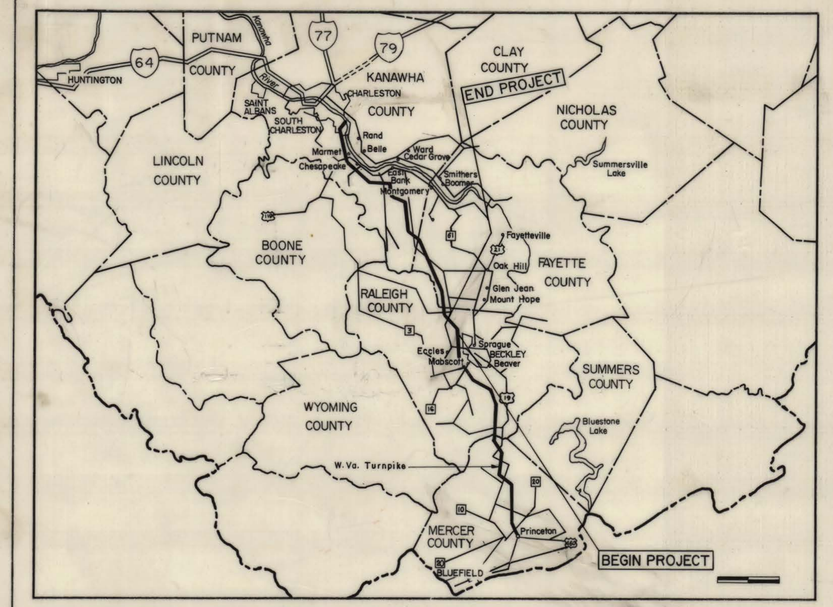


THIS PROJECT IS A CONTROLLED ACCESS FACILITY WITH ACCESS ONLY AT DESIGNATED POINTS WITHIN THESE PLANS.

STANDARD DETAIL	
TEL-01	10-24-77
TEL-06	12-10-76
TEL-09A	12-10-76
TEL-09B	12-10-76
TEL-15A	10-24-77
TEL-15B	10-24-77
TEL-18A	10-24-77
TEL-31	06-01-76
TEL-43	08-11-77
TE1-7A	10-24-78
TE4-3	11-04-77
TE6-3A	05-12-78
TE6-3B	05-12-78
TE6-3C	02-15-77
TE6-3D	02-15-77
TE7-1	10-21-76
TE11-1	10-06-77
TP-A	10-21-76
TP1-3	11-03-76
TP1-5	11-03-76
TEM-1	11-23-77

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

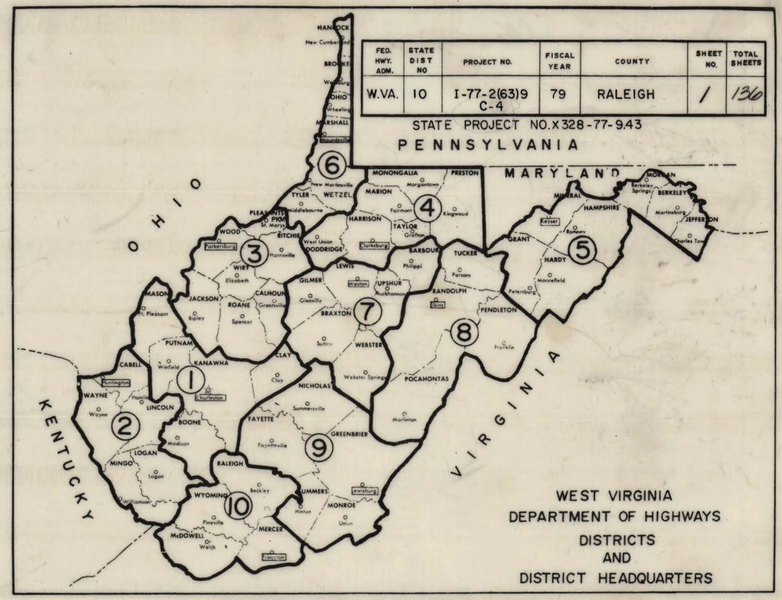
PLANS FOR CONSTRUCTION OF STATE HIGHWAY

PROJECT NO. I-77-2(63)9 C-4
ROUTE NO. I-77

RALEIGH COUNTY
CORRIDOR L BARRIER TOLL PLAZA M.P. 38.0

FED. HWY. ADM.	STATE DIST NO	PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	I-77-2(63)9 C-4	79	RALEIGH	1	136

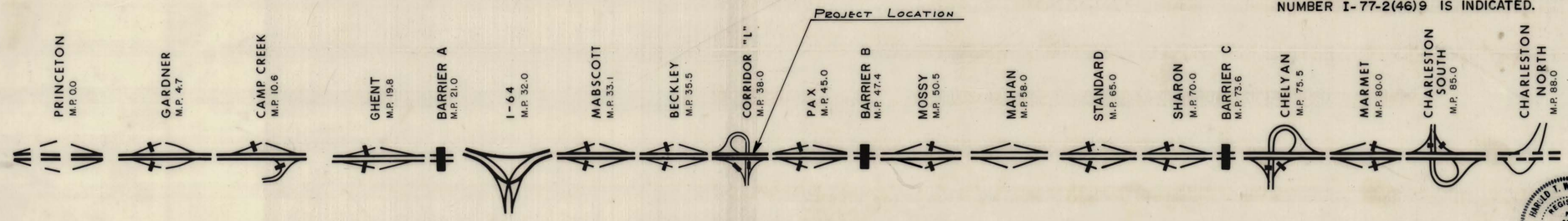
STATE PROJECT NO. X328-77-9.43



TYPE OF CONSTRUCTION

GRADING, PAVING, DRAINAGE, STRUCTURES, SANITARY SEWERS, WATER LINES, MECHANICAL, ELECTRICAL, PAVEMENT MARKINGS, SIGNING, LIGHTING & TOLL COLLECTION EQUIPMENT

THE PROJECT NUMBER ON THIS SHEET HAS BEEN CHANGED TO I-77-2(63)964, THIS PROJECT NUMBER WILL ALSO RELATE TO SUCCEEDING SHEETS EVEN THOUGH THE OLD PROJECT NUMBER I-77-2(46)9 IS INDICATED.



SCALES
PLAN HOR. 0 20
PROFILE VERT. 0 10
HOR. 0 50

DESIGN DESIGNATION	
A.D.T. (____)	*
A.D.T. (____)	*
D.H.V.	*
D.	*
T.	*
V.	*

CONVENTIONAL SIGNS

State Line
County Line
Corporation Line
Proposed R/W Line
Property Line
Existing Fence
Proposed Fence
Edge of Stream
Proposed Guard Rail
Existing Guard Rail
Railroad
Gas Line
Water Line
Telephone Line
Electric Line
Telephone Pole
Power Pole
Combined Power and Telephone Pole
Tree
Shrub
Right of Way Marker
Barrier Toll Plaza
Ramp Toll Plaza
MP 10.0 Milepost Location

LOCATION PLAN
NOT TO SCALE

INDEX TO SHEETS

NO.	DESCRIPTION
1	Title Sheet
2-6	Typical Sections
7-8	Summary of Proposed Items
9-14	Quantities
15	General Notes
16-52	General Roadway Plans & Profiles
53-64	Water Line & Sanitary Sewer Plans
65-67	Roadway Lighting
68-70	Pavement Markings, Signing & Fabrication Details
71-91B	Lighting, Signing & Pavement Marking Standards
92-112	Structure Plans
113-125	Architecture Plans
126-131	Mechanical Plans
132-136	Electrical Plans

SHEETS 81 THRU 85 HAS BEEN DELETED FROM THIS PROJECT.

Note:
The Standard Detail Book, dated June 30, 1973
Shall apply to this project.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS IS A CORRECT COPY OF THE PLANS OF PROJECT I-77-2(63)9 C-4
December 8, 19 78
EXECUTIVE SECRETARY

JAMES T. WHITE, JR. REGISTERED No. 4305 STATE OF WEST VIRGINIA FOR ENGINEER

PREPARED BY
HNTB
HOWARD NEEDLES TAMMEN & BERGENDOFF

DATE 12-4-78
H T White
REGISTERED PROFESSIONAL ENGINEER

RECOMMENDED ..... DIRECTOR DESIGN DIVISION
REVIEWED ..... CHIEF ENGINEER - DEVELOPMENT
RECOMMENDED FOR APPROVAL ..... STATE HIGHWAY ENGINEER
APPROVED ..... COMMISSIONER OF HIGHWAYS

APPROVED
DIVISION ADMINISTRATOR DATE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

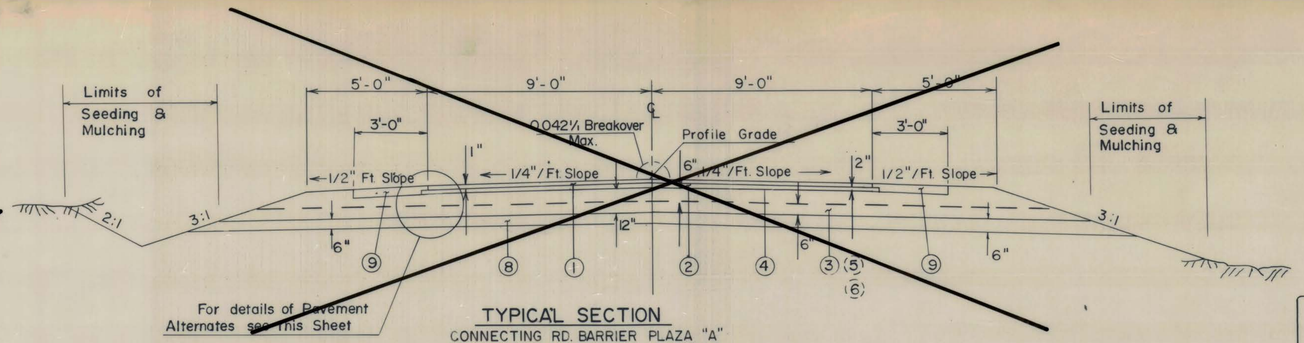
PROJECT NO. I-77-2(63)9 C-4

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46) 9		RALEIGH	2	136

Appr'd ____ Date ____

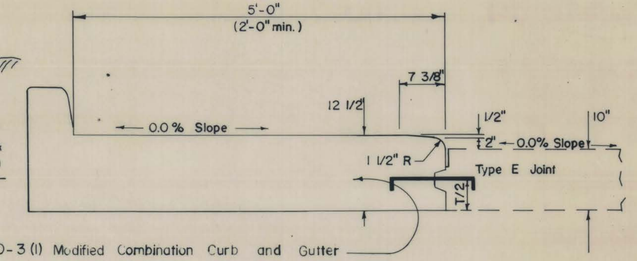
LEGEND FOR CONNECTING RD.

① 401-2 (1) Hot Laid Bituminous Concrete Wearing Course
② 401-1 (2) Hot Laid Bituminous Concrete Base Course
③ 307-2 Class 2 Aggregate Base Course
④ 409-2 Bituminous Material
⑤ 301-1 Cement Treated Base Course Aggregate
301-2 Portland Cement
301-3 Bituminous Material
⑥ 302-1 Hot Mixed, Hot Laid Bituminous Treated Base Course Aggregate
⑦ 302-2 Bituminous Material
⑧ 207-2 Subgrade
⑨ 403-4 (3") Penetration Macadam Course



For details of Pavement Alternates see This Sheet

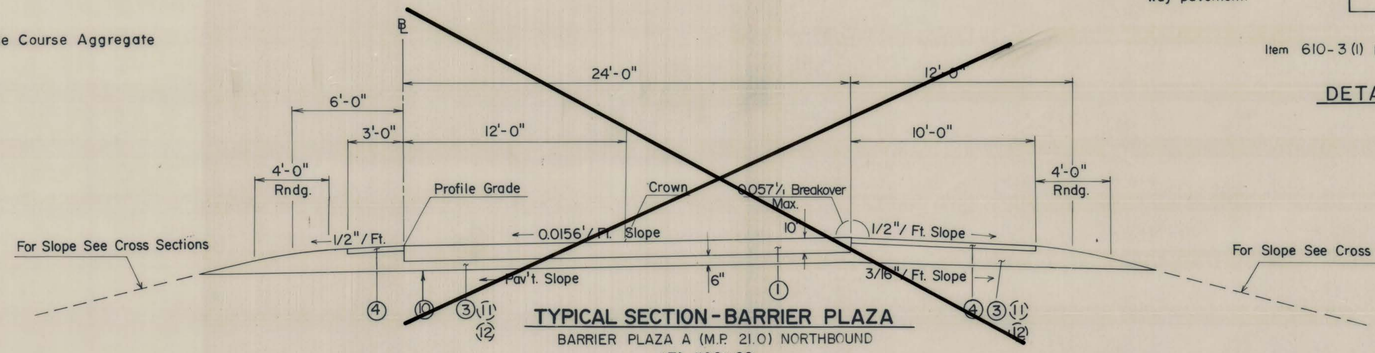
TYPICAL SECTION
CONNECTING RD. BARRIER PLAZA "A"



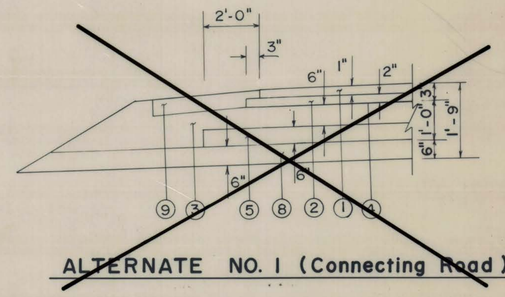
Modified Comb. Curb, & Gutter to be reinforced in the same manner as roadway pavement.

Item 610-3 (1) Modified Combination Curb and Gutter

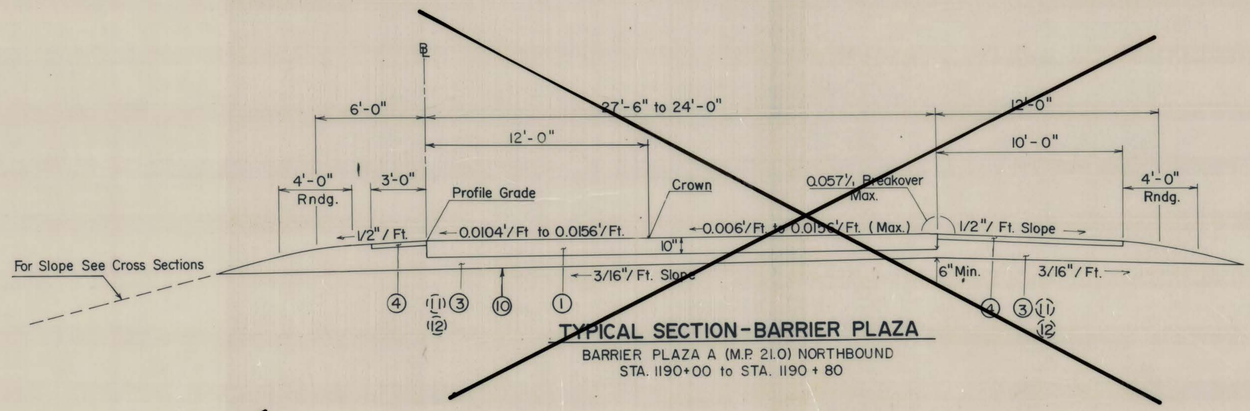
DETAIL of MODIFIED COMBINATION CURB & GUTTER



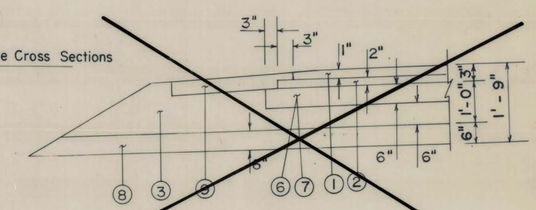
TYPICAL SECTION-BARRIER PLAZA
BARRIER PLAZA A (M.P. 21.0) NORTHBOUND
STA. 1190+80



ALTERNATE NO. 1 (Connecting Road)



TYPICAL SECTION-BARRIER PLAZA
BARRIER PLAZA A (M.P. 21.0) NORTHBOUND
STA. 1190+00 to STA. 1190+80



ALTERNATE NO. 2 (Connecting Road)

LEGEND

① Item 501-1 (10") Portland Cement Concrete Pavement (Reinforced)
② Item 501-1 (10") Portland Cement Concrete Pavement (Non-Reinforced)
③ Item 307-2 Class 2 Aggregate Base Course
④ Item 403-4 (3") Penetration Macadam Course
⑤ Item 607-1 (1) Type 1 Guard Rail
⑥ Item 610-1 (1) Plain Concrete Curb, Type 1
⑦ Item 610-3 (1) Modified Combination Curb & Gutter
⑧ Item 606-25 (6") Underdrain Pipe
⑨ Item 606-22 Crushed stone, Crushed gravel or Silica Sand for U-drains
⑩ Item 228-1 Subgrade Preparation
⑪ Item 301-1 Cement Treated Base Course Aggregate
Item 301-2 Portland Cement
Item 301-3 Bituminous Materials
⑫ Item 302-1 Hot Mixed, Hot Laid Bituminous Treated Base Course Aggregate
Item 302-2 Bituminous Material

◯ Alternate Bid Items

For details of Pavement Alternates see Sheet No. 3

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

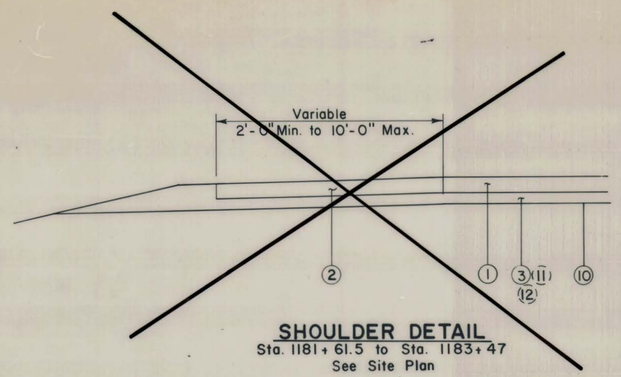
TYPICAL SECTION
~~BARRIER PLAZA A M.P. 21.0 N.B.~~

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

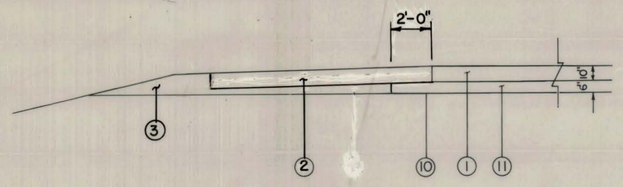
SHEET NO.

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	3	136

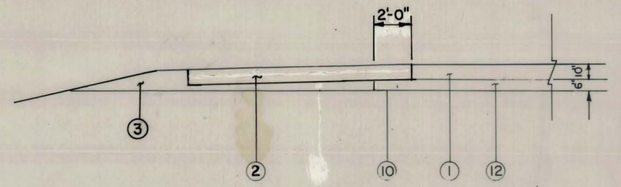
Appr'd _____ Date _____



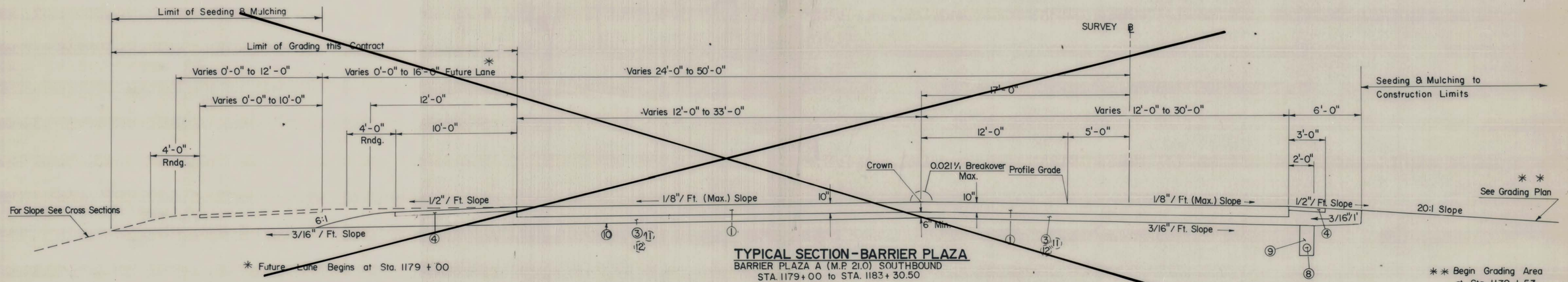
SHOULDER DETAIL
Sta. 1181+61.5 to Sta. 1183+47
See Site Plan



ALTERNATE 1 BASE



ALTERNATE 2 BASE



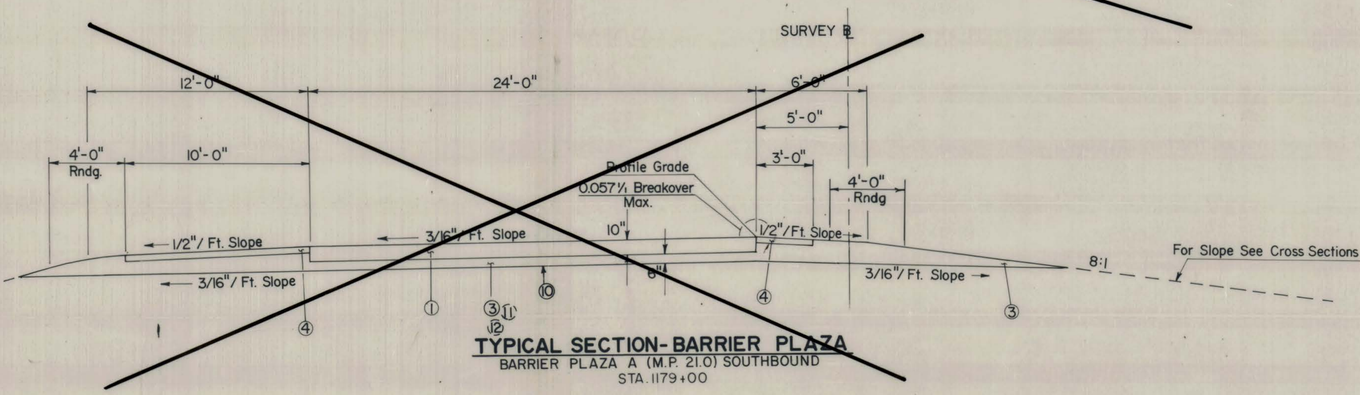
* Future Lane Begins at Sta. 1179 + 00

TYPICAL SECTION - BARRIER PLAZA
BARRIER PLAZA A (M.P. 21.0) SOUTHBOUND
STA. 1179+00 to STA. 1183+30.50

* * Begin Grading Area at Sta. 1179 + 53

LEGEND

① Item 501-1 (10") Portland Cement Concrete Pavement (Reinforced)
② Item 501-1 (10") Portland Cement Concrete Pavement (Non-Reinforced)
③ Item 307-2 Class 2 Aggregate Base Course
~~④ Item 403-4 (3") Penetration Macadam Course~~
⑤ Item 607-1(1) Type 1 Guard Rail
⑥ Item 610-1(1) Plain Concrete Curb, Type 1,
⑦ Item 610-3(1) Modified Combination Curb and Gutter
⑧ Item 606-25(6") Underdrain Pipe
⑨ Item 606-22 Crushed Stone, Gravel, or Silica Sand for U-Drains
⑩ Item 228-1, Subgrade Preparation
⑪ Item 301-1, Cement Treated Base Course Aggregate
Item 301-2, Portland Cement
Item 301-3, Bituminous Material
⑫ Item 302-1, Hot Mixed, Hot Laid Bituminous Treated Base Course Aggregate
Item 302-2, Bituminous Material



