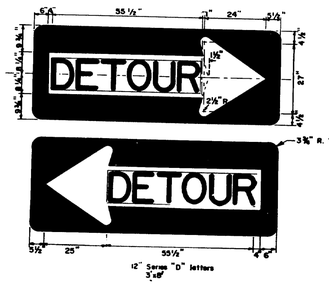
GRANITE MONUMENT



MONUMENTS IN LEDGE

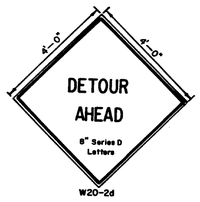
BRONZE PIN MARKERS

D



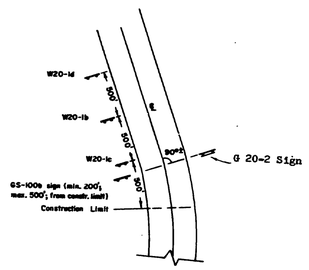
Detachable DETOUR message shall have 1" clearance from letters to edge on all sides.

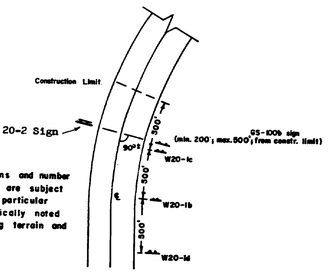
DETOUR SIGN
M 4-(L)



E

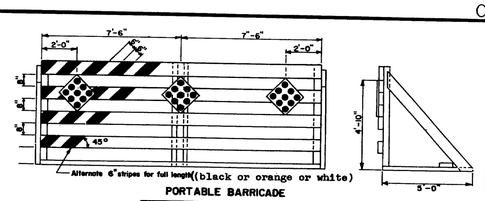
STANDARD SIGN LOCATIONS



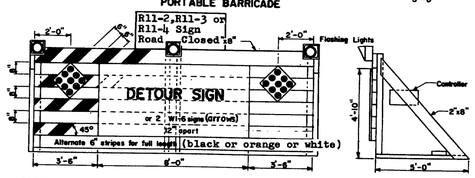


NOTE:
Standard locations and number of signs required are subject to variation on particular projects if specifically noted due to surrounding terrain and land use.

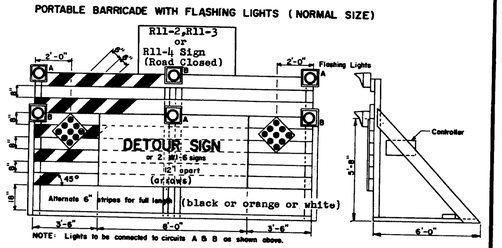
F



PORTABLE BARRICADE



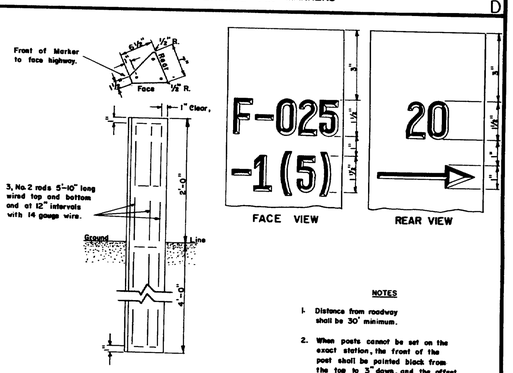
PORTABLE BARRICADE WITH FLASHING LIGHTS (NORMAL SIZE)



OVERSIZED PORTABLE BARRICADE WITH FLASHING LIGHTS

BARRICADES

G



NOTES

1. Distance from roadway shall be 30" minimum.
2. When posts cannot be set on the exact station, the front of the post shall be pointed black from the top to 3" down, and the offset distance marked on rear with an arrow pointing in direction of beginning or end of project.
3. All markings to be 1/4" deep and 3/16" wide.

PROJECT MARKERS

H

REVISION	
PLATE B	12-21-70
PLATES B,C,E,F&G	12-15-71

MAINE STATE HIGHWAY COMMISSION
AUGUSTA, MAINE

BARRICADES WARNING SIGNS MONUMENTS PROJECT MARKERS

AUG. 1969

(11)

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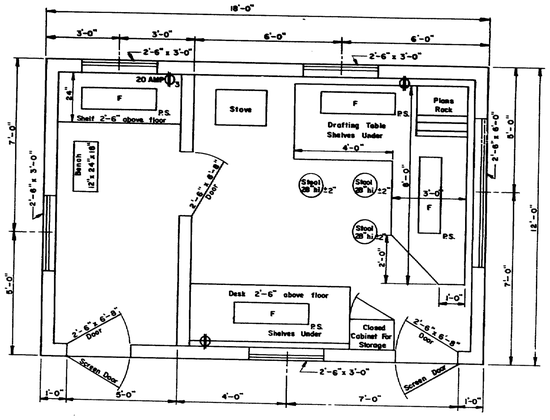
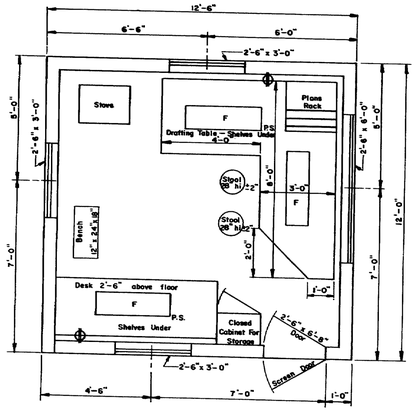
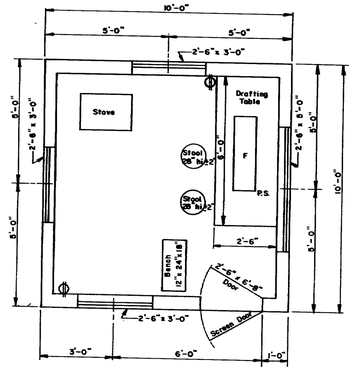
S. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	F249-3(59)	84	84