TYPICAL SECTION - BARRIER PLAZA
BARRIER PLAZA A (M.P. 21.0) SOUTHBOUND
STA. 1179+00

◌ Alternate Bid Items.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. N.T.S. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

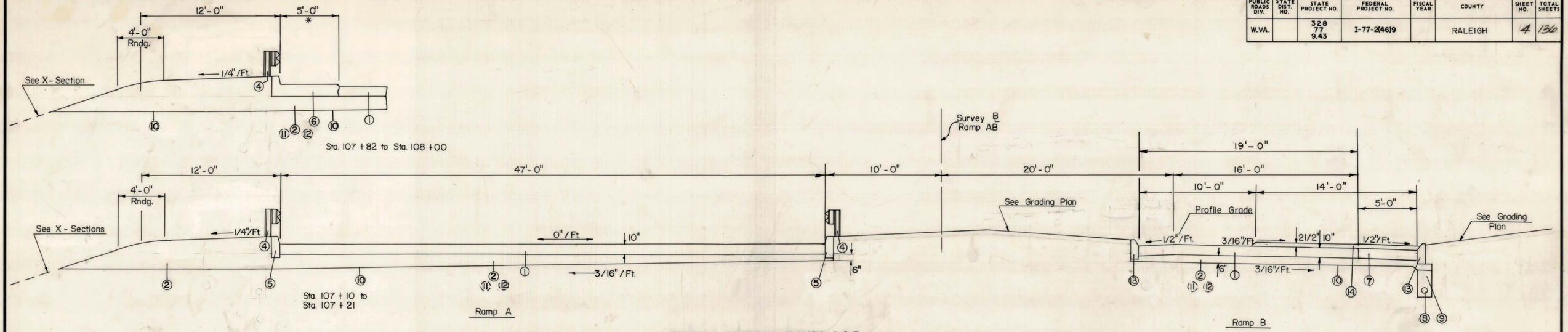
TYPICAL SECTION
~~BARRIER PLAZA A M.P. 21.0 S.B.~~

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.		328 77 9.43	I-77-2(46)9		RALEIGH	4	136



TYPICAL SECTION - RAMPS A & B
Sta. 107+10 to Sta. 107+21
Sta. 107+82 to Sta. 108+00 Ramp AB ℄

LEGEND

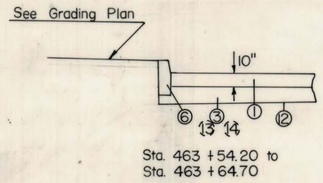
① Item 501-1(10") Portland Cement Concrete Pavement (Reinforced)

② Item 307-2 Class 2 Aggregate Base

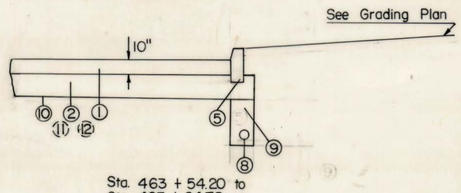
④ Item 607-1 Type 1 Guardrail
⑤ Item 610-1(1) Plain Concrete Curb Type 1, Barrier Type
⑥ Item 610-3(1) Modified Combination Curb & Gutter
⑦ Item 501-1(10") Portland Cement Concrete Pavement (Non-reinforced)
⑧ Item 606-25(6") Underdrain Pipe
⑨ Item 606-22 Crushed Stone, Gravel, or Silica Sand for U-Drains

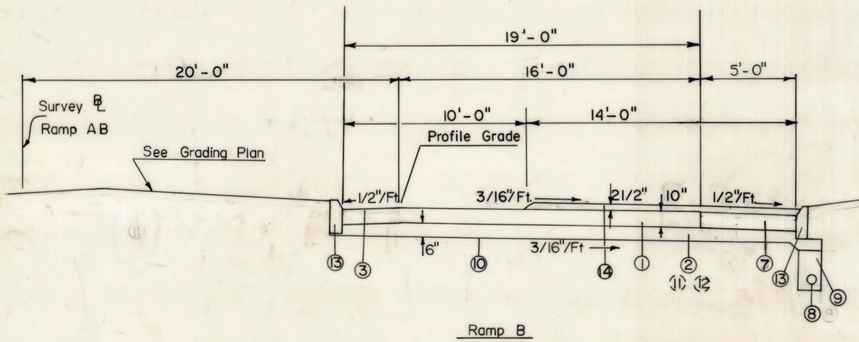
⑩ Item 228-1 Subgrade Preparation
⑪ Item 301-1 Cement Treated Base Course Aggregate
Item 301-2 Portland Cement
Item 301-3 Bituminous Material
⑫ Item 302-1 Hot Mixed, Hot Laid Bituminous Treated Base Course Aggregate
Item 302-2 Bituminous Material
⑬ Item 610-1(2) Plain Concrete Curbing Type 2, Semi-Mountable Type
⑭ Item 401-2(21/2") Hot Laid Bituminous Concrete Wearing Course

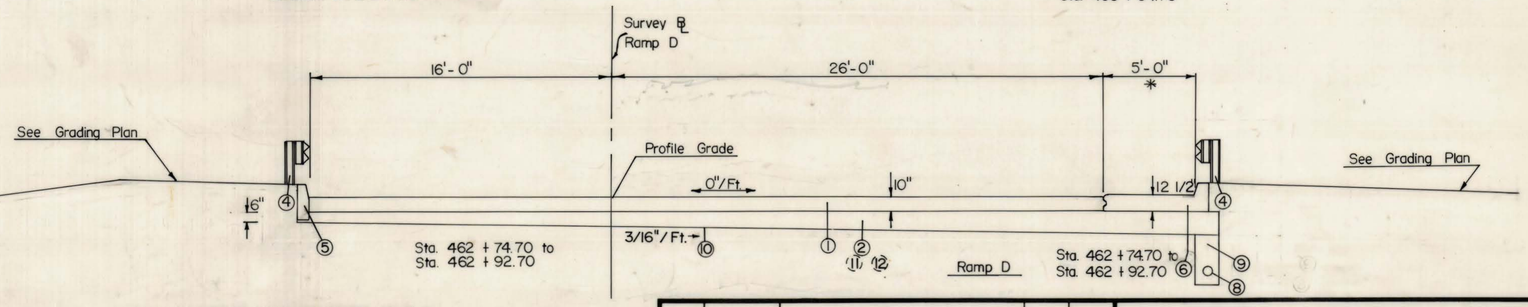
* For Details of Modified Combination Curb & Gutter See Sheet 2
For Details of Pavement Alternates See Sheet 3



RAMP D DETAIL







TYPICAL SECTION - RAMPS B & D
Sta. 462+74.70 to Sta. 462+92.70
Sta. 463+54.20 to Sta. 463+64.70 Ramp D ℄

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1"= 4' Vert. 1"= 4' DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

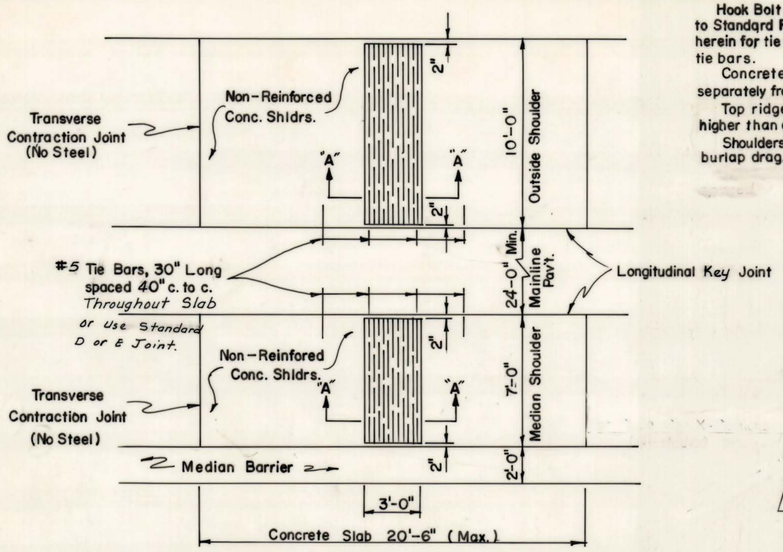
TYPICAL SECTIONS
CORRIDOR "L"

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

K&E 19 1285 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.		328 77 9.43	I-77-2(46)9		RALEIGH	5	136



PLAN VIEW

NOTES:

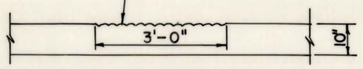
Hook Bolt or J-Bolt Assemblies, conforming to Standard R.S. 3.A except spaced as detailed herein for tie bars, may be used in place of #4 tie bars.

Concrete Shoulders shall be poured separately from travel lane paving.

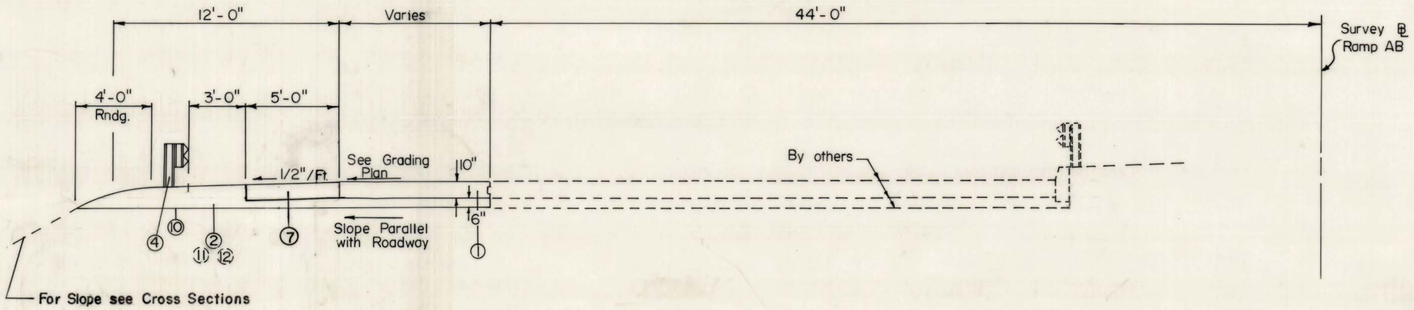
Top ridges of the jiggle bars are to be no higher than adjacent pavement.

Shoulders are to be finished with longitudinal burlap drag.

Jiggle Bars (formed in the concrete) with 1" X 3" corrugations spaced 20'-6" C. To C.



SECTION "A"-"A"



TYPICAL SECTION – RAMP A
Sta. 108 + 74 to Sta. 110 + 00 Ramp AB ℄

DETAILS SHOWING JOINTS AND JIGGLE BARS FOR NON-REINFORCED CONCRETE SHOULDERS

LEGEND

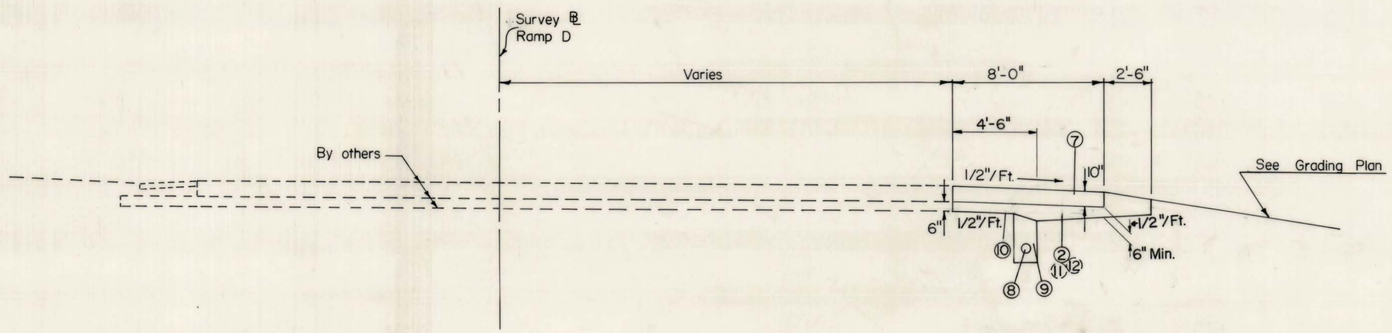
① Item 501-1 (10") Portland Cement Concrete Pavement (Reinforced)

② Item 307-2 Class 2 Aggregate Base

④ Item 607-1 Type 1 Guardrail
⑤ Item 610-1 (1) Plain Concrete Curb Type 1, Barrier Type
⑥ Item 610-3 (1) Modified Combination Curb & Gutter
⑦ Item 501-1 (10") Portland Cement Concrete Pavement (Non-reinforced)
⑧ Item 606-25 (6") U-Drain Pipe
⑨ Item 606-22 Crushed Stone, Gravel, or Silica Sand for U-Drains

⑩ Item 228-1 Subgrade Preparation
⑪ Item 301-1 Cement Treated Base Course Aggregate
Item 301-2 Portland Cement
Item 301-3 Bituminous Material
⑫ Item 302-1 Hot Mixed, Hot Laid Bituminous Treated Base Course Aggregate
Item 302-2 Bituminous Material
⑬ Item 610-1 (2) Plain Concrete Curbing Type 2, Semi-Mountable Type

* For Details of Pavement Alternates See Sheet 3.



TYPICAL SECTION - RAMP D
Sta. 464 + 37.50 to Sta. 465 + 15 Ramp D ℄

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 4' Vert. 1" = 4' DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

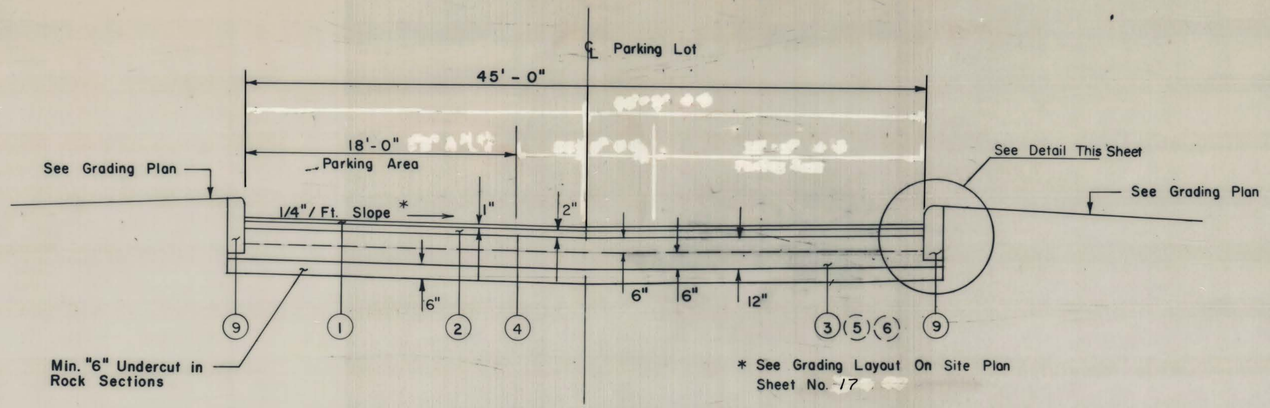
TYPICAL SECTIONS-CORRIDOR "L"
JIGGLE BARS DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

K&E 19 1235 9-77 TEM 2229•

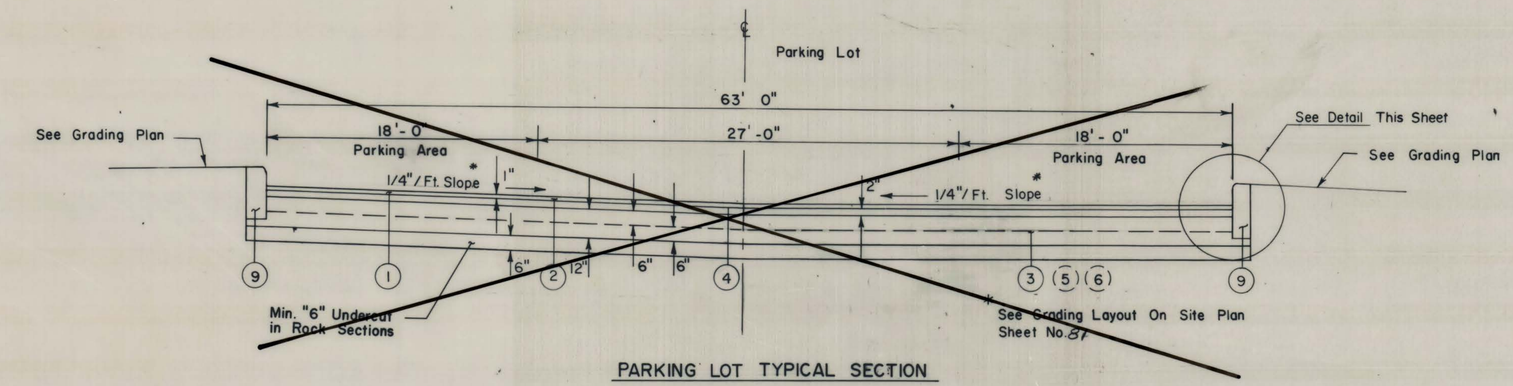
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.		328 77 9.43	I-77-2(46)9		Raleigh	6	130



PARKING LOT TYPICAL SECTION

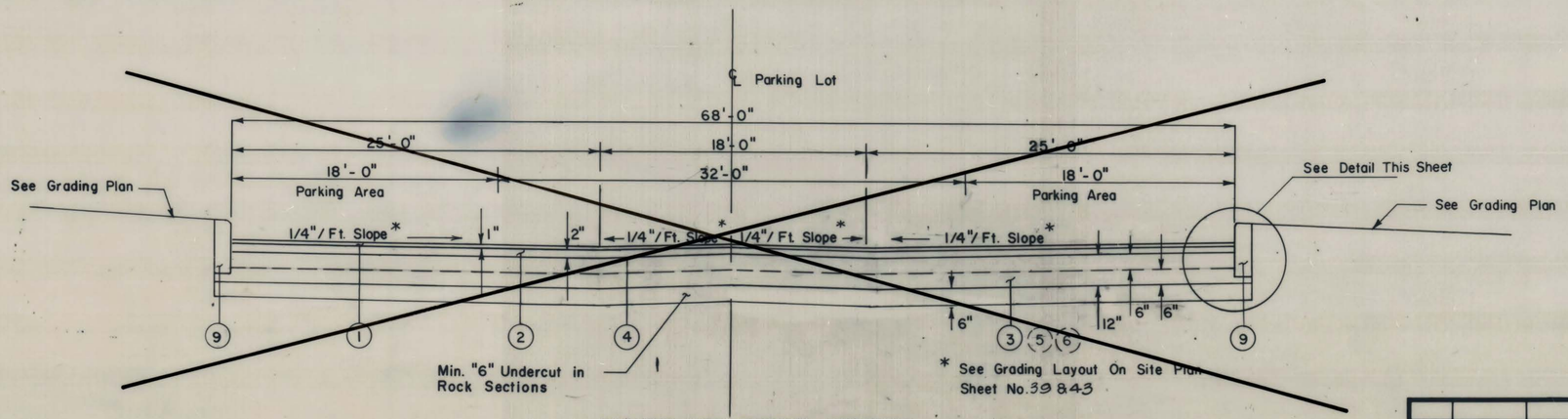
Corridor "L"

~~Barrier "B"~~ ** ~~Dimensions for Barrier "B" only~~



PARKING LOT TYPICAL SECTION

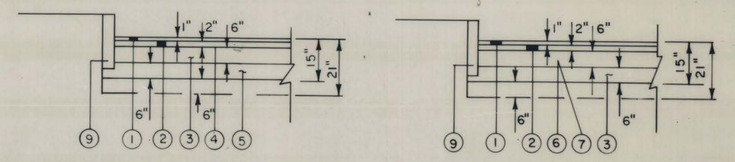
Barrier "C"



PARKING LOT TYPICAL SECTION

Barrier "A" Northbound And Southbound

◯ Alternate Bid Items



DETAIL of ALTERNATE PAV'T

LEGEND

1. Item 401-2 (1) Hot Laid Bituminous Concrete Wearing Course
2. Item 401-1 (2) Hot Laid Bituminous Concrete Base Course
3. Item 307-2 Class 2 Aggregate Base Course
4. Item 409-2 Bituminous Material
5. Item 301-1 Cement Treated Base Course
   301-2 Portand Cement
   301-3 Bituminous Material
6. Item 302-1 Hot Mixed, Hot Laid Bituminous Treated Base Course Aggregate
7. Item 302-2 Bituminous Material
9. Item 610-1 (1) Plain Concrete Curb

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

TYPICAL SECTIONS
PARKING LOTS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(63)9		RALEIGH	7	136

PROPOSAL ITEMS

ITEM NO.	PRINC. ALT.	DESCRIPTION	UNIT	QUANTITY
		ROADWAY		
204-1		Mobilization	L.S	Lump Sum
228-1		Subgrade Preparation	S.Y.	1,313
307-2	Princ.	Class 2 Aggregate Base Course	C.Y.	701
301-1	Alt. 1	Cement Treated Base Course Aggregate	C.Y.	315
301-2	Alt. 1	Portland Cement	C.W.T.	531
301-3	Alt. 1	Bituminous Material	Gal.	334
307-2	Alt. 1	Class 2 Aggregate Base Course	C.Y.	386
302-1	Alt. 2	Hot Mixed, Hot Laid, Bituminous Treated Base Course Aggregate	C.Y.	315
302-2	Alt. 2	Bituminous Material	Gal.	5154
307-2	Alt. 2	Class 2 Aggregate Base Course	C.Y.	386
401-1(2)	Princ.	Hot Laid Bituminous Concrete Base Course - Stone or Gravel	Ton	66
401-1(2)	Alt.	Hot Laid Bituminous Concrete Base Course - Slag	Ton	59
401-2(1")	Princ.	Hot Laid Bituminous Concrete Wearing Course - Stone or Gravel	Ton	69
401-2(1")	Alt.	Hot Laid Bituminous Concrete Wearing Course - Slag	Ton	62
401-6		Field Laboratory	L.S.	L.S.
403-4(3")		Penetration Macadam Course	S.Y.	196
501-1(10")		Portland Cement Concrete Pavement (Reinforced)	S.Y.	689
501-1(10")		Portland Cement Concrete Pavement (Non-Reinforced)	S.Y.	281
501-5		Field Laboratory	L.S.	L.S.
601-2		Class B Concrete	C.Y.	0.3
601-7		Field Laboratory	L.S.	L.S.
604-7(6")		Full Bituminous Coated Corrugated Iron Or Steel Pipe, - 0.064. Thick.	L.F.	161
604-9(12")		Full Bituminous Coated And Paved Invert Corrugated Iron Or Steel Pipe, - 0.064. Thick.	L.F.	88
604-9(18")		Full Bituminous Coated And Paved Invert Corrugated Iron or Steel Pipe , 0.064 Thick.	L.F.	52
604-14(12")		End Section For Corrugated Iron Or Steel Pipe.	Ea.	2
605-1		Type A Manhole	Ea.	2
606-22		Crushed Stone or Silica Sand	C.Y.	44
606-25(6")		Underdrain Pipe	L.F.	493
607-1(I)		Type I Guardrail	L.F.	659
607-29		Breakaway Cable, Terminal	Ea.	3
607-30		Special Breakaway Cable Terminal	Ea.	1
609-1		Concrete Sidewalk	S.Y.	107
609-2		Bed Course Material	C.Y.	12
610-1(I)		Plain Concrete Curb	L.F.	677
610-1(II)		Plain Concrete Curb	L.F.	277
610-3(1)		Modified Combination Concrete Curb And Gutter	L.F.	258

PROPOSAL ITEMS

ITEM NO.	PRINC. ALT.	DESCRIPTION	UNIT	QUANTITY
639-1		Construction Layout Stakes	L.S.	L.S.
~~640-2~~ ⚠		~~Small Field Office and Storage Building~~	~~L.S.~~	~~L.S.~~
~~640-3~~		~~Building Equipment~~ Topsoil	~~L.S.~~	~~Lump Sum~~
651-1		Furnishing and Placing Topsoil	C.Y.	328
652-1		Agricultural Limestone	Tons	1
652-2-1		Fertilizer 10-20-10	Tons	1
652-2-2		Urea Formaldehyde Fertilizer	Tons	1
652-3-1		Seed Mixtures B, C-1 or C-2	lbs.	63
652-4-1		Straw or Hay Mulch	Ton	1
		SIGNING (SPECIALITY ITEMS)		
657-8		(2.00 lbs.) Supports, U Channel	L.F.	357
661-4(1)		Delineators, Single White	Ea.	34
		ELECTRICAL (SPECIALITY ITEMS)		
662-2(4)		Galvanized Steel Conduit	L.S.	Lump Sum
662-3(4)		P.V.C. Conduit	L.S.	Lump Sum
662-6(H)		Junction Box, 18" x 18"	Ea.	7
662-7(250)		Luminaires, H.P.S., 250 W	Ea.	15
662-7(150)		Luminaires, H.P.S., 150 W	Ea.	8
662-8(4)		Cable	L.S.	Lump Sum
662-10(40-8)		Lighting Support, V.	Ea.	22
662-10(30-15)		Lighting Support, V	Ea.	1
662-14		Incidental Electrical Work	L.S.	Lump Sum
662-15(4)		Electrical Tests	L.S.	Lump Sum
		PAVEMENT MARKING (SPECIALITY ITEMS)		
663-1-1(Type I)		Edge Lines, White	L.F.	1,700
663-1-1(Type I)		Edge Lines, Yellow	L.F.	1,700
663-2-1(Type I)		Lane Lines, White	L.F.	300
663-4(Type I)		4" Channelizing Line	L.F.	300
663-4(Type I)		8" Channelizing Line	L.F.	350
663-7(Type I)		Stripes, White	L.F.	900
		WATER MAIN		
670-10(4")		Steel Casing Pipe	L.F.	20
670-21(2")		House Connection	L.F.	1,141
601-5		Class C Concrete	C.Y.	0.28
639-1		Construction Layout Stakes	L.S.	L.S.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
⚠	7	DELETED Item 640-2 & 640-3	6-15-79	D.K.

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

SUMMARY OF QUANTITIES

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
HNTB

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(63)9		RALEIGH	8	136

PROPOSAL ITEMS

ITEM NO.	PRINC. ALT.	DESCRIPTION	UNIT	QUANTITY
		SANITARY SEWERS		
675-7(4")		Plastic Sewer Pipe	L.F.	19
675-7(4")		Plastic Sewer Pipe (Class 160)	L.F.	618
675-7(6")		Plastic Sewer Pipe	L.F.	88
675-14		Manhole	Ea.	1
675-34		Septic Tank (1,000 Gal.)	Ea.	1
675-36		Special Earth Fill	C.Y.	1,450
675-38		Mound Trench Construction	L.F.	510
675-39		Package Sewage Pump Station	Ea.	1
601-5		Class C Concrete	C.Y.	0.36
639-1		Construction Layout Stakes	L.S.	L.S.
		TOLL PLAZA CONSTRUCTION (SPECIALITY ITEMS)		
TP2-5		Plaza Drainage Construction	L.S.	Lump Sum
TP3-5		Plaza Tunnel Construction	L.S.	Lump Sum
TP4-5		Toll Plaza Construction	L.S.	Lump Sum
TP5-5		Canopy Construction	L.S.	Lump Sum
TP9-1		Temporary Toll Facilities at Ramps B and C	L.S.	Lump Sum
TP9-3		Furnish and Install Radio Communication Equipment	L.S.	L.S.
TP10-5		Toll Plaza Utility Building	L.S.	Lump Sum
TP10-6		Preparation of As-Built Drawings for Toll Plaza Utility Building	L.S.	Lump Sum
TP9-2		Temporary Toll Collection Equipment	L.S.	Lump Sum
664-1		Impact Attenuating Device, Type I, Sandwich Unit	Ea.	5
639-1		Construction Layout Stakes	L.S.	L.S.

PROPOSAL ITEMS

ITEM NO.	PRINC. ALT.	DESCRIPTION	UNIT	QUANTITY

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
SCALE: Horiz.	Vert.	DATE:		

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

SUMMARY OF QUANTITIES

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS | HNTB

SHEET NO.

00-1

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	9	136

PAVEMENT QUANTITIES

	ALTERNATE 1			ALTERNATE 2		PRINCIPAL					PRINCIPAL						ALTERNATE 1				ALTERNATE 2		
	ITEM 207-2 SUBGRADE	ITEM 301-1 CEMENT TREATED BASE COURSE AGGREGATE	ITEM 301-2 PORTLAND CEMENT	ITEM 301-3 BITUMINOUS MATERIAL	ITEM 302-1 HOT MIXED HOT LAID BIT. TREATED BASE COURSE AGGR.	ITEM 302-2 BITUMINOUS MATERIAL	ITEM 307-2 CLASS 2 AGGREGATE BASE COURSE	ITEM 228-1 SUBGRADE PREPARATION	ITEM 403-4(3") PENETRATION MACADAM COURSE	ITEM 501-1(10") PORTLAND CEMENT CONC. PAVEMENT REINFORCED	ITEM 501-1(10") PORTLAND CEMENT CONC. PAVEMENT NON-REINF.	ITEM 409-2 BITUMINOUS MATERIAL	ITEM 401-1(2") HOT LAID BITUMINOUS CONCRETE BASE COURSE		ITEM 401-2(1") HOT LAID BITUMINOUS CONCRETE WEARING COURSE		ITEM 307-2 CLASS 2 AGGREGATE BASE COURSE	ITEM 301-1 CEMENT TREATED BASE COURSE AGGREGATE	ITEM 301-2 PORTLAND CEMENT	ITEM 301-3 BITUMINOUS MATERIAL	ITEM 307-2 CLASS 2 AGGREGATE BASE COURSE	ITEM 302-1 HOT MIXED HOT LAID BIT. TREATED BASE COURSE AGGR.	ITEM 302-2 BITUMINOUS MATERIAL	ITEM 307-2 CLASS 2 AGGREGATE BASE COURSE
STATION TO STATION	C.Y.	C.Y.	CWT.	GAL.	C.Y.	GAL.	C.Y.	S.Y.	S.Y.	S.Y.	S.Y.	GAL.	STONE OR GRAVEL TON	ALTERNATE SLAG TON	STONE OR GRAVEL TON	ALTERNATE SLAG TON	C.Y.	C.Y.	CWT.	GAL.	C.Y.	C.Y.	GAL.	C.Y.
GHENT INTERCHANGE																								
RAMP "A"																								
~~113+00 To 116+00~~		~~111~~	~~181~~	~~133~~	~~111~~	~~1,761~~	~~348~~	~~1,451~~	~~292~~	~~533~~														
~~116+00 To 116+90~~		~~33~~	~~54~~	~~40~~	~~33~~	~~524~~	~~143~~	~~507~~	~~50~~	~~107~~														
~~116+90 To 117+25~~		~~11~~	~~18~~	~~13~~	~~11~~	~~174~~	~~46~~	~~149~~	~~13~~	~~55~~														
~~RAMP "D"~~																								
~~418+00 To 420+00~~		~~75~~	~~123~~	~~90~~	~~75~~	~~1,190~~	~~230~~	~~1,020~~	~~170~~	~~363~~														
~~420+00 To 420+90~~		~~33~~	~~54~~	~~40~~	~~33~~	~~524~~	~~201~~	~~592~~	~~116~~	~~107~~														
~~420+90 To 422+01.21~~		~~41~~	~~67~~	~~49~~	~~41~~	~~650~~	~~117~~	~~581~~	~~136~~	~~197~~														
~~SUB TOTAL~~		~~304~~	~~497~~	~~365~~	~~304~~	~~4,823~~	~~1,085~~	~~4,300~~	~~777~~	~~1,362~~														
~~BARRIER PLAZA "A" M.P. 21 NORTHBOUND~~																								
~~1178+50 To 1184+68~~		~~708~~	~~1156~~	~~706~~	~~708~~	~~11,233~~	~~1,280~~	~~4,942~~	~~754~~	~~3,256~~														
~~1185+29 To 1190+80~~		~~603~~	~~985~~	~~591~~	~~603~~	~~9,567~~	~~1,135~~	~~4,273~~	~~616~~	~~2,712~~	~~150~~													
SOUTHBOUND																								
~~1179+00 To 1183+71~~		~~483~~	~~781~~	~~540~~	~~483~~	~~7663~~	~~870~~	~~3680~~	~~467~~	~~2,491~~	~~180~~													
~~1184+32 To 1190+80~~		~~766~~	~~1,251~~	~~751~~	~~766~~	~~12,153~~	~~1,355~~	~~5,439~~	~~805~~	~~3,467~~														
~~N.B. PARKING AREA~~												~~272~~	~~66~~	~~66~~	~~33~~	~~33~~	~~210~~	~~109~~	~~178~~	~~131~~	~~101~~	~~109~~	~~1,729~~	~~101~~
~~S.B. PARKING AREA~~												~~272~~	~~66~~	~~66~~	~~33~~	~~33~~	~~210~~	~~109~~	~~178~~	~~131~~	~~101~~	~~109~~	~~1,729~~	~~101~~
~~CONNECTING ROAD~~									~~137~~			~~185~~	~~45~~	~~45~~	~~23~~	~~23~~	~~249~~	~~84~~	~~136~~	~~100~~	~~165~~	~~84~~	~~1,325~~	~~165~~
~~SUB TOTAL~~	~~2560~~	~~4,173~~	~~2,588~~	~~2,560~~	~~40,616~~	~~4,640~~	~~18,334~~	~~2,779~~	~~11,926~~	~~330~~		~~729~~	~~177~~	~~177~~	~~89~~	~~89~~	~~669~~	~~302~~	~~492~~	~~362~~	~~367~~	~~302~~	~~4,783~~	~~367~~
CORRIDOR "L"																								
RAMP "A"																								
107+10 To 107+21		18	29	12	18	285	33	81		57														
107+82 To 108+00		29	48	20	29	466	54	133		84														
108+00 To 110+25		44	78	58	44	760	195	616		214														
108+50 To 110+25 Lt.											91													
RAMP "B"																								
106+78 To 107+20		12	25	19	12	244	24	127		75														
106+78 To 108+01.5 Rt.											103													
107+80 To 108+01.5		7	13	10	7	125	12	65		36														
106+78 To 108+01.5 Lt.		8	15	11	9	142	16			41					21	19								
RAMP "D"																								
462+74.7 To 462+92.7		29	48	20	29	466	32	104		84														
463+54.2 To 463+64.7		17	28	12	17	272	18	61		55														
463+88 To 464+37.5 Rt.										43														
463+74 To 465+34 Rt.												359	66	59	33	30	266	133	217	160	133	133	2,112	133
464+37.5 To 465+44 Rt.		4	7	5	4	63	32	126			85													
465+32 To 465+44 Rt.											2													
462+25 To 462+74.7 Rt.		14	23	7	14	219	19																	
RAMP "C"																								
353+62 To 354+52 Rt.															15	13								
TOTAL		182	314	174	182	3042	435	1313		689	281	359	66	59	69	62	266	133	217	160	133	133	2112	133

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

PAVEMENT QUANTITIES
~~GHENT INTERCHANGE, BARRIER "A"~~ CORRIDOR "L"

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	~~3~~ 10	328 77 9.43	I-77-2(63)9 C-~~34~~	79	~~MERCER,~~ RALEIGH ~~FAYETTE KANAWHA~~	10	136

LOCATION	ITEM TP6-1 "TWO LANE RAMP PLAZA CONSTRUCTION" EACH	ITEM TP7-1 "MANNED ONE LANE RAMP PLAZA CONSTRUCTION" EACH	ITEM TP8-1 "UNMANNED ONE LANE RAMP PLAZA CONSTRUCTION" EACH	ITEM 664-1 "IMPACT ATTENUATING DEVICE TYPE I, SANDWICH UNIT" EACH	ITEM 664-1 "IMPACT ATTENUATING DEVICE TYPE I, CLUSTER UNIT" EACH	ITEM 664-14 SAFETY FLEX BELT EACH
~~GARDNER INTERCHANGE~~			~~2~~			
~~CAMP CREEK INTERCHANGE~~			~~2~~			
~~GHENT INTERCHANGE~~		~~2~~				
~~BARRIER PLAZA A (N.B.)~~				~~3~~		
~~BARRIER PLAZA A (S.B.)~~				~~3~~		
CORRIDOR 'L' INTERCHANGE				5		
~~BARRIER PLAZA B~~				~~12~~		~~12~~
~~BARRIER PLAZA C~~				~~14~~		~~14~~
~~MARMET INTERCHANGE~~	~~2~~				~~2~~	
TOTAL	~~2~~	~~2~~	~~4~~	5	~~2~~	~~26~~

ITEM	DESCRIPTION	UNIT
~~TP2-1~~	~~"PLAZA DRAINAGE CONSTRUCTION AT BARRIER PLAZA A (N.B.)"~~	~~LUMP SUM~~
TP2-2	"PLAZA DRAINAGE CONSTRUCTION AT BARRIER PLAZA A (S.B.)"	LUMP SUM
TP2-3	"PLAZA DRAINAGE CONSTRUCTION AT BARRIER PLAZA B"	LUMP SUM
~~TP2-4~~	~~"PLAZA DRAINAGE CONSTRUCTION AT BARRIER PLAZA C"~~	~~LUMP SUM~~
TP2-5	"PLAZA DRAINAGE CONSTRUCTION AT CORRIDOR 'L' INTERCHANGE"	LUMP SUM
~~TP3-1~~	~~"PLAZA TUNNEL CONSTRUCTION AT BARRIER PLAZA A (N.B.)"~~	~~LUMP SUM~~
TP3-2	"PLAZA TUNNEL CONSTRUCTION AT BARRIER PLAZA A (S.B.)"	LUMP SUM
TP3-3	"PLAZA TUNNEL CONSTRUCTION AT BARRIER PLAZA B"	LUMP SUM
~~TP3-4~~	~~"PLAZA TUNNEL CONSTRUCTION AT BARRIER PLAZA C"~~	~~LUMP SUM~~
TP3-5	"PLAZA TUNNEL CONSTRUCTION AT CORRIDOR 'L' INTERCHANGE"	LUMP SUM
~~TP4-1~~	~~"TOLL PLAZA CONSTRUCTION AT BARRIER PLAZA A (N.B.)"~~	~~LUMP SUM~~
TP4-2	"TOLL PLAZA CONSTRUCTION AT BARRIER PLAZA A (S.B.)"	LUMP SUM
TP4-3	"TOLL PLAZA CONSTRUCTION AT BARRIER PLAZA B"	LUMP SUM
~~TP4-4~~	~~"TOLL PLAZA CONSTRUCTION AT BARRIER PLAZA C"~~	~~LUMP SUM~~
TP4-5	"TOLL PLAZA CONSTRUCTION AT CORRIDOR 'L' INTERCHANGE"	LUMP SUM
~~TP5-1~~	~~"CANOPY CONSTRUCTION AT BARRIER PLAZA A (N.B.)"~~	~~LUMP SUM~~
TP5-2	"CANOPY CONSTRUCTION AT BARRIER PLAZA A (S.B.)"	LUMP SUM
TP5-3	"CANOPY CONSTRUCTION AT BARRIER PLAZA B"	LUMP SUM
~~TP5-4~~	~~"CANOPY CONSTRUCTION AT BARRIER PLAZA C"~~	~~LUMP SUM~~
TP5-5	"CANOPY CONSTRUCTION AT CORRIDOR 'L' INTERCHANGE"	LUMP SUM
TP9-1	"TEMPORARY TOLL FACILITIES AT RAMPS B & C."	LUMP SUM
TP9-2	"TEMPORARY TOLL COLLECTION EQUIPMENT"	LUMP SUM

ITEM	DESCRIPTION	UNIT	QUANTITY
~~TP10-1~~	~~TOLL PLAZA UTILITY BUILDING BARRIER PLAZA A (N.B.)~~	LUMP SUM	~~LUMP SUM~~
TP10-2	TOLL PLAZA UTILITY BUILDING BARRIER PLAZA A (S.B.)	LUMP SUM	LUMP SUM
TP10-3	TOLL PLAZA UTILITY BUILDING BARRIER PLAZA B	LUMP SUM	LUMP SUM
~~TP10-4~~	~~TOLL PLAZA UTILITY BUILDING BARRIER PLAZA C~~	LUMP SUM	~~LUMP SUM~~
TP10-5	TOLL PLAZA UTILITY BUILDING CORRIDOR L	LUMP SUM	LUMP SUM
TP10-6	PREPARATION OF AS BUILT DRAWINGS FOR TOLL PLAZA UTILITY BUILDINGS	LUMP SUM	LUMP SUM
TP 9-3	FURNISH AND INSTALL RADIO COMMUNICATION EQUIPMENT AT BARRIER PLAZA	LUMP SUM	LUMP SUM
~~TP 9-4~~	~~FURNISH AND INSTALL RADIO COMMUNICATION EQUIPMENT AT RAMP PLAZAS (GHENT AND MARMET)~~	~~EACH~~	~~4~~
~~TP 9-5~~	~~FURNISH, DELIVER AND STORE RADIO COMMUNICATION EQUIPMENT (FOR MABSCOTT AND CHARLESTON SOUTH) AT BECKLEY MAINTENANCE AREA~~	~~EACH~~	~~4~~

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERCER,~~ RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

QUANTITIES

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-34	79	RALEIGH	11	136

6" UNDERDRAIN PIPE

LOCATION CORRIDOR "L" INTERCHANGE	ITEM 606-25 (6") UNDERDRAIN PIPE	ITEM 601-2 CLASS B CONC.	ITEM 606-22 CR. STONE, GRAVEL OR SILICA SAND	REMARKS
STATION TO STATION	L. F.	C.Y.	C.Y.	
RAMP "B"				
106+78 - 107+25 Rt.	47		5	
107+78 - 108+01.5 Rt.	24		3	
RAMP "D"				
461+88 - 462+92.70 Rt.	105		11	
463+54.5 - 465+44 Rt.	272		21	
SUB-TOTAL	448		40	
CONTINGENCY	45		4	
TOTAL	493		44	

CONCRETE SIDEWALK

LOCATION CORRIDOR "L" INTERCHANGE	ITEM 609-1 CONC. SIDEWALK	ITEM 609-2 BED COURSE MATERIAL	REMARKS
STATION TO STATION	S.Y.	C.Y.	
RAMP "D"			
463+15 - 463+98	107	12	
TOTAL	107	12	

CURBS, COMBINATION CURB AND GUTTER AND MEDIAN QUANTITIES

LOCATION CORRIDOR "L" INTERCHANGE	ITEM 610-3 (1) MOD. COMB. CONC. CURB. AND GUTTER	ITEM 610-1 (1) TYPE 1 PLAIN CONC. CURB.	ITEM 610-1 TYPE 2 PLAIN CONC. CURB.	ITEM 610-6 (V) MEDIAN	ITEM 664-1 (I) IMPACT ATTENUATING DEVICE	REMARKS
STATION TO STATION	L.F.	L.F.	L.F.	L.F.	EA.	
RAMP A 107+10 to 107+21 Lt.		11				
107+21 to 108+50 Lt	129					
108+30 to 108+74 Lt.		25				
107+10 to 108+00 Rt.		90				
RAMP B 106+78 to 108+01.5 Rt & Lt.			227			
RAMP D 461+98.50 to 462+25 Rt.		27				
462+25 to 463+54.20 Rt.	129					
463+54.20 to 465+34 Rt.		434				
462+74.70 to 463+64.70 Lt.		90				
TOTAL	258	677	227			

GUARDRAIL

LOCATION CORRIDOR "L" INTERCHANGE	ITEM 607-1 (CLASS 1) TYPE I GUARDRAIL	ITEM 607-30 SPECIAL BREAKAWAY CABLE TERMINAL	ITEM 607-29 BREAKAWAY CABLE TERMINAL	REMARKS
STATION TO STATION	L.F.	EA.	EA.	
RAMP "A"				
107+10 - 110+00 Lt.	290			
107+10 - 107+40 Rt.	30			
107+60 - 108+00 Rt.	40			
RAMP "B" 106+56 - 107+40 Lt.	86		1	
RAMP "D"				
461+78.50 to 463+25 Rt.	127	1	1	
462+34 - 463+13 Lt.	86		1	
TOTAL	659	1	3	

SEEDING AND MULCHING

LOCATION CORRIDOR "L" INTERCHANGE	ITEM 652-1 AGRICULTURAL LIMESTONE	ITEM 652-2-1 FERTILIZER 10-20-10	ITEM 652-2-2 UREA FORM-ALDEHYDE FERTILIZER	ITEM 652-3-1 SEED MIXTURES B, C-1 OR C-2	ITEM 652-3-2 SEED MIXTURE D	ITEM 652-4-1 STRAW OR HAY MULCH	ITEM 652-4-2 WOOD CELLULOSE FIBER MULCH	REMARKS
STATION TO STATION	TONS	TONS	TONS	LBS.	LBS.	TONS	TONS	
RAMP "A"								
106+78 - 108+01.5 Rt.	0.1	0.1	0.1	7		0.1		
RAMP "B"								
106+78 - 108+01.5 Rt.	0.1	0.1	0.1	6		0.1		
RAMP "D"								
460+91.5 - 466+55 Rt.	0.5	0.3	0.1	50		1.0		
TOTAL	0.7	0.5	0.3	63		1.2		

FURNISHING AND PLACING TOPSOIL

LOCATION CORRIDOR "L" INTERCHANGE	ITEM 651-1	REMARKS
STATION TO STATION	C.Y.	
RAMP "A"		
106+78 - 108+01.5 Rt.	58	
RAMP "B"		
106+78 - 108+01.5 Rt.	49	
RAMP "D"		
460+91.5 - 466+55 Rt.	421	
TOTAL	528	

GRADING, CLEARING AND GRUBBING QUANTITIES

LOCATION CORRIDOR "L" INTERCHANGE	ITEM 207-1 EXCAVATION UNCLASSIFIED	EMBANKMENT UNCLASSIFIED	EXCESS (+) BORROW (-)	ITEM 201-1 CLEARING AND GRUBBING	REMARKS
STATION TO STATION	C.Y.	C.Y.	C.Y.	S.Y.	