FLOOR PLAN
TYPE "A"



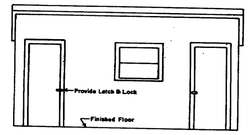
FLOOR PLAN
TYPE "B"



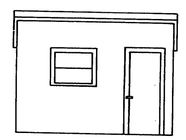
FLOOR PLAN
TYPE "C"

GENERAL NOTES

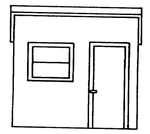
1. Drafting table shall be 3'-4" high at front edge and placed 2" from studs to allow prints to hang down behind table when in use.
2. Shelves under desk shall be constructed to received 11½" x 14" x 25" transfiles.
3. Windows shall be double hung.
4. Stovepipe shall not be in direct contact with combustible material ; the pipe shall be surrounded with at least 6" of fireproof material.
5. Continuous 110 volt 60 cycle electric service shall be supplied.
6. The engineer may rearrange the items shown on the plan views during construction of the field office.
7. FURNISHINGS TO BE SUPPLIED :
   - 2 Straight back chairs for types A and B
   - 1 Bench for types A, B & C
   - 3 Stool for type A
   - 2 Stools for types B & C
8. SYMBOLS :
   - F Florescent lights (2 light , rapid start 48" strips and 40 watt bulbs.)
   - P.S. Pull switch
   - Duplex wall outlet — 15 amp unless otherwise noted.
   - $\oplus_3$ Triplex Wall Outlet
9. For the Type "A" Field Office one clean 55 gal. drum shall be supplied , installed on a suitable rack and equipped with a spigot suitable for drawing off water. The drum shall be furished with water at all times.



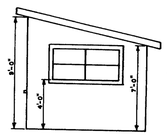
FRONT ELEVATION
TYPE "A"



FRONT ELEVATION
TYPE "B"

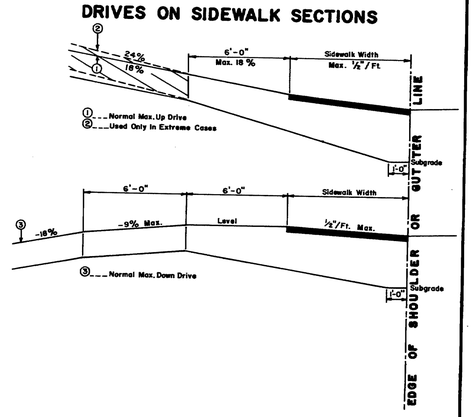


FRONT ELEVATION
TYPE "C"



SIDE ELEVATION
TYPES "A" "B" & "C"

DRIVES ON SIDEWALK SECTIONS



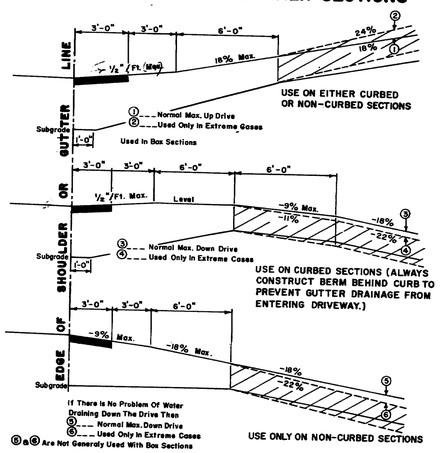
GENERAL NOTES

1. The sidewalk width shall be paved in all cases.
2. All residential or commercial drives over 10% to be paved.

NOTES ON MAXIMUM DRIVEWAY PROFILES

1. These profiles are a guide for the majority of cases, but should be field checked when the main line grade is steep (4% to 6% or greater) or the angle of approach to the drive is unusual.
2. Generally the majority of drives on a project will be built with flatter profiles than these maximum cases.
3. When grading drives which are flatter than the maximum profiles the following rule of thumb should be used, do not exceed a grade % change of more than 9% in a 6 foot increment of driveway length. This applies to both up and down profiles.

DRIVES ON NON-SIDEWALK SECTIONS



GENERAL NOTES

1. The first 5' shown as pavement shall be paved only when abuting a paved area.
2. All residential or commercial drives over 10% to be paved.

NOTES ON MAXIMUM DRIVEWAY PROFILES

1. These profiles are a guide for the majority of cases, but should be field checked when the main line grade is steep (4% to 6% or greater) or the angle of approach to the drive is unusual.
2. Generally the majority of drives on a project will be built with flatter profiles than these maximum cases.
3. When grading drives which are flatter than the maximum profiles the following rule of thumb should be used, do not exceed a grade % change of more than 9% in a 6 foot increment of driveway length. This applies to both up and down profiles.

REVISIONS	

MAINE STATE HIGHWAY COMMISSION
AUGUSTA , MAINE

STANDARD DETAILS

DRIVEWAY DETAILS
FIELD OFFICES
TESTING LABORATORY

AUG. 1969 (12)

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