ITEM 637-1 WATER FOR DUST PALLIATIVE

DESCRIPTION	QUANTITY	APPLICATION RATE	THOUSAND
	C.Y.	GAL. C.Y.	GAL.

SMALL FIELD OFFICE & STORAGE BUILDING

ITEM 640-2
EA.
1

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

QUANTITIES

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

KBE 191255 9-77 TEM 2229•

DRAINAGE QUANTITIES

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	~~9~~ 10	328 77 9.43	I-77-2(46)9		~~MERCER~~ RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	12	136

LOCATION		C.I. OR S. PIPE ITEM 604-9 6" 0.064 L.F.	8" 0.064 L.F.	12" 0.064 L.F.	18" 0.064 L.F.	24" 0.064 L.F.	MANHOLE ITEM 605-1 TYPE A EA.	INLETS ITEM 605-9 TYPE G TYPE 1 GRATE EA.	TYPE 2 GRATE EA.	END SECTION ITEM 604-14 12" EA.	CLASS "B" CONCRETE ITEM 601-2 C.Y.	WINGWALLS 18" TO 60" EA.	REINF. STEEL * LBS.	ITEM 605-4 MOD. TYPE B INLET EA.	REMARKS
BARRIER "A" Northbound															
~~1184+67 1184+87~~	~~Lt.~~		~~20~~												~~Bldg. Fl. Drain Outlet~~
~~1184+67 1184+96~~	~~Lt.~~		~~54~~												~~Tunnel Drain Outlet~~
~~1184+67 - 1185+05~~	~~Lt.~~			~~80~~						~~1~~					~~Outlet~~
~~1184+67 & 1184+92~~	~~Lt.~~						~~2~~								
~~Southbound~~															
~~1183+74~~	~~Lt.~~	~~26~~													~~Treadle Drain Outlet~~
~~1183+89 1184+33~~	~~Rt.~~			~~84~~											~~Outlet~~
~~1184+03 1184+33~~	~~Rt.~~		~~54~~							~~1~~					~~Tunnel Drain Outlet~~
~~1184+08 1184+33~~	~~Rt.~~		~~20~~												~~Bldg. Fl. Drain Outlet~~
~~1184+33 & 1184+09~~	~~Rt.~~						~~2~~								
Connecting Road															
~~1+28~~	~~℄~~					~~88~~					~~2.6~~	~~2~~	~~116~~		~~Headwall Both Ends~~
~~SUB-TOTAL~~		~~26~~	~~148~~	~~164~~		~~88~~	~~4~~			~~2~~	~~2.6~~	~~2~~	~~116~~		
~~BARRIER "B"~~															
~~2630+72~~	~~Rt.~~	~~2~~		~~128~~			~~2~~			~~1~~					~~Treadle Drain Outlet~~
~~2630+72 - 2630+90~~	~~Rt.~~	~~17~~													~~Bldg. Drain Outlet~~
~~2630+72 - 2630+98~~	~~Rt.~~		~~25~~												~~Tunnel Drain~~
~~2631+28~~	~~Rt.~~	~~2~~					~~1~~								~~Treadle Drain~~
~~2631+28 - 2631+45~~	~~Rt.~~			~~18~~			~~1~~								~~Conn. M.H's.~~
~~2631+45~~	~~Rt.~~			~~100~~						~~1~~					~~Outlet~~
~~SUB TOTAL~~		~~21~~	~~25~~	~~246~~			~~4~~			~~2~~					
~~BARRIER "C"~~															
~~1802+47~~	~~Rt.~~				~~96~~			~~1~~	~~1~~						~~Median Drain~~
~~1803+05~~														~~1~~	~~122 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~1803+08~~	~~Rt.~~				~~26~~										~~Connect To 24" Pipe~~
~~1804+20~~														~~1~~	~~133 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~1804+25~~	~~Rt.~~				~~26~~										~~Connect To 24" Pipe~~
~~1805+26~~														~~1~~	~~140 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~1805+28~~	~~Rt.~~				~~28~~										~~Connect To 24" Pipe~~
~~1806+78~~	~~Rt.~~				~~38~~										~~Connect To 24" Pipe~~
~~1806+78~~														~~1~~	~~132 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~1807+33~~	~~Lt.~~			~~108~~			~~1~~			~~1~~					~~Outlet~~
~~1807+33 1807+50~~	~~Lt.~~			~~18~~											~~Connect M.H's.~~
~~1807+50~~	~~Lt.~~	~~2~~					~~1~~								~~Treadle Drain Outlet~~
~~1807+83 - 1807+06~~	~~Lt.~~				~~25~~										~~Tunnel Drain Outlet~~
~~1807+86 - 1807+06~~	~~Lt.~~	~~20~~													~~Bldg. Fl. Drain Outlet~~
~~1808+06~~	~~Lt.~~	~~2~~		~~50~~			~~2~~								~~Treadle Drain Outlet, Conn. M.H's.~~
~~1808+06~~	~~Lt.~~			~~16~~											~~Outlet~~
~~1808+79~~	~~Rt.~~				~~30~~										~~Connect To 24" Pipe~~
~~1808+79~~														~~1~~	~~132 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~1809+95~~	~~Rt.~~				~~30~~										~~Connect To 24" Pipe~~
~~1809+96~~														~~1~~	~~138 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~1811+08~~	~~Rt.~~				~~24~~										~~Connect To 24" Pipe~~
~~1811+12~~														~~1~~	~~127 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~1812+24~~	~~Rt.~~				~~20~~										~~Connect To 24" Pipe~~
~~1812+26~~														~~1~~	~~116 L.F. Includes Cl. B Conc., Reinf. & Grate~~
~~SUB TOTAL~~		~~29~~		~~252~~	~~343~~		~~4~~	~~1~~	~~1~~	~~1~~				~~8~~	
CORRIDOR "L"															
107+22 Ramp A	Lt.	26									0.1				Treadle Drain Outlet, Conc. Edwl.
107+47 Ramp A	Lt.				52					1					Tunnel Drain Outlet
107+77 Ramp A	Lt.	22									0.1				Treadle Drain Outlet, Conc. Edwl.
462+97 Ramp D	Rt.	80									0.1				Treadle Drain Outlet, Conc. Edwl.
463+63 Ramp D	Rt.	7					1								Treadle Drain Outlet
463+63 - 463+68 Ramp D	Rt.			16											Connect M.H's.
463+68 - Ramp D	Rt.			72			1			1					Outlet
107+77 - Ramp B	Lt.	26													
SHEET TOTAL		161		88	52		2			2	0.3				

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

DRAINAGE QUANTITIES

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W VA	10	328 77 9.43	I-77-2(46)9 63		Raleigh	13	136

SUMMARY

DESCRIPTION - BID ITEMS

LOCATION	MARK NO.	PLAN NO.	PROFILE NO.	670-7(2") Plastic Pipe (Class 160) Per Lin. Ft.	670-7(1") Plastic Pipe (Class 160) Per Lin. Ft.	670-10(6") Steel Casing Pipe (0.200") Per Lin. Ft.	670-19 Special Valve (1") Tapping Valve and Valve Box, Per Each	670-21(2") House Connection Per Lin. Ft.	670-36, Water Well Pump and Appurtances, Complete, Lump Sum.	670-37, Water Treatment Building, Complete, Lump Sum.	670-38, Iron Treatment Equipment, Complete, Lump Sum.	670-39, Chlorination, Equipment Complete, Lump Sum.	670-40, Water Distribution Equipment, Complete Lump Sum.	675-7(4") Plastic Sewer Pipe Per Lin. Ft.	675-7(4") Plastic Sewer Pipe (Class 160) Per Lin. Ft.	675-7(6") Plastic Sewer Pipe Per Lin. Ft.	675-14 Manhole Complete Including Casting, Per Ea.	675-14 Drop Manhole Complete Including Casting, Per. Ea.	675-21(12") Steel Casing Pipe (0.250"), Per Lin. Ft.	675-34, (1,000 gallon) Septic Tank Per Ea. Complete	675-34,(750 gallon) Septic Tank Per Ea. Complete	675-36 Special Earth Fill, Complete Per Cubic Yard	675-37 Absorption Trench, Complete Per Lin. Ft.	675-38 Mound Trench Construction Per Lin. Ft.	675-39 Package Sewer Pump Sta. Complete, Lump Sum.	601-5 Class "C" Concrete Per Cu. Yd.
~~GHENT~~	~~W-1~~				~~1,524~~	~~65~~																			~~0.32~~
~~Ramp A~~	~~S-1~~													~~37~~							~~1~~		~~120~~	~~80~~			
~~Ramp D~~	~~S-1~~													~~34~~							~~1~~		~~120~~	~~80~~			
~~BARRIER PLAZA "A"~~	~~W-2~~			~~486~~		~~60~~			~~1~~	~~1~~	~~1~~	~~1~~	~~1~~													~~0.42~~
~~Northbound~~	~~S-2~~													~~17~~		~~53~~	~~2~~				~~1~~		~~2265~~	~~370~~			
~~Southbound~~	~~S-2~~													~~151~~		~~95~~				~~80~~	~~1~~		~~2389~~	~~322~~			
CORRIDOR "L"	W-4					20		1141																			0.36
	S-4													19	618	88	1			~~193~~	1		1450		510	1	0.28
~~BARRIER PLAZA "B"~~	~~W-5~~			~~39~~					~~1~~	~~1~~	~~1~~	~~1~~	~~1~~														~~0.08~~
	~~S-5~~													~~258~~		~~15~~	~~4~~				~~1~~		~~2705~~	~~504~~			
~~BARRIER PLAZA "C"~~	~~W-6~~			~~339~~		~~37~~			~~1~~	~~1~~	~~1~~	~~1~~	~~1~~														~~0.18~~
	~~S-6~~													~~15~~	~~64~~	~~77~~	~~1~~				~~1~~		~~1120~~	~~540~~	~~1~~	~~0.07~~	
~~MARMET~~	~~S-7~~													~~75~~		~~1,270~~	~~5~~	~~1~~		~~97~~							
~~Ramp 1~~	~~W-7~~					~~15~~		~~1 275~~																			~~0.06~~
~~Ramp 7~~	~~W-7~~					~~12~~		~~1 140~~																			~~0.06~~
	TOTALS					20		1141						19	618	88	1				1		1450		510	1	0.64

20

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE
SCALE Horiz	Vert	DATE	

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

QUANTITIES | WATER AND SEWER

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS **HNTB**

SHEET NO

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA	10	328 77 9.43	I-77-2(~~40~~)9 63		Raleigh	14	136

SUMMARY

DESCRIPTION - NON-BID ITEMS

LOCATION	MARK NO.	PLAN NO.	PROFILE NO.	BENDS, EACH									TEES, EACH			COUPLINGS & SLEEVES				SPECIAL CONNECTIONS							CASING SEALS			SPECIAL VALVES						SPECIAL STRUCTURE	OTHERS	
				1" - 90° POJ, POJ	1" - 45° POJ, POJ	2" - 90° POJ, POJ	2" - 45° POJ, POJ	4" - 90° POJ, POJ	4" - 45° POJ, POJ	4" - 22 1/2° POJ, POJ		6" - 45° POJ, POJ	6" - 22 1/2° POJ, POJ	4" x 4" x 4" TEE, POJ, POJ, POJ	6" x 6" x 4" TEE, POJ, POJ, POJ	1" x 1" x 1" TEE, POJ, POJ, POJ	4" Cast Iron to 4" Plastic Pipe Coupling		1" Copper to 1" Plastic Pipe Coupling	2" Copper to 2" Plastic Pipe Coupling	1" x 6" M.J. Tapping Sleeve														Cleanout Deck Plate	6" - POJ, Cap	4" - POJ, Cap.
~~GHENT~~	~~W-1~~			~~4~~	~~1~~											~~1~~			~~2~~																		~~2~~
~~Ramp A~~	~~S-1~~							~~3~~						~~1~~			~~1~~																				~~2~~
~~Ramp D~~	~~S-1~~							~~3~~	~~2~~					~~1~~	~~1~~		~~1~~																				~~2~~
~~BARRIER PLAZA "A"~~	~~W-2~~					~~5~~	~~3~~													~~2~~																	
~~Northbound~~	~~S-2~~							~~6~~	~~4~~			~~2~~		~~6~~	~~2~~		~~2~~																			~~1~~	~~5~~
~~Southbound~~	~~S-2~~							~~4~~	~~4~~	~~2~~		~~2~~		~~5~~	~~2~~		~~2~~																			~~1~~	
CORRIDOR "L"	W-4					4	3													1																	
	S-4							8	4			2		9	2		2																			1	1
~~BARRIER PLAZA "B"~~	~~W-5~~					~~2~~														~~1~~																	
	~~S-5~~							~~8~~						~~9~~			~~1~~																				
~~BARRIER PLAZA "C"~~	~~W-6~~					~~3~~														~~1~~																	
	~~S-6~~							~~4~~	~~4~~	~~2~~		~~2~~		~~9~~	~~2~~		~~2~~																			~~1~~	~~1~~
~~MARMET~~	~~S-7~~									~~2~~			~~1~~				~~2~~																				
~~Ramp 1~~	~~W-7~~			~~1~~															~~1~~		~~1~~																
~~Ramp 7~~	~~W-7~~			~~1~~															~~1~~		~~1~~																
TOTALS						4	3	8	4			2		9	2		2			1																1	1

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
SCALE Horiz	Vert	DATE		

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

QUANTITIES | WATER AND SEWER

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS **HNTB**

SHEET NO

K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9		Raleigh	15	136

GOVERNING SPECIFICATIONS

The West Virginia Department of Highways Standard Specifications Roads and Bridges, adopted 1978 as amended by the Special Provisions of the West Virginia Department of Highways, adopted Jan. 1, 1979, the Contract Special Provisions, the Contract Documents, and the Contract Plans are the governing specifications applicable to this project.

UTILITY POLES

All abandoned Utility Poles within the limits of the Right-Of-Way shall be removed and disposed of by the Contractor. The removal shall be treated in a similar manner as the clearing and grubbing of trees. The cost of removal shall be included in the various bid items of the contract. The poles to be abandoned will be marked by the Project Engineer.

JOINTED CONCRETE PAVEMENT

In jointed concrete pavement construction, sand shoes, detailed and specified on the Department's Load Transfer Unit Standards, L. T. Series, need not be used in the installation of load transfer units.

DRAINAGE

Stations and offsets as shown refer to inlet centerlines and manhole cover center points shown on standard or typicals.

GUARDRAIL GALVANIZATION DAMAGE

Galvanized coating damaged for any reason shall be repaired by the application of a zinc rich paint conforming to Military Specification Mil-F-21035 or Federal Specification TT-P-641.

BITUMINOUS MATERIAL

Unless otherwise directed by the Engineer, any of the types of bituminous material listed in Subsection 409.2, with the exception of Cationic Emulsified Asphalt, Type CRS-1, may be used.

In addition, if acceptable to the Engineer, the following grades of bituminous material may be used: SS-1 or SS-1h meeting the requirements of Subsection 705.11. These materials may be diluted with water in order to facilitate their use.

Emulsions should not be used when the atmospheric temperature is below 32° F. or expected to fall below 32° F. within 48 hours after its use.

WEEP HOLES IN INLETS

When deemed necessary, weep holes may be installed in the sidewall of inlets during construction to provide base course drainage prior to placement of pavement. These weep holes shall be located at or below subgrade elevation as directed or approved by the Engineer to properly drain subsurface material. One weep hole, approximately 4" diameter non-rust material, may be installed in each appropriate sidewall. Loose rock shall be placed around the outside of the structure at the opening, or other similar protective measures taken, to prevent excessive backfill material from passing through the weep holes. The cost of weep hole installation shall be included in the unit price bid for the inlets. No deduction in concrete quantities shall be made for weep holes in inlets.

WINGWALLS

The cost of structure excavation shall be included in the unit bid price for Class B Concrete.

SUBSURFACE INFORMATION

Subsurface information shown on this set of plans was obtained solely for use in establishing design controls for this project. The accuracy of this information is not guaranteed, and it is not to be construed as part of the plans governing construction of the project.

ABBREVIATIONS

The notation C.I. or S. as used in these plans is hereby restricted to refer only to corrugated iron or steel pipe.

The notation **N.I.C.** as used in these plans shall be construed as **"Not In Contract"**.

~~WORKING HOURS~~

~~No work shall be performed by the Contractor between 12:00 Midnight and 6:00 A.M. at the Marmet Interchange only.~~

UNDERGROUND TELEPHONE CABLES

The C. and P. Telephone Company has established a free underground cable locating service. The Contractor can avail himself of this service by telephoning 1-800-642-9009.

COAL

Any amount of coal encountered during excavation procedures shall become the property of the Contractor but shall be considered unsuitable material for construction purposes and shall not be used as such.

EXISTING PIPE CULVERTS

Any pipe that is removed during the construction shall become the property of the contractor. The cost of removing existing pipes and inlets will be included in the unit price bid for unclassified excavation. No extra compensation will be made for this work.

SUPERELEVATIONS

The plans should be carefully observed in regard to superelevation rate, superelevation transition, and location of profile grade line relative to centerline or baseline.

The items "Left Edge" and "Right Edge" (of pavement) are always to be taken as being relative to the direction of increasing stations, regardless of the direction of traffic.

NOTICE TO CONTRACTOR'S

It is anticipated that other Contractors will be working in this area, and it is imperative that a strict coordination between Contractors be agreed on in reference to working plans and storage areas. This plan of coordination will be presented to the Engineer in writing for his review and approval.

VIBRATIONS BY BLASTING OR OTHER OPERATIONS

The Contractor shall comply with this specification concerning production of vibrations by blasting or vibrations from other operations by the Contractor.

1. The Contractor shall conduct a series of public relations meetings to inform the public of the nature of the blasting to be accomplished and the nature and content of vibrations likely to result.
2. No blasting will be done before 8:00 A.M. or after 8:00 P.M.
3. Seismograph records will be made of each blast to maintain constant close control over loading and detonation sequences. Such records will be made available to the Engineer at his request.
4. The throw of rock fragments will be controlled so that no pieces fall outside the right-of-way limits.
5. A blast shall be defined as a predetermined number of shots. A period of at least ten (10) minutes shall elapse between each blast and minimum delayed time of 100 milliseconds shall elapse between each individual shot with a blast. The interval between individual shots may be increased or decreased if requested by the Contractor and approved by the Engineer. The Contractor must, however, remain within the vibration limits hereinafter described.
6. The maximum peak particle velocity of any blast wave motion passing thru the earth at any and all structures shall be 2.0 inches/seconds or less. However, this maximum velocity may be decreased at the direction of the Engineer, if unfavorable reactions arise. The measurements shall be taken on the ground adjacent to and or within the structures as designated by the Engineer.
7. The Contractor shall provide monitoring equipment and personnel knowledgeable in vibration measurement for judging the size of his shots, and if requested by the Engineer, monitoring of vibrations of other construction activities.
8. The Contractor shall keep a written record of blasting in the area to include depth of blast hole, pounds of explosive per delay, Type of explosive and the number of delays per blast. This record shall be made available to the Engineer.
9. The Contractor shall provide for communication between the blasting foreman and the Engineer such that verbal contact can be made within the specified ten (10) minute interval between blasts. The interval between blasts may be decreased at the discretion of the Engineer.

~~GUARD RAIL REMOVAL~~

~~Guard rail at the temporary detours, North and South of Barrier Plaza "A" shall be removed and become the property of the Contractor.~~

GUARD RAIL

Steel blocks and posts shall be used for all guard rail on this project.

~~AGRICULTURAL LIMESTONE~~

~~Due to the possible acidity problems associated with many of the rock strata and resultant soil. Additional agricultural limestone, as determined by the Engineer, over that specified by the PH test will be added to the soil material to insure neutralization of the acidity. Problem acidity areas will be identified in the field.~~

~~It is anticipated that in many areas the agricultural limestone added to the soil with the initial seeding may not be sufficient to neutralize the soils acidity. In these areas agricultural limestone, as required by the PH test, shall be applied during the second and/or third step seeding.~~

TOPSOIL

Top soil, as defined in section 651.2, either from the project or from outside sources, shall be applied to the graded mowable areas around the Barrier Toll buildings and parking areas to the depth of 6".

DETOURS

The change-over from the present toll system to the system to be constructed under this contract and others requires that all detours be maintained until the toll system is complete and the change over completed. The contractor shall then remove all detours in this contract including the detours at Barrier "A". Detour removal shall include seeding, mulching, and the additional grading required to construct the final template which provides for future widening of the plazas as shown on the cross sections.

No separate payment will be made for this work and the cost there of shall be included in Item 207-1, "Unclassified Excavation" unless otherwise specified for Plazas "B" and "C".

WATER LINES

Water line construction shall be in accordance with the Special Provisions Section 670 and the Standard Specifications Section 670.

SEWAGE TREATMENT SYSTEMS

All work shall be performed in accordance with the sewage treatment special provisions.

WATER AND SEWER CONNECTIONS

All water and sewer line connections, not included in costs for Item 670-21, shall be included in the cost per linear foot of pipe, including all taps, couplings, curb cocks, curb boxes or other material necessary to complete the work. The Contractor shall be responsible for all water and sewer charges incurred prior to project acceptance or occupancy by the Department, which ever occure first.

MAINTENANCE OF TRAFFIC

THE MAINTENANCE OF TRAFFIC ON THIS PROJECT IS CONSIDERED TO BE VERY MINOR AND THEREFORE THERE WILL BE NO SEPARATE PAYMENT FOR THE MAINTENANCE OF TRAFFIC ON THIS PROJECT, BUT THE COST OF SAME SHALL BE INCLUDED IN THE VARIOUS BID ITEMS ON THIS PROJECT.

NOTICE TO CONTRACTOR

THERE IS A POSSIBILITY THAT THE EXISTING CORRIDOR "L" PROJECT UNDER CONSTRUCTION WILL BE COMPLETED EARLY. BASED ON THIS POSSIBILITY THE FIRST ORDER OF WORK BY THE CONTRACTOR SHALL BE THE PLACEMENT OF THE TUNNEL AND UNDERPASS PAVEMENT ON THE PROJECT.

SPECIALTY ITEMS

THE CONTRACTOR FOR THE PROJECT WILL BE REQUIRED TO PERFORM WITH HIS OWN ORGANIZATION CONTRACT WORK AMOUNTING TO NOT LESS THAN 50 PERCENT OF OF THE TOTAL CONTRACT PRICE. IF ANY OF THE CONTRACT WORK REQUIRES HIGHLY SPECIALIZED KNOWLEDGE, CRAFTMANSHIP OR EQUIPMENT NOT ORDINARILY AVAILABLE IN CONTRACTING ORGANIZATIONS QUALIFIED TO BID ON THE CONTRACT AS A WHOLE, SUCH WORK AS DESIGNATED IN THE CONTRACTORS PROPOSAL AS 'SPECIALTY ITEMS' AND MAY BE PERFORMED BY SUB-CONTRACT. THE COST OF SUCH 'SPECIALTY ITEMS' MAY BE DEDUCTED FROM THE TOTAL CONTRACT PRICE BEFORE COMPUTING THE AMOUNT OF WORK REQUIRED TO BE PERFORMED BY THE CONTRACTOR WITH HIS OWN ORGANIZATION.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

GENERAL NOTES

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9 63		Raleigh	16	136

End 30:1 Taper Rt. Edge
End 15:1 Taper Lt. Edge
Sta. 106 + 50

Begin Guard Rail & P.C. Curb Lt. & Rt.
Limit of Paving
Sta. 107 + 10

Begin Modified Comb. Curb & Gutter
Limit of 8" Rdwy. Pav't & 10" Sub-Slab
Sta. 107 + 21

End Tunnel - 42' Lt. Ramp AB ℄

℄ Toll Plaza
Sta. 107+50

Limit of 8" Rdwy. Pav't & 10" Sub-Slab
Sta. 107 + 82

Begin 25:1 Taper Rt. Edge
Begin 20:1 Taper Lt. Edge
Begin Paved Shldr.
End Modified Comb. Curb & Gutter
Sta. 108 + 50

End P.C. Curb Lt.
Sta. 108 + 74

End Guard Rail Lt.
Sta. 110 + 00

End Paved Shldr. Lt.
Limit of Paving
Sta. 110 + 25

Treadle

Type 1
Guard Rail

P.C. Curb, Type 1
Modified Combination
Curb & Gutter

100'R

20:1 Taper

15:1 Taper

N 30° 45' 45" E

47.00'

44.00'

RAMP A

30:1 Taper

25:1 Taper

End Guard Rail & P.C. Curb Rt.
Limit of Paving
Sta. 108 + 00

105 106 107 108 109 110

For Guard Rail Treatment
See Guardrail at Bridges
4 lane highway "Detail, Std.
Det. Sht. G.R. 5

Begin Guard Rail
Sta. 106+56

B.C.T.

Limit of 8" Rdwy. Pav't & 10" Sub-Slab
Sta. 107 + 20

Barrier

P.C. Curb, Type 1

Temporary Toll Booth
Limit of 8" Rdwy. Pav't & 10" Sub-Slab
Sta. 107 + 80

3'-1½" Post Spacing

For G.R. Treatment
See Guardrail at Bridges
4-Lane Highway
G.R.5

Begin P.C. Curb Type 2
Begin Paved Shldr. Lt. & Rt.
Limit of Paving
Sta. 106 + 78

End P.C. Curb Type 2
End Paved Shldr. Lt. & Rt.
Limit of Paving
Sta. 108 + 01.5

2 1/2" Bit. Conc. Wearing Crse.

℄ Ramp AB

RAMP B

178° 51' 12"

For Guard Rail Treatment
See "Guard Rail at
Bridges - 4 Lane Highway"
Detail, Standard Det.
Sht. G.R. 5

Type 1, Guard Rail

Begin Guard Rail Lt.
Sta. 462 + 34

B.C.T.

100' R

End Modified Comb. Curb & Gutter
Limit of 8" Rdwy. Pav't & 10" Sub-Slab
Sta. 463 + 54.20

Begin Plain Concrete Shldr. Rt
Sta. 464 + 37.50

P.T. Sta. 461 + 76.33

N 29° 36' 57" E

Treadle

End P.C. Curb Lt.
Limit of Paving
Sta. 463 + 64.70

Begin 10:1 Taper Rt.
Sta. 464 + 14.70

℄ Ramp D

Ramp D

Pavement Joints
By Others

N 29° 36' 57" E

22.62'

+71.23

+76.33

461 462 463 464 465

+14.70

Paved Shldr.

10:1 Taper

Sta. 464 + 10

31.00'

24.10'

N 29° 36' 57" E

B.C.T.

100' R

Modified Combination
Curb & Gutter

Special BCT
End
Treatment

P.C. Curb, Type 1

12' R

10' R

Telephone Booth

End P.C. Shldr. at
Existing Pavement Joint

Begin Taper To 2'
Sta. 465 + 15

Note: Plain Concrete Shoulder to have Transverse Contraction Joints (Non-reinforced) at 20'-6" Max. C. to C.

460

Type 1 Guard Rail

Begin P.C. Curb Lt.
Limit of Paving
Sta. 462 + 74.70

Limit of 8" Rdwy. Pav't & 10" Sub-Slab
Sta. 462 + 92.70

P.T. Sta. 462 + 98.38

Sidewalk

Building

Parking for
Money Truck
Only

Parking
(14 Spaces)

Ramp for Handicapped

120'-0"

29'-0"

45'-0"

N 23° 54' 19" E

N 29° 36' 57" E

Transformer &
Base

Generator &
Base

Underground
Fuel Tank

℄ Toll Plaza
Sta. 463+25

P.T. Sta. 461 + 71.23

Begin Guard Rail Rt.
Begin P.C. Curb Rt.
Sta. 461 + 98.50

Begin Modified Comb. Curb & Gutter
Sta. 462 + 25

Ramp D ℄ Curve Data
P.I. Sta. 458 + 71.90
△ = 45° 08' 11"
D = 5° 00' 00"
L = 902.73'
R = 1145.92'
T = 476.26'
E = 95.03'
S.E = 0.071 ft

* Last 12'-6" of Type 1 Guard Rail to be Curved to Toll Booth Barrier Block and Connected.

For Parking Lot Details see Sheet 6

Pavement Joint Legend
(A) Standard Contraction Joint
(B) Expansion Joint with Dowels
(E) Standard Longitudinal Key Joint

References	Sheet
Grading Plan	17
Profile	19,20
Typical Sections	4,5
Mod. Comb. Curb. & Gutter Detail	2
Reference Sheets	21-52

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 20' Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

SITE PLAN
PAVEMENT JOINTS
CORRIDOR "L"

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46)9		Raleigh	17	136

Approved _____ Date _____

Inv. 2295.10
81 L.F. C.I. or S.P. (By Others)
Type 'F' Inlet (By Others)
Top of Grate El. 2316.80
Inv. 2313.80 (18" out)
℄ Toll Plaza Sta. 107+50
Inv. 2305.39
52 L.F. - 18" C.M.P. @ 0.005'/ft.
Inv. 2314.13
26 L.F. - 6" C.I.P. @ 0.005'/ft.
Inv. 2314.80
22 L.F. - 6" C.I.P. @ 0.005'/ft.
Inv. 2314.26 Inv. 2305.65 Inv. 2314.91
Limit of Graded Area Sta. 106+78
Limit of Graded Area Sta. 108+01.5
RAMP A
Graded Area Place 6" Topsoil
INV. 2315.18
TRANSITION OUTER 3 FT. OF PAVEMENT TO NORMAL CROSS SLOPE, ℄ Ramp AB
26 L.F. - 6" C.I.P. @ 0.05 l/Ft.
INV. 2315.24
2318.33
RAMP B
Type 'F' Inlet (By Others)
T.G. Elev. 2314.92
Inv. Elev. 2310.14 (18" in)
Inv. Elev. 2310.09 (18" out)
134 L.F. - 18" R.C.P. (By Others)
Inv. 2313.25 6"U.D.
Inv. 2313.49
Graded Area Place 6" Topsoil
Inv. 2314.44
6"U.D. Inv. 2314.56
71 L.F. - 6" U.D. Outlet @ 0.01'/ft.
℄ Ramp D
RAMP D
Limit of Graded Area Sta. 466+55
Limit of Graded Area Sta. 460+91.50
Type 'F' Inlet (By Others)
T.G. Elev. 2317.96
Inv. Elev. 2313.96
10 L.F. - 6" U.D. Outlet Pipe
Inv. 2314.01
Inv. 2314.90
6"U.D.
Inv. 2314.08
Inv. 2313.91
Inv. 2314.48
Inv. 2314.63 Sidewalk
16 L.F. - 12" C.M.P.
Graded Area Place 6" Topsoil
For Drain Tile Location See Sh. 340
Inv. 2314.57 (6")
Inv. 2314.07 (12")
M.H. Type A T.G. 2319.31
M.H. Type A T.G. 2319.11
80 L.F. - 6" C.I.P. @ 0.005'/ft.
Building Fl. El. 2320.25
Parking (14 Spaces)
72 L.F. - 12" C.M.P. @ 0.01'/ft.
Graded Area Place 6" Topsoil
Top of Ditch By Others
Inv. 2314.23
12" End Section Inv. 2313.19
Underground Fuel Tank
Transformer & Base
Generator & Base
℄ Toll Plaza Sta. 463+25
Top of Ditch By Others

REFERENCES	SHEET
SITE PLAN	16 & 18
PROFILE	19 & 20
TYPICAL SECTIONS	4 & 5

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 20' Vert. DATE:

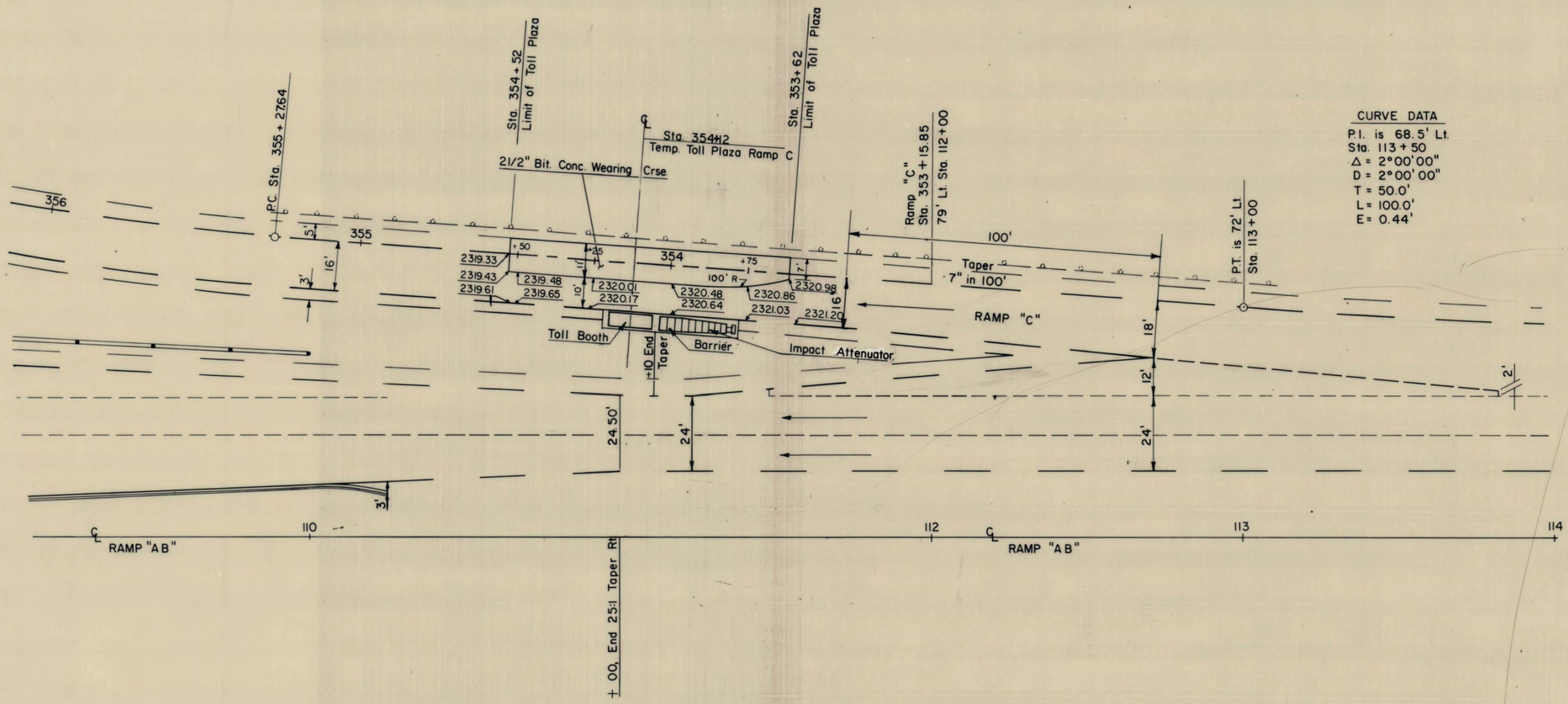
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

GRADING PLAN
CORRIDOR "L"

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
HNTB

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77	I-77-2(639)		Raleigh	18	136



CURVE DATA

P.I. is 68.5' Lt.
Sta. 113+50
Δ = 2°00'00"
D = 2°00'00"
T = 50.0'
L = 100.0'
E = 0.44'

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 20' Vert. _____ DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR "L"
RAMP "C" TEMPORARY TOLL PLAZA

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	19	136

Appr'd _____ Date _____

2322.33 2320.93 2319.53 2318.86 2318.25 2317.70 2317.20 2316.77 2316.40 2316.08 2315.83 2315.63 2315.50 2315.42 2315.40 2315.45 2315.55 2315.71 2315.93 2316.43 2316.93 2317.43 2317.93 2318.43 2318.93 2319.43 2319.93 2320.43 2320.93 2321.43 2321.93

400' V.C.

P.V.C. Sta. 101+50
Elev. 2319.53

P.V.T. Sta. 105+50
Elev. 2315.93

P.V.I. Sta. 103+50
Elev. 2313.93

-2.80 %

+1.00 %

16"

Existing Ground

2340
2330
2320
2310
2300

100 101 102 103 104 105 106 107 108 109 110 111 112

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 50' Vert. 1" = 10" DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR "L"
RAMP AB PROFILE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
HNTB

SHEET NO.

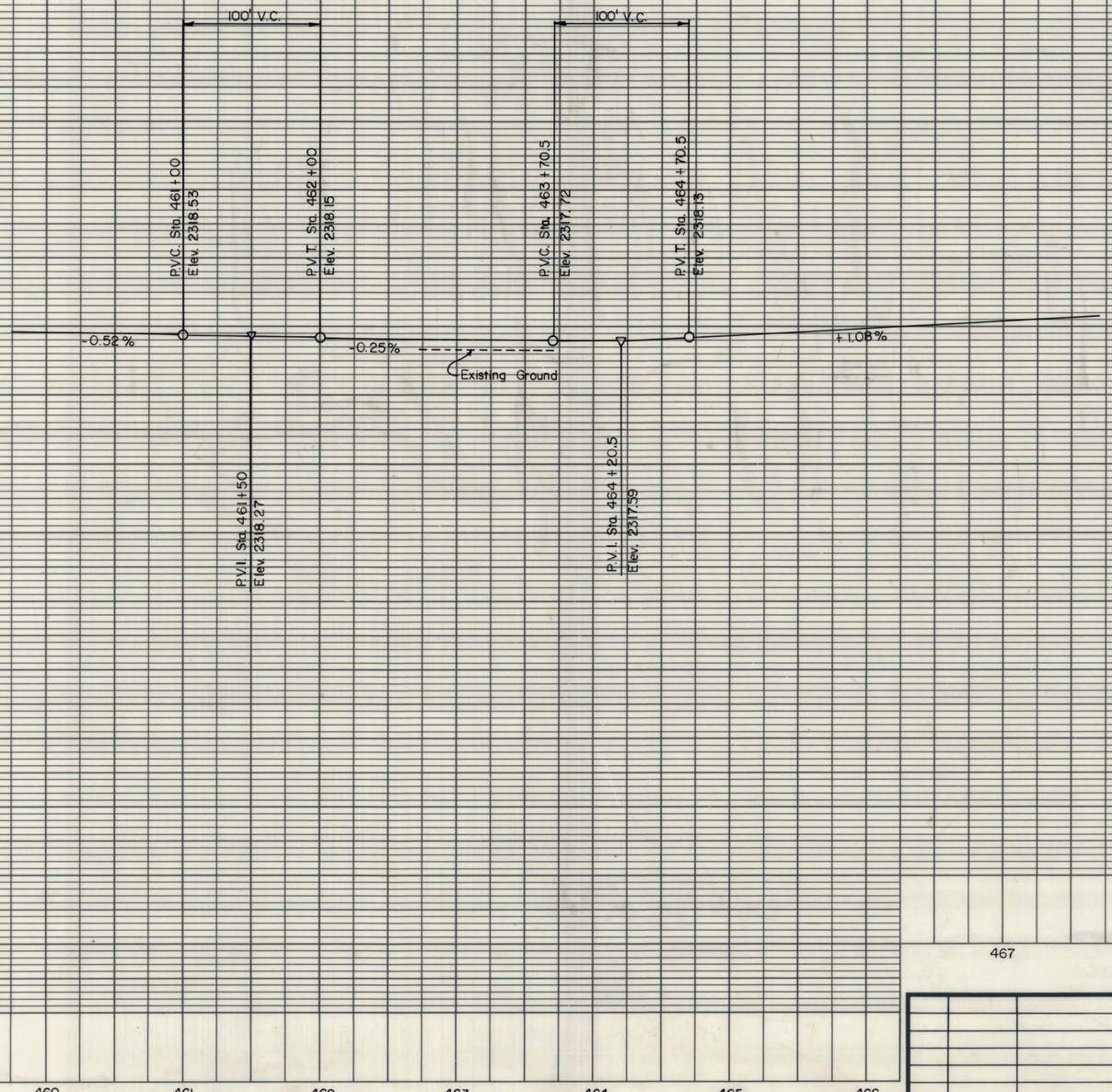
100-1A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2 (46) 9		RALEIGH	20	136

Appr'd _____ Date _____

2319.05 2318.79 2318.53 2318.45 2318.30 2318.22 2318.15 2318.08 2318.02 2317.96 2317.90 2317.83 2317.77 2317.72 2317.71 2317.70 2317.78 2317.94 2318.13 2318.18 2318.45 2318.72 2318.99 2319.26 2319.53 2320.07 2320.61 2321.15

+70.5 +70.5



2340 2330 2320 2310 2300

460 461 462 463 464 465 466 467 468

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 50' Vert. 1" = 10' DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

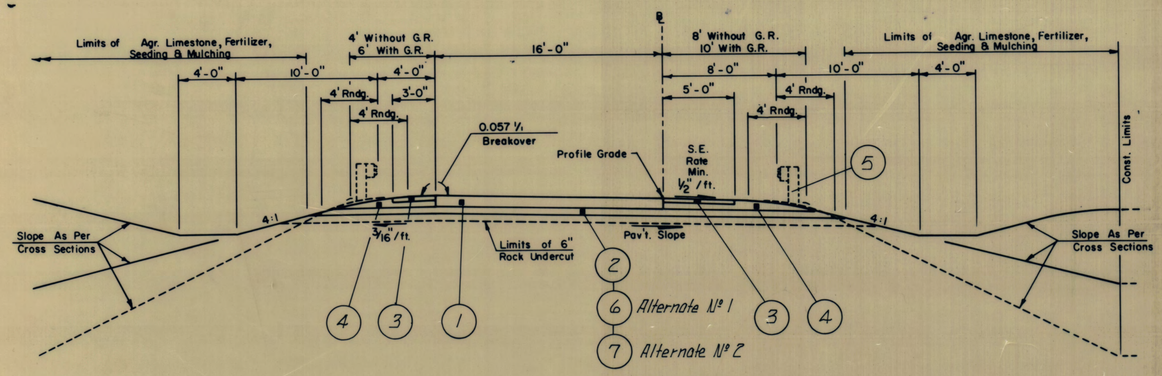
CORRIDOR "L"
RAMP D PROFILE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
HNTB

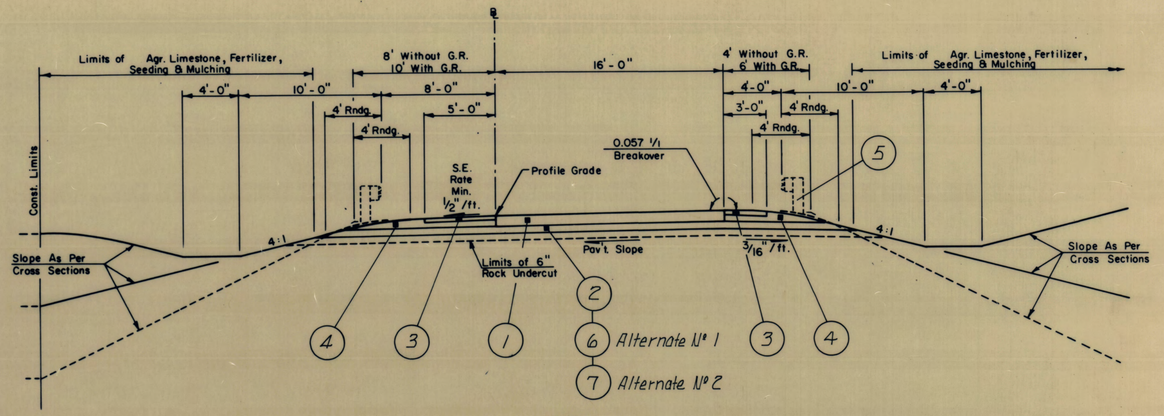
SHEET NO.

100-1A

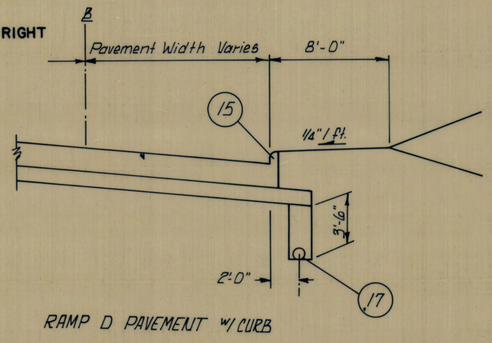
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	RALEIGH	21	136



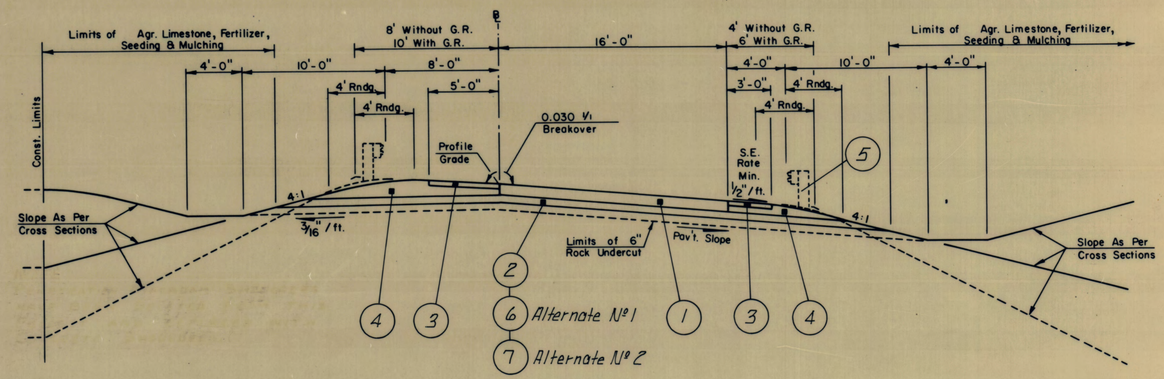
RAMPS B, C & D
NORMAL & SUPERELEVATED - RIGHT



RAMP A
NORMAL & SUPERELEVATED - LEFT



RAMP D PAVEMENT w/ CURB



RAMP A
SUPERELEVATED - RIGHT

(1) Item 501-1(10") Portland Cement Concrete Pavement, Per Sq. Yd.
(2) Item 307-2 6" Class 2 Aggregate Base Course, Per Cu. Yd.
(3) Item 403-4(3") Penetration Macadam Course, Per Sq. Yd.
(4) Item 307-1 Class 1 Aggregate Base Course, Per Cu. Yd.
(5) Item 607-1(1) Type 1 Guardrail, Per Lin. Ft.
(6) Item 302-1 Hot Mixed Hot Laid Bituminous Treated Base Course Aggregate, Per Cu. Yd.
(7) Item 301-1 Cement Treated Base Course Aggregate, Per Cu. Yd.
(15) Item 610-2(1) Integral Concrete Curbing, Per Lin. Ft.
(17) Item 606-25(6") Underdrain Pipe, Per Lin. Ft.
Item 606-22 Crushed Stone, Crushed Gravel, or Silica Sand For Underdrail, Per Cu. Yd.

NOTE:
PENETRATION MACADAM SHOULDERS HAVE BEEN DELETED FROM THIS PROJECT AND REPLACED WITH CONCRETE SHOULDERS.

REFERENCE DRAWING

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS

I-77-2 (57)46
RALEIGH COUNTY

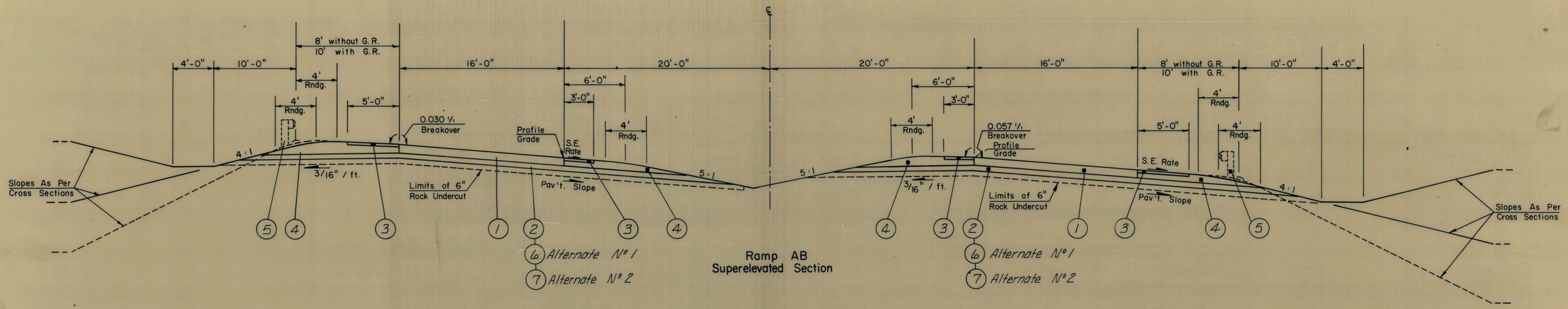
TYPICAL SECTIONS
RAMPS
CORRIDOR "L" INTERCHANGE

SCALE: DATE:

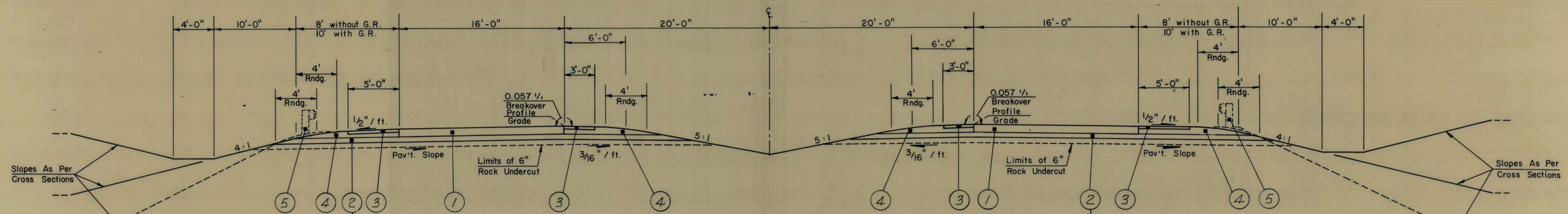
E. S. PRESTON ASSOCIATES, INC.

BRUNING 44-560 26702

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	RALEIGH	22	136

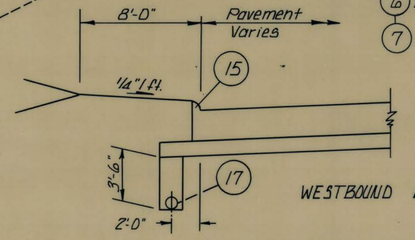


Ramp AB
Superelevated Section

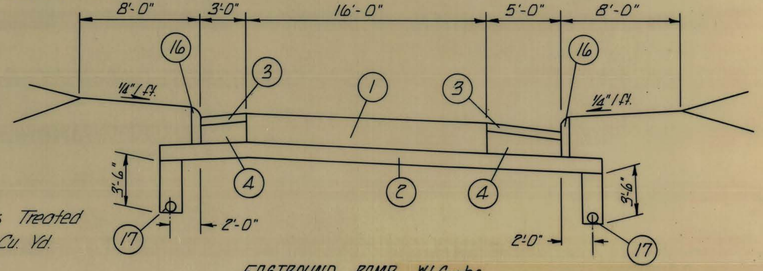


Ramp AB
Normal Section

NOTE:
PENETRATION MACADAM SHOULDERS HAVE BEEN DELETED FROM THIS PROJECT AND REPLACED WITH CONCRETE SHOULDERS.



WESTBOUND RAMP W/ INTEGRAL CURB



EASTBOUND RAMP W/ Curbs

(1) Item 501-1(10") Portland Cement Concrete Pavement, Per Sq. Yd.
(2) Item 307-2 6" Class 2 Aggregate Base Course, Per Cu. Yd.
(3) Item 403-4 (3") Penetration Macadam Course, Per Sq. Yd.
(4) Item 307-1 Class 1 Aggregate Base Course, Per Cu. Yd.
(5) Item 607-1 (1) Type 1 Guardrail, Per Lin. Ft.
(16) Item 610-1(2) Plain Concrete Curbing, Per Lin. Ft.
(15) Item 610-2 (1) Integral Concrete Curbing, Per Lin. Ft.

(6) Item 302-1 Hot Mixed Hot Laid Bituminous Treated Base Course Aggregate, Per Cu. Yd.
Item 302-2 Bituminous Material, Per Gal.
(7) Item 301-1 Cement Treated Base Course Aggregate, Per Cu. Yd.
Item 301-2 Portland Cement, Per Cwt.
Item 301-3 Bituminous Material, Per Gal.
(17) Item 606-25 (6") Underdrain Pipe, Per Lin. Ft.
Item 606-22 Crushed Stone, Crushed Gravel, or Silica Sand For Underdrain, Per Cu. Yd.

REFERENCE DRAWING

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS

I-77-2(57)46
RALEIGH COUNTY

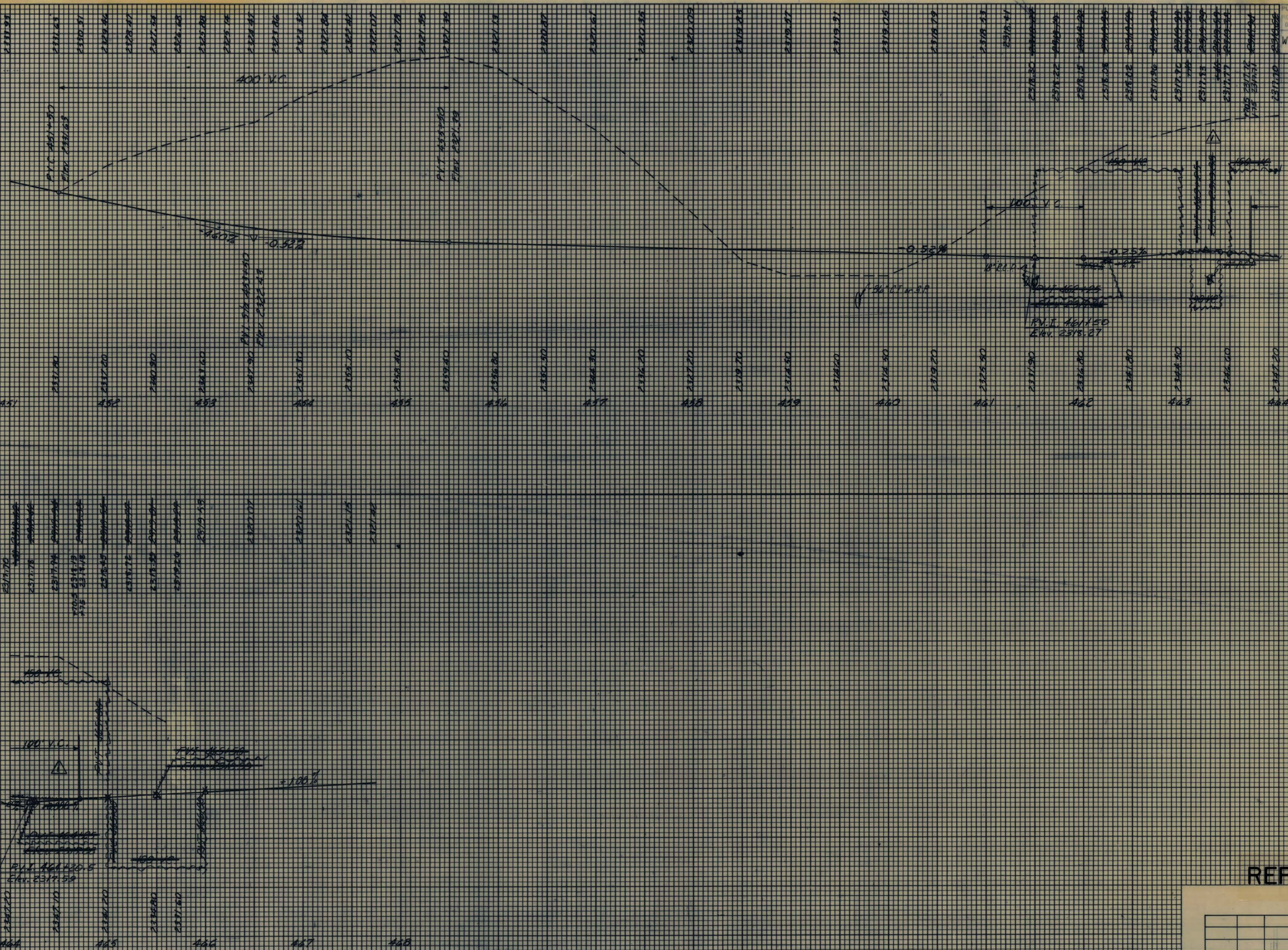
TYPICAL SECTIONS
RAMPS
CORRIDOR "L" INTERCHANGE

SCALE: DATE:

E. S. PRESTON ASSOCIATES, INC.

BRUNING 44-560 26702

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)146	1978	RALEIGH	23	136



REFERENCE DRAWING

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
1	55	Revised Profile	3/78	JM

Corridor "L" Ramp "D"

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	RALEIGH	24	136

MATCH LINE STA 457+00

MATCH LINE STA 102+00

MATCH LINE STA 362+00

MATCH LINE STA 110+00

RAMP D

RAMP C

RAMP D CURVE DATA
P.I. Sta. 458+71.90
Δ = 45°08'11"
Dc = 5°00'
L = 902.73'
R = 1145.92'
T = 476.26'
E = 95.03'
SE = 0.071 ft

RAMP C CURVE DATA
P.I. Sta. 361+64.80
Δ = 79°39'31"
Dc = 7°30'
L = 1062.11'
R = 763.94'
T = 637.16'
E = 230.83'
SE = 0.067 ft

Type G Inlet
℄ Grate = 2312.00
℄ 18" In = 2308.50
℄ 36" In = 2307.05
℄ 36" Out = 2307.00

For Culvert Details, See Sheet 87

Type G Inlet
℄ Grate = ~~2313.10~~ 2312.50 (1)
℄ 18" = 2309.10

Select Embankment Type 1, L=105', W=9', D=1.5', T=2'

187' of 36" C.I. or S.P.

Wingwall w/ Baffles ℄ = 2291.29

Type F Inlet
℄ Grate = ~~2314.25~~ 2314.92
℄ 18" In = 2310.14
℄ 18" Out = 2310.09

Type F Inlet
℄ Grate = ~~2310.25~~
℄ 18" = ~~2305.25~~

81' of 18" C.I. or S.P.

℄ Wingwall w/ Baffles = 2295.10

2316.80
2313.80

Metal Shed

99' of 18" C.I.P.

74' of 18" C.I.P.

Type F Inlet
℄ Grate = ~~2313.36~~
℄ 18" = ~~2303.36~~
℄ 24" = ~~2303.36~~

Type F Inlet
℄ Grate = ~~2318.72~~
℄ 18" = 2313.72

Type A Manhole
Elev. = 2300.01
18" In = 2300.97
18" Out = 2300.87

CW ℄ Wingwall ℄ 2277.60

228' of 18" C.I. or S.P.

SE (Type 1) L=110', W=4', D=4', T=2'

DEG (Type 1) L=26', W=4', D=1', T=2'

Construction Limits

Barn

P.C. Sta. 462+98.37

P.C. Sta. 355+27.64

108+56.12
316.07' Rt.

357+75.00
100.00' Rt.

459+50.00
50.00' Rt.

CW ℄ Wingwall ℄ = 2308.55

FOR DETAILS OF TOLL PLAZA, SEE SHEET ~~78~~ 78 & 79

BY OTHERS

6" Underdrain

C/A

R/W

REFERENCE DRAWING

0 25 50 100
SCALE IN FEET

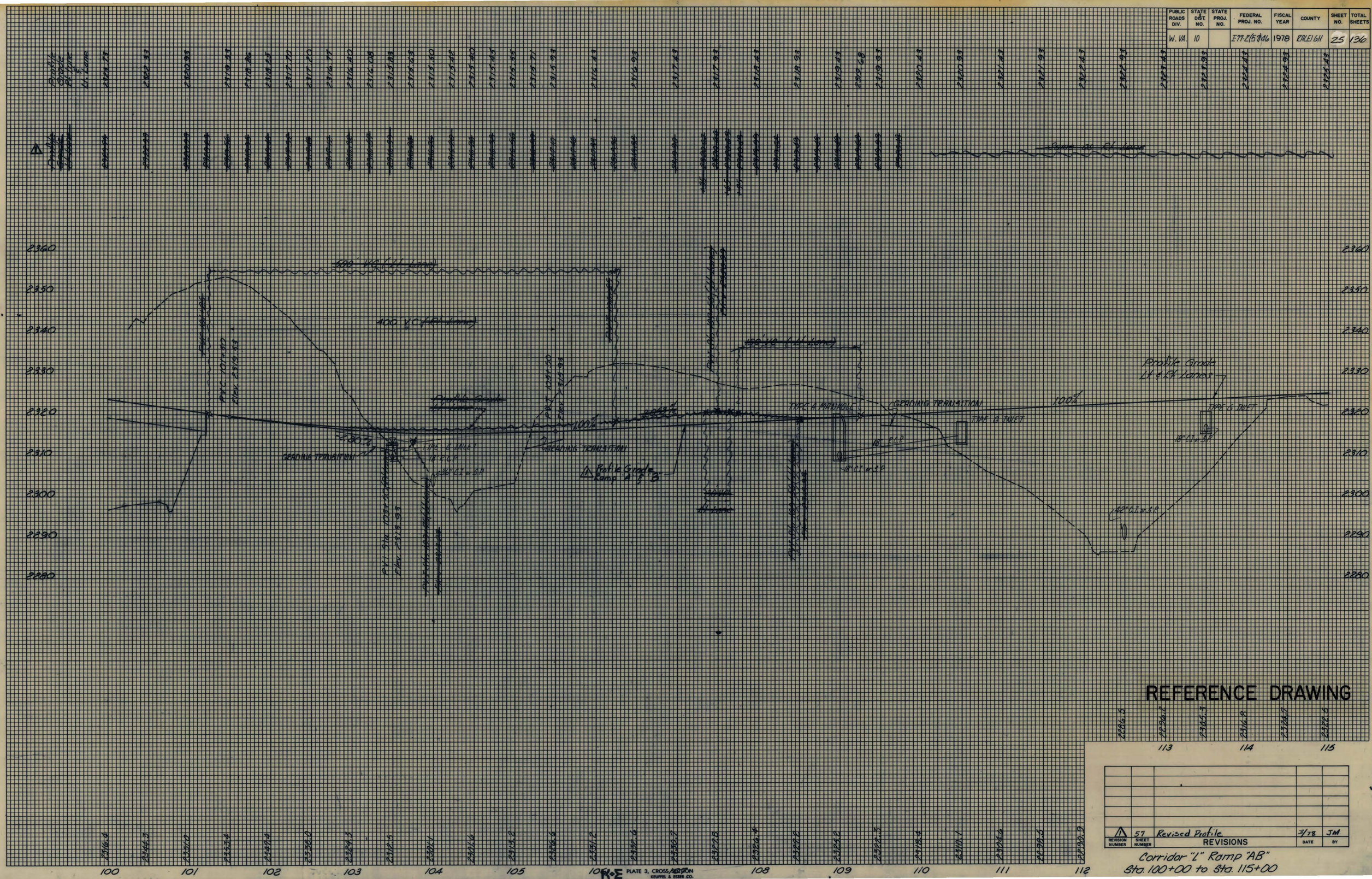
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
1	56	Revised Drainage, Deleted Pavement	3/18	JM

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS
I-77-2(57)46
RALEIGH COUNTY
STA. 102+00 TO STA. 110+00
SCALE:
DATE:
E. S. PRESTON ASSOCIATES, INC.

BRUNING 44-560 26702

PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I77-2(57)146	1978	RALEIGH	25	136



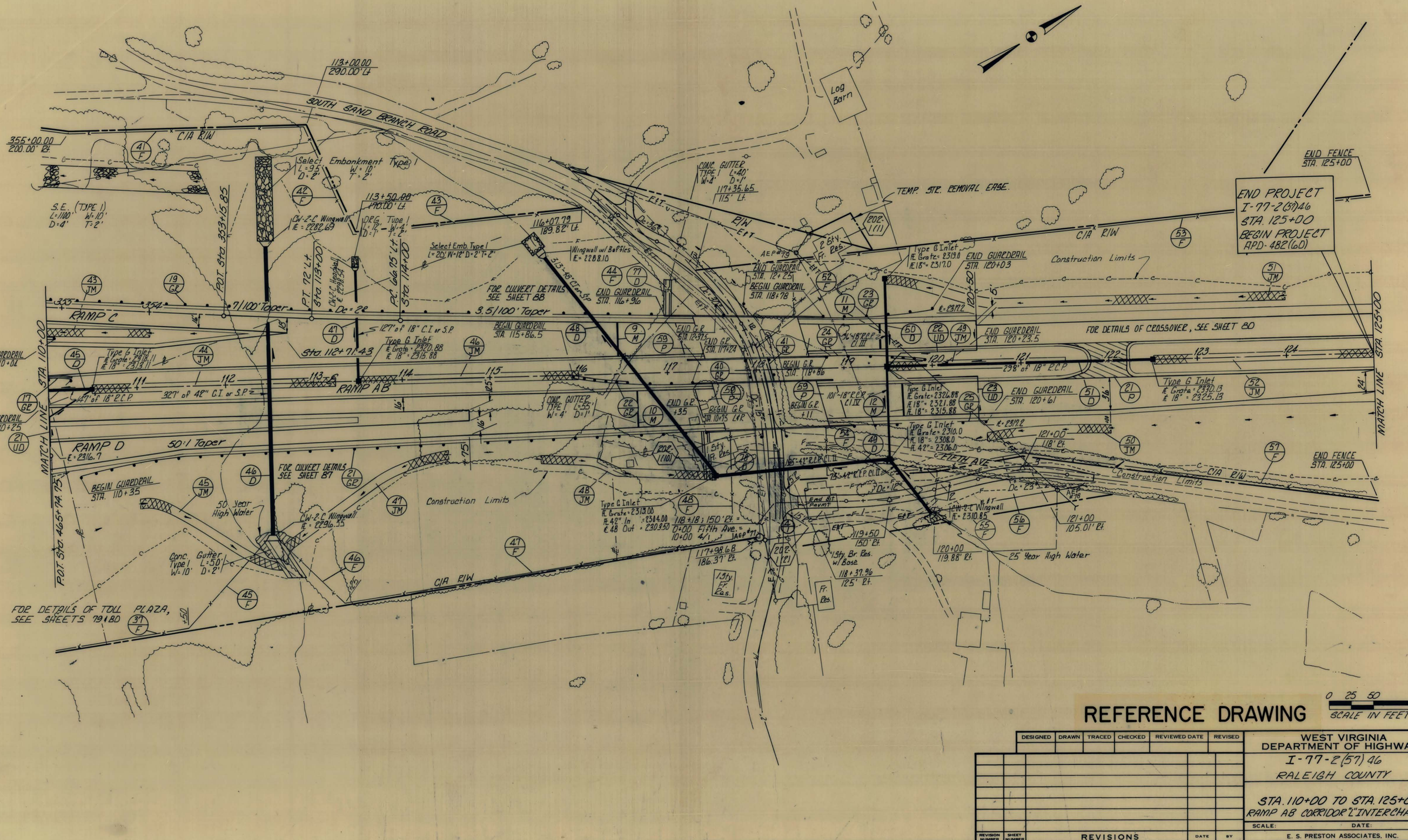
REFERENCE DRAWING

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
1	57	Revised Profile	3/78	JM

Corridor "L" Ramp "AB"
Sta. 100+00 to Sta. 115+00

PLATE 3, CROSS SECTION
KEUFFEL & ESSER CO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10		I-77-2(57)46	1978	RALEIGH	26	136


SOUTH BAND BRANCH ROAD
113+00.00
290.00' Lt.
355+00.00
200.00' Rt.
C/A R/W
Log Barn
TEMP. STR. REMOVAL EASE.
END FENCE
STA. 125+00
END PROJECT
I-77-2(57)46
STA. 125+00
BEGIN PROJECT
APD-482(60)
Construction Limits
Select Embankment Type 1
W=10'
T=2'
S.E. (TYPE 1)
L=110'
W=10'
D=4'
T=2'
FOT. Sta 353+65.85
PT. 72' Lt.
Sta 113+00
PC. 66.75' Lt.
Sta 114+00
CW-2-C Wingwall
E=2282.69
ORG. Type 1
D=1'
W=4'
T=2'
113+50.00
190.00' Lt.
Select Emb. Type 1
L=20' W=12' D=2' T=2'
Wingwall w/ Baffles
E=2288.10
116+07.79
189.82' Lt.
CONC. GUTTER
TYPE 1
L=40'
W=8'
D=1'
117+35.65
115' Lt.
2 Sty. Res.
Ff.
AEP=79
Type G Inlet
E Grate=2319.0
E 18"=2317.0
END GUARDRAIL
STA. 120+03
END GUARDRAIL
STA. 12+25
BEGIN GUARDRAIL
STA. 118+78
FOR CULVERT DETAILS
SEE SHEET 88
END GUARDRAIL
STA. 116+91.6
3.5/100' Taper
7/100' Taper
RAMP C
355
354
Dc=22
Dc=36
Dc=18
Dc=12
Dc=23
Dc=17
Dc=16
Dc=15
Dc=10
Dc=8
Dc=7
Dc=6
Dc=5
Dc=4
Dc=3
Dc=2
Dc=1
Lc=276
Lc=276
Lc=276

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA	10		F-77-2(50)46	1978	RALEIGH	27	136

PROFILE RELOCATED 4th

PROFILE RELOCATED FIFTH AVE

End Work Sta. 126+30

END PROJECT
STA. 125+00
F-77-2(50)46
End Pavement

BEGIN PROJECT
APD-482-(20)
Begin Pavement

Expand A.E.P. Crossing
Sta. 119+69.5
CORRIDOR 'L'

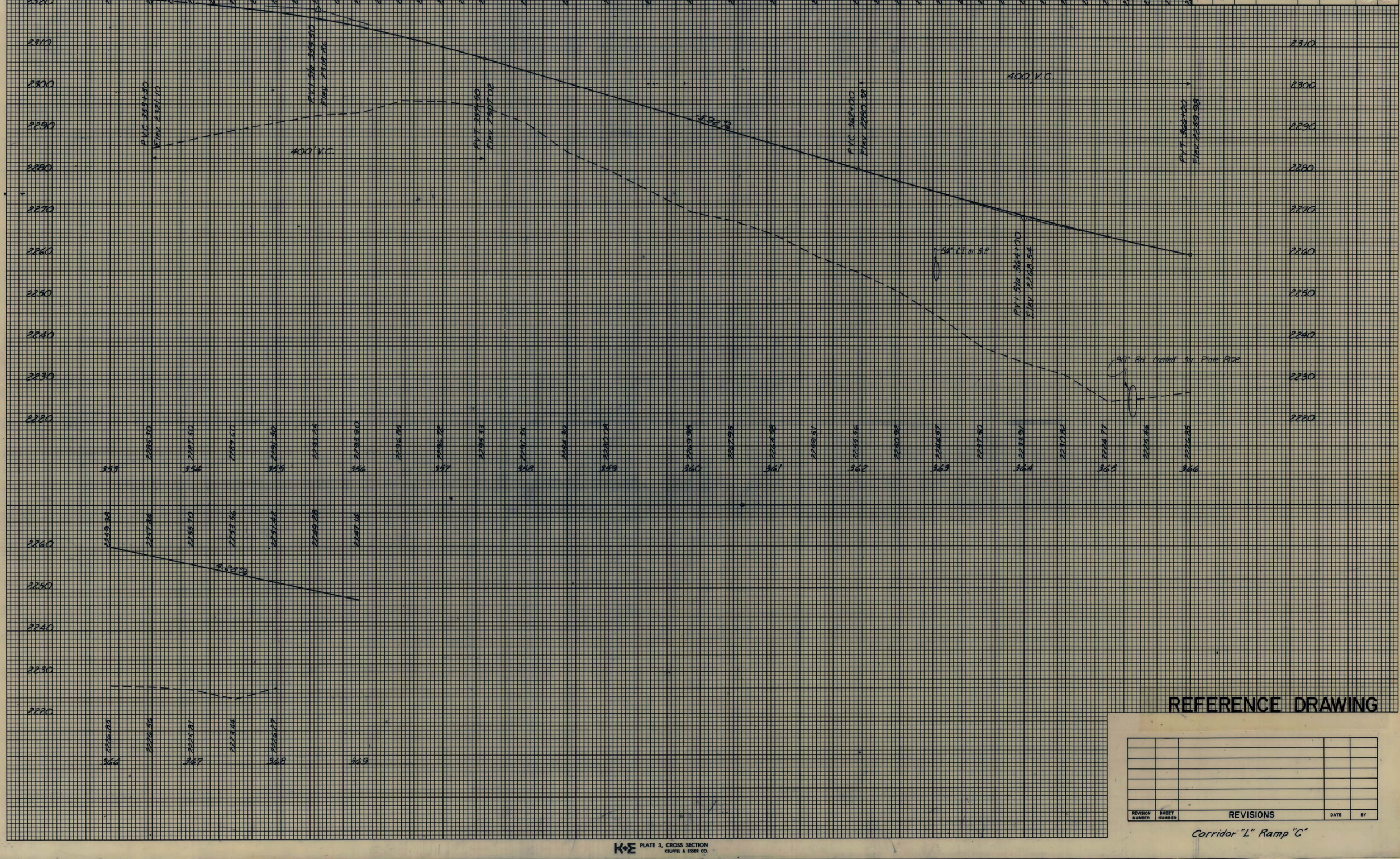
REFERENCE DRAWING

RIVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

Sta 115+00 to Sta. 130+00

K+E MADE IN U.S.A. CROSS SECTION KEUFFEL & ESSER CO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I77-2(8)46	1978	RALEIGH	28	136

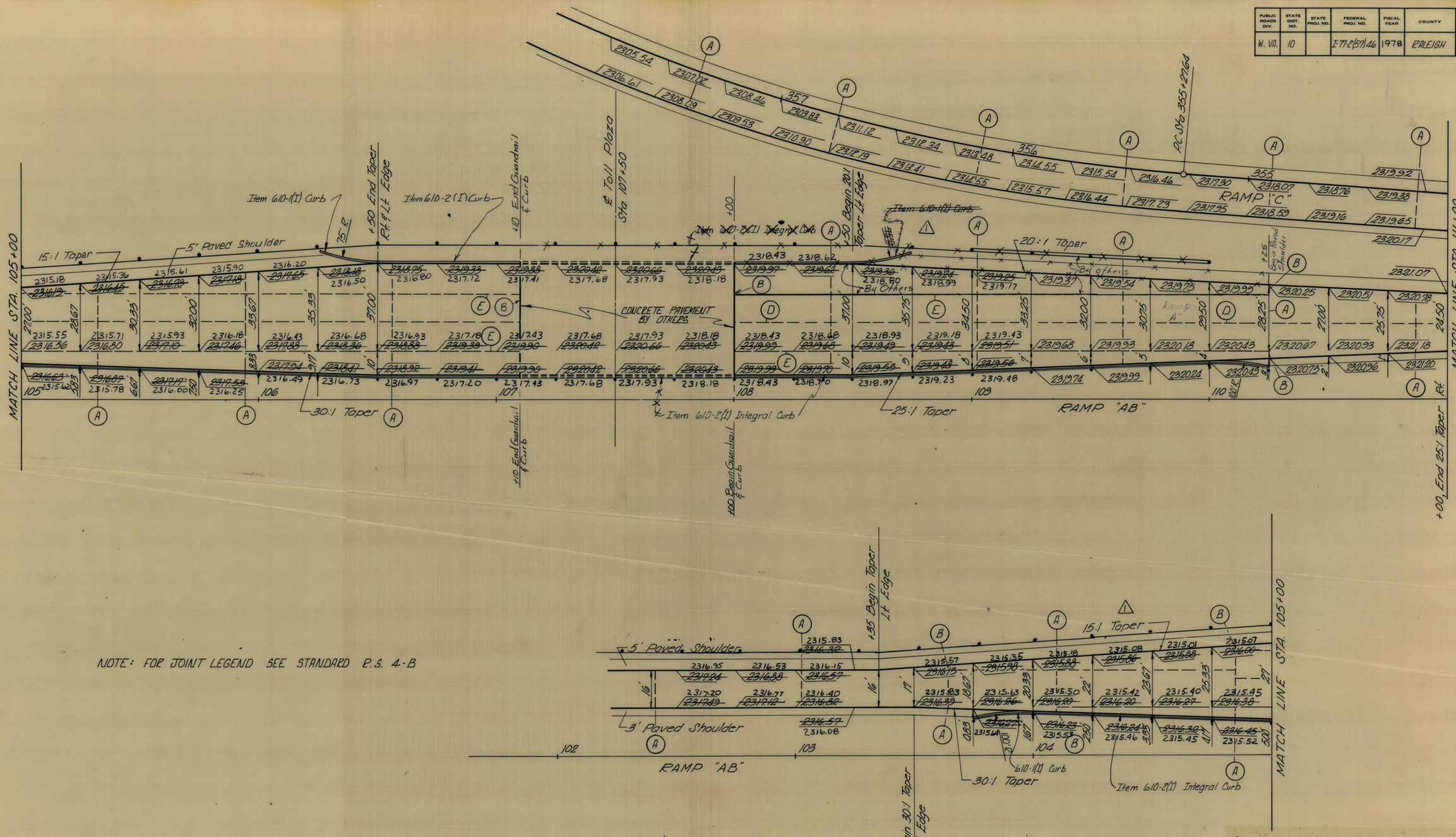


REFERENCE DRAWING

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

Corridor "L" Ramp "C"

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	RALEIGH	29	136



NOTE: FOR JOINT LEGEND SEE STANDARD P.S. 4-B

REFERENCE DRAWING

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
1	78	Revised Ramp Profile	3/78	SM

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

I-77-2(57)46
RALEIGH COUNTY

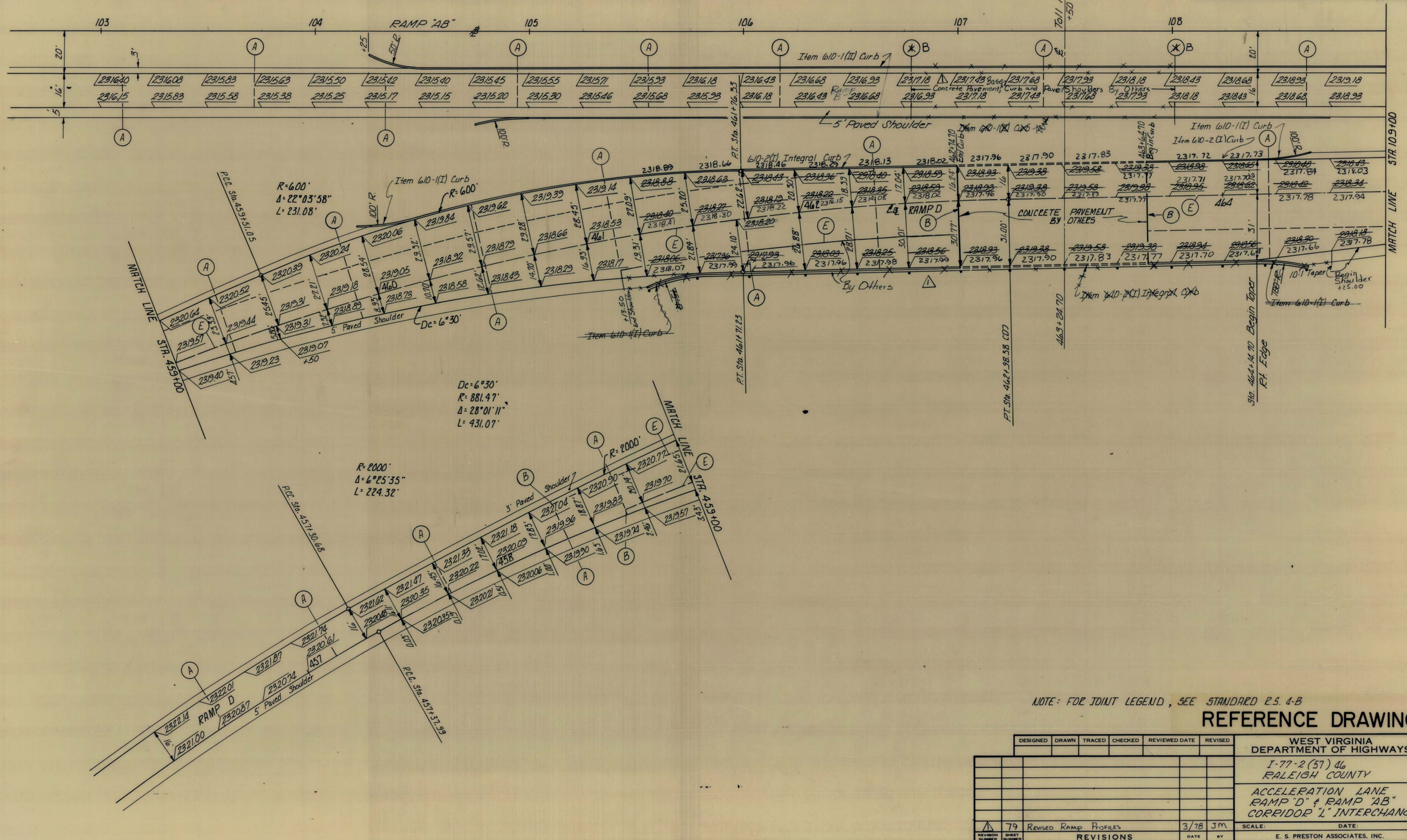
DECELERATION LANE
RAMP "C" & RAMP "AB"
CORRIDOR "L" INTERCHANGE

SCALE: DATE:

E. S. PRESTON ASSOCIATES, INC.

BRUNING 44-560 26702

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	RALEIGH	30	136



NOTE: FOR JOINT LEGEND, SEE STANDARD R.S. 4-B

REFERENCE DRAWING

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
1	79	Revised Ramp Profiles	3/78	JM

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

I-77-2(57)46
RALEIGH COUNTY

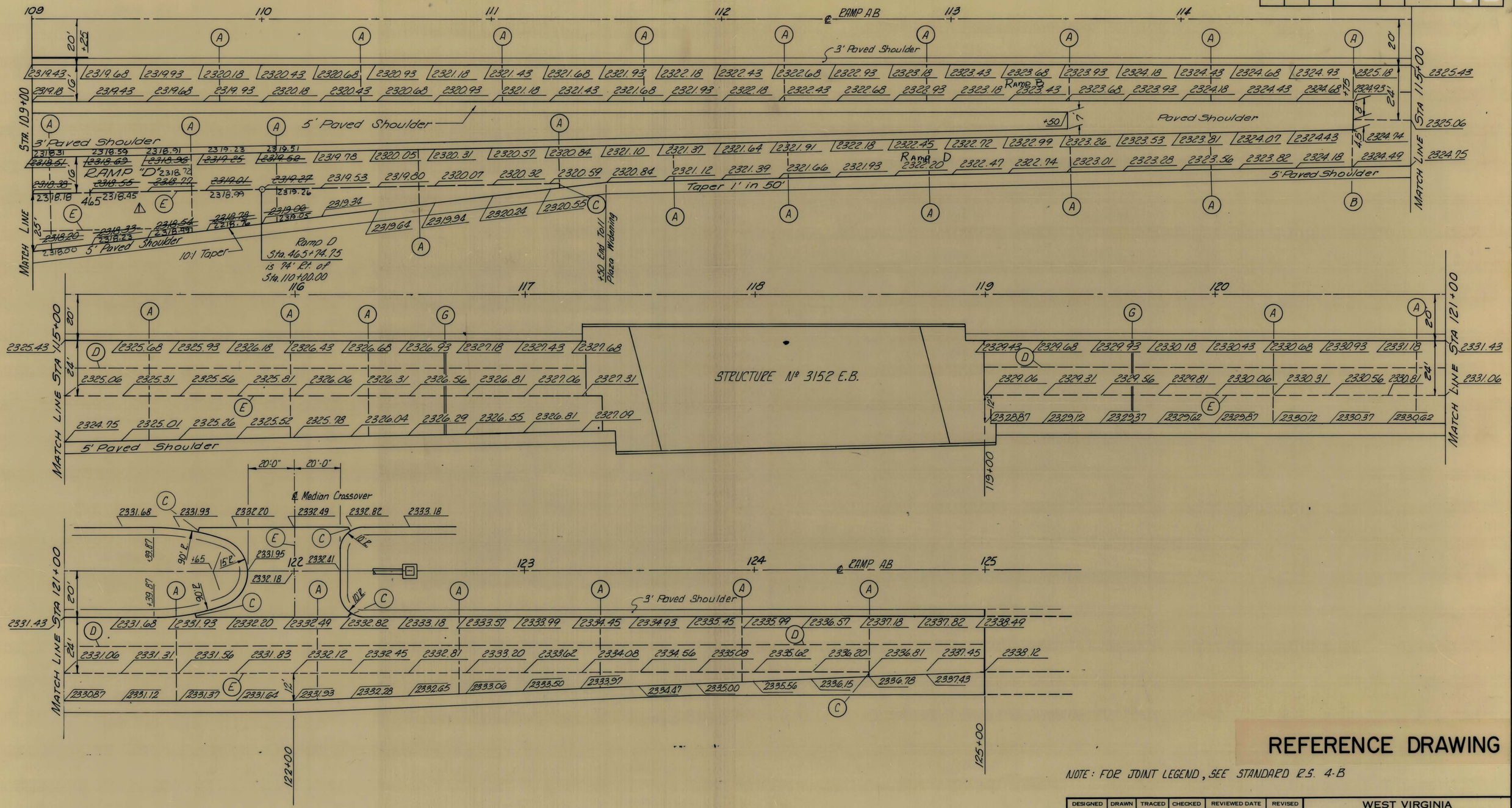
ACCELERATION LANE
RAMP "D" & RAMP "AB"
CORRIDOR "L" INTERCHANGE

SCALE: DATE:

E. S. PRESTON ASSOCIATES, INC.

BRUNING 44-560 26702

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	RALEIGH	31	136



REFERENCE DRAWING

NOTE: FOR JOINT LEGEND, SEE STANDARD R.S. 4-B

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
1	80	Revised Ramp Profile	3/78	JM

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

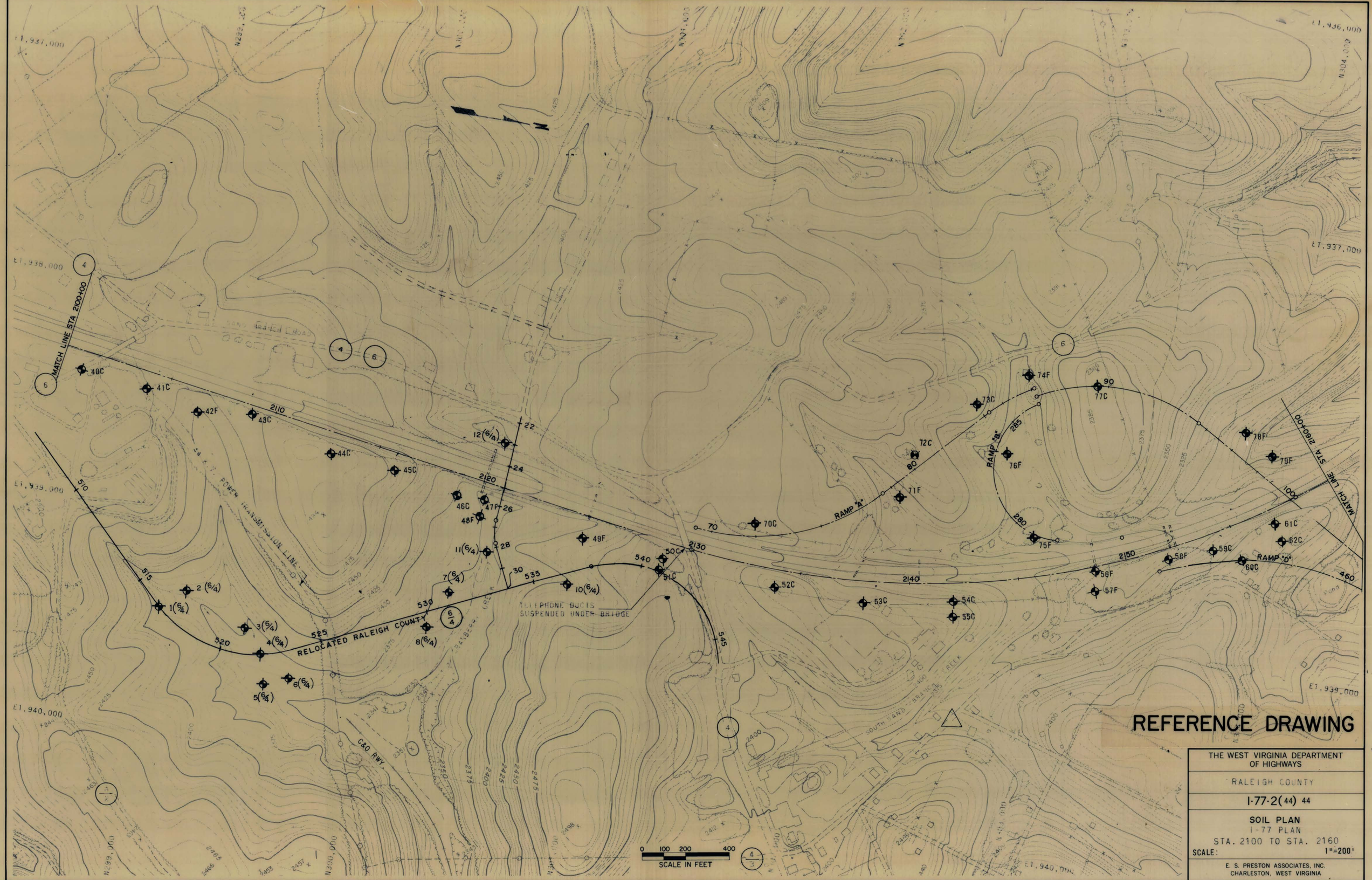
I-77-2(51)46
RALEIGH COUNTY

ACCELERATION LANE
RAMP "D" & RAMP "AB"
CORRIDOR "L" INTERCHANGE

SCALE: DATE:

E. S. PRESTON ASSOCIATES, INC.

BRUNING 44-560*26702



REFERENCE DRAWING

THE WEST VIRGINIA DEPARTMENT OF HIGHWAYS

RALEIGH COUNTY

I-77-2(44) 44

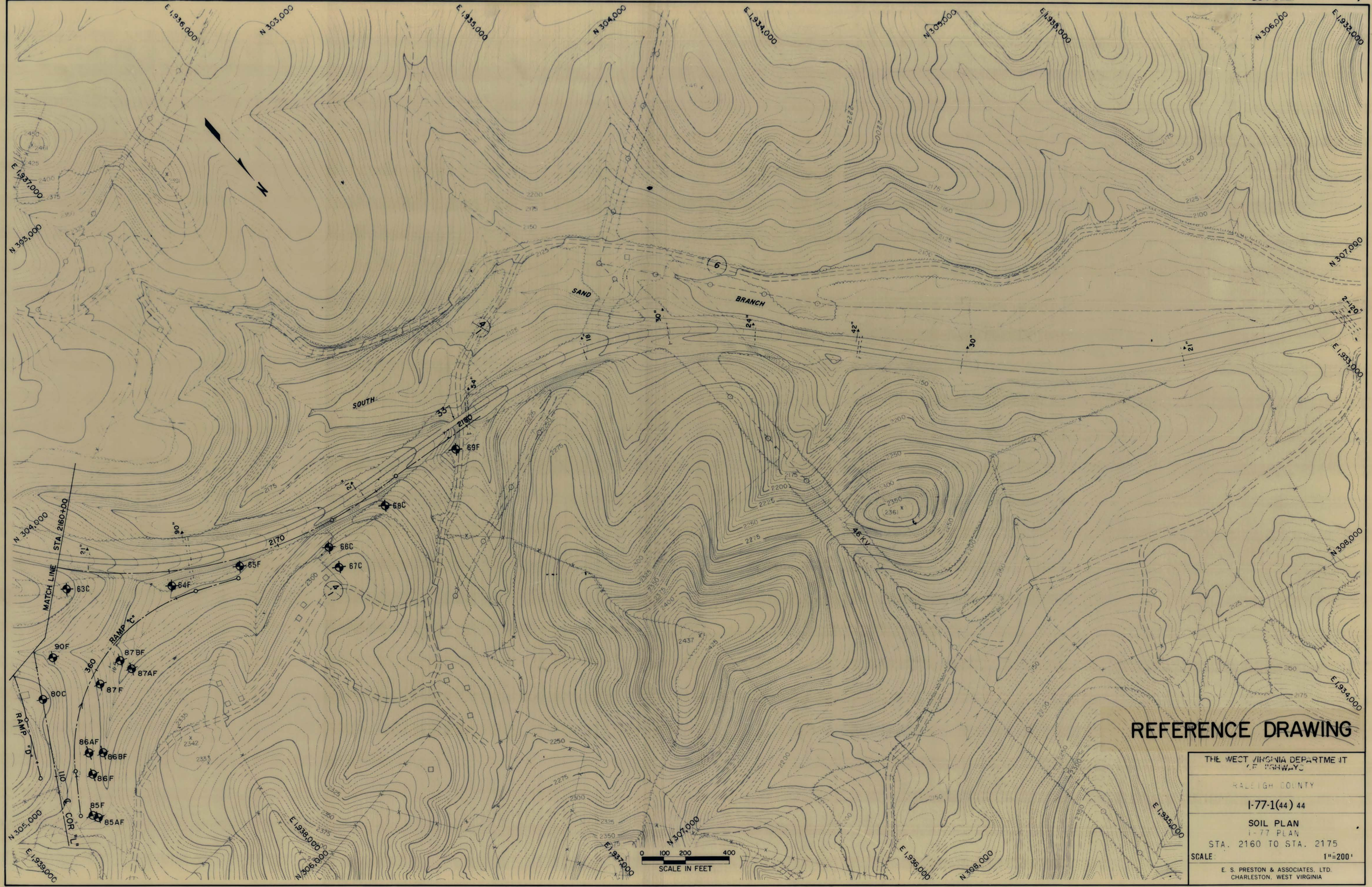
SOIL PLAN

I-77 PLAN

STA. 2100 TO STA. 2160

SCALE: 1"=200'

E. S. PRESTON ASSOCIATES, INC.
CHARLESTON, WEST VIRGINIA



REFERENCE DRAWING

THE WEST VIRGINIA DEPARTMENT OF HIGHWAYS

RALEIGH COUNTY

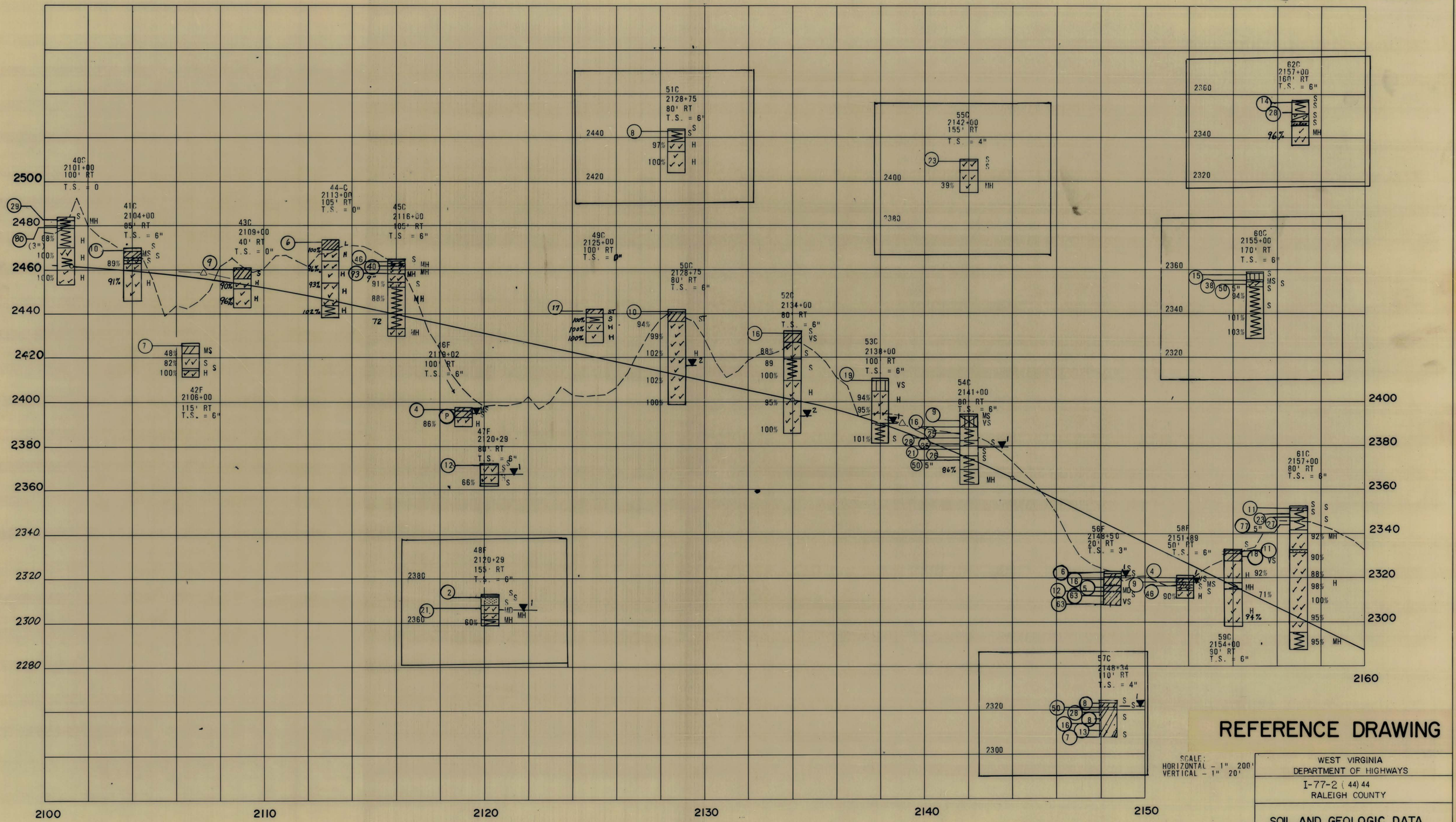
I-77-1(44) 44

SOIL PLAN
I-77 PLAN
STA. 2160 TO STA. 2175

SCALE: 1"=200'

E. S. PRESTON & ASSOCIATES, LTD.
CHARLESTON, WEST VIRGINIA

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (51)46	1978	RALEIGH	34	136



REFERENCE DRAWING

SCALE:
HORIZONTAL - 1" 200'
VERTICAL - 1" 20'

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS

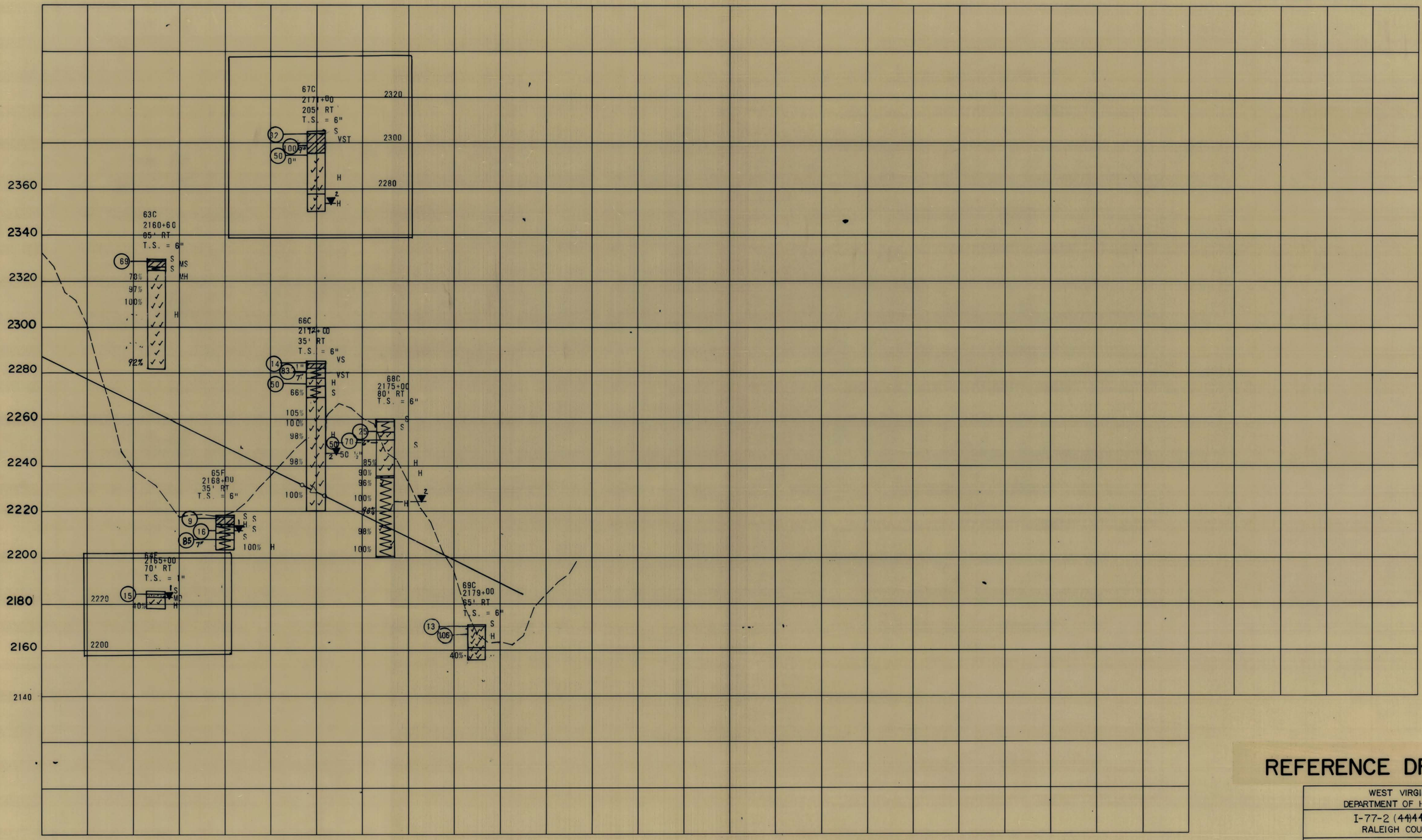
I-77-2 (44) 44
RALEIGH COUNTY

SOIL AND GEOLOGIC DATA
STA. 2100+00 TO 2160+00

SCALE DATE 1976

E.S. PRESTON ASSOCIATES, INC.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (51) 46	1978	RALEIGH	35	136



SCALE: VERT., 1"=20', HORIZONTAL, 1"=200'

REFERENCE DRAWING

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS

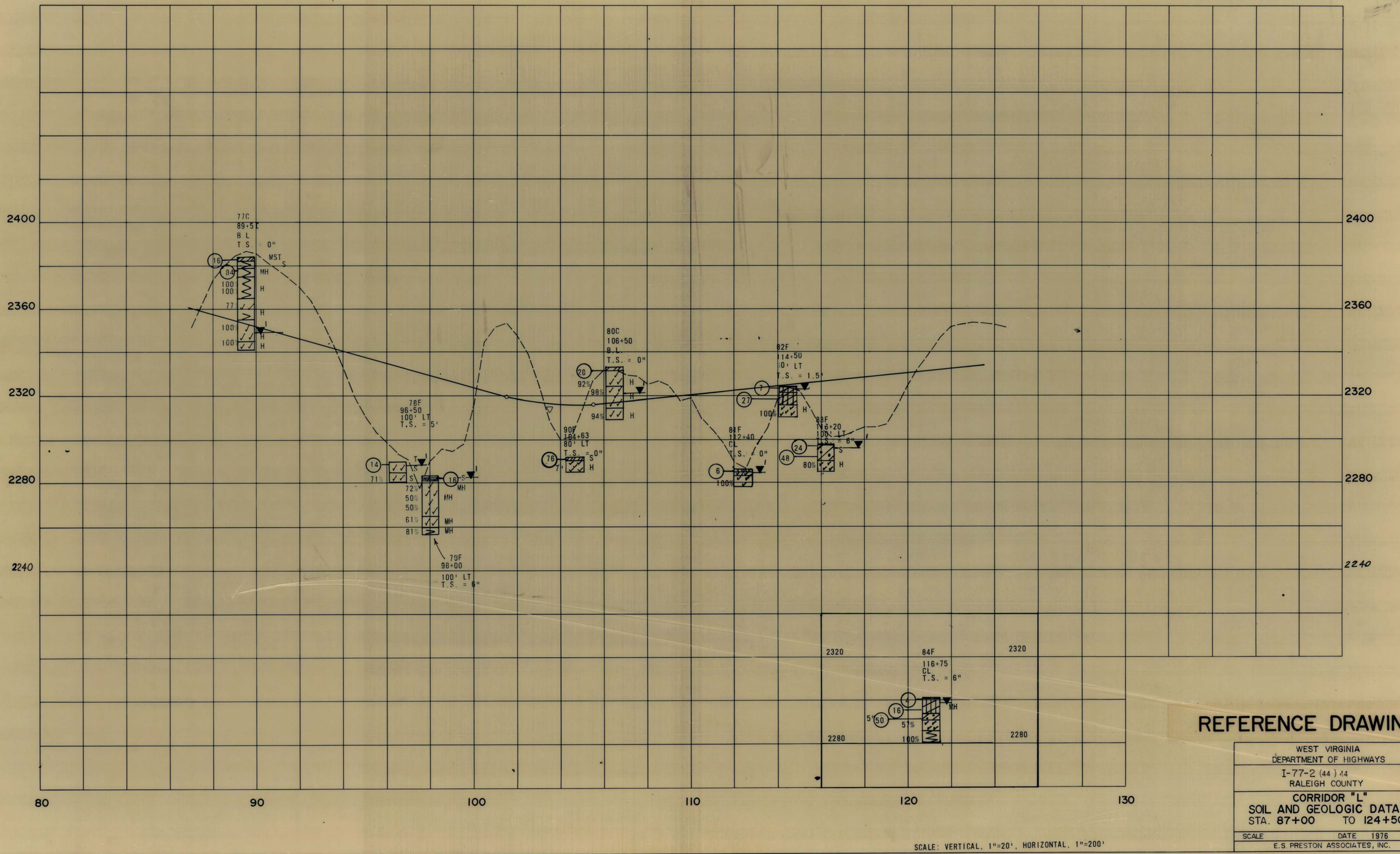
I-77-2 (44)44
RALEIGH COUNTY

SOIL AND GEOLOGIC DATA
STA. 2160+00 TO

SCALE DATE 1976

E.S. PRESTON ASSOCIATES, INC.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (57) 46	1978	RALEIGH	30	136



SCALE: VERTICAL, 1"=20', HORIZONTAL, 1"=200'

REFERENCE DRAWING

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS

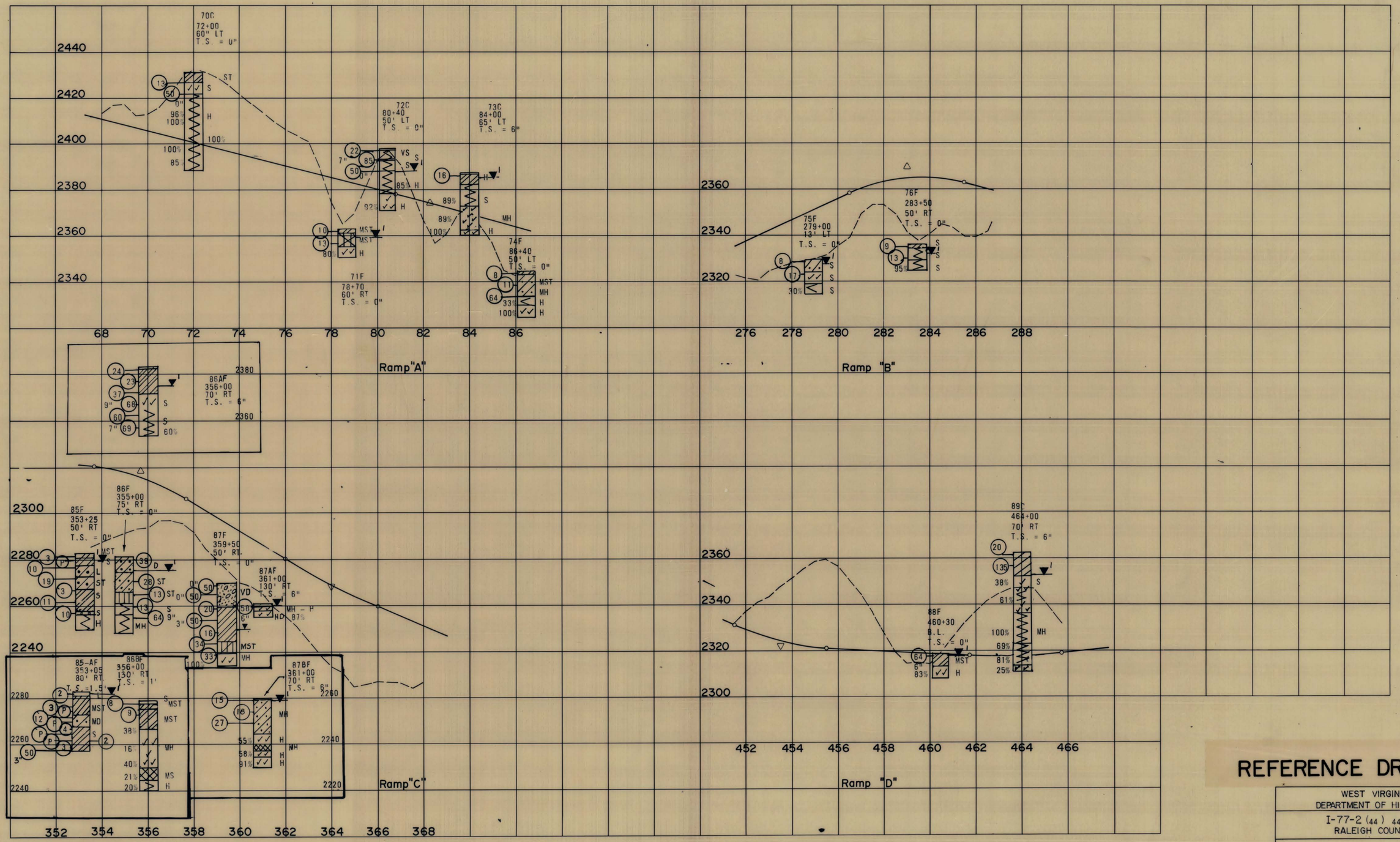
I-77-2 (44) 44
RALEIGH COUNTY

CORRIDOR "L"
SOIL AND GEOLOGIC DATA
STA. 87+00 TO 124+50

SCALE DATE 1976

E.S. PRESTON ASSOCIATES, INC.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (57) 46	1978	RALEIGH	37	136



SCALE: VERT., 1"=20', HORIZONTAL, 1"=200'

REFERENCE DRAWING

WEST VIRGINIA
DEPARTMENT OF HIGHWAYS

I-77-2 (44) 44
RALEIGH COUNTY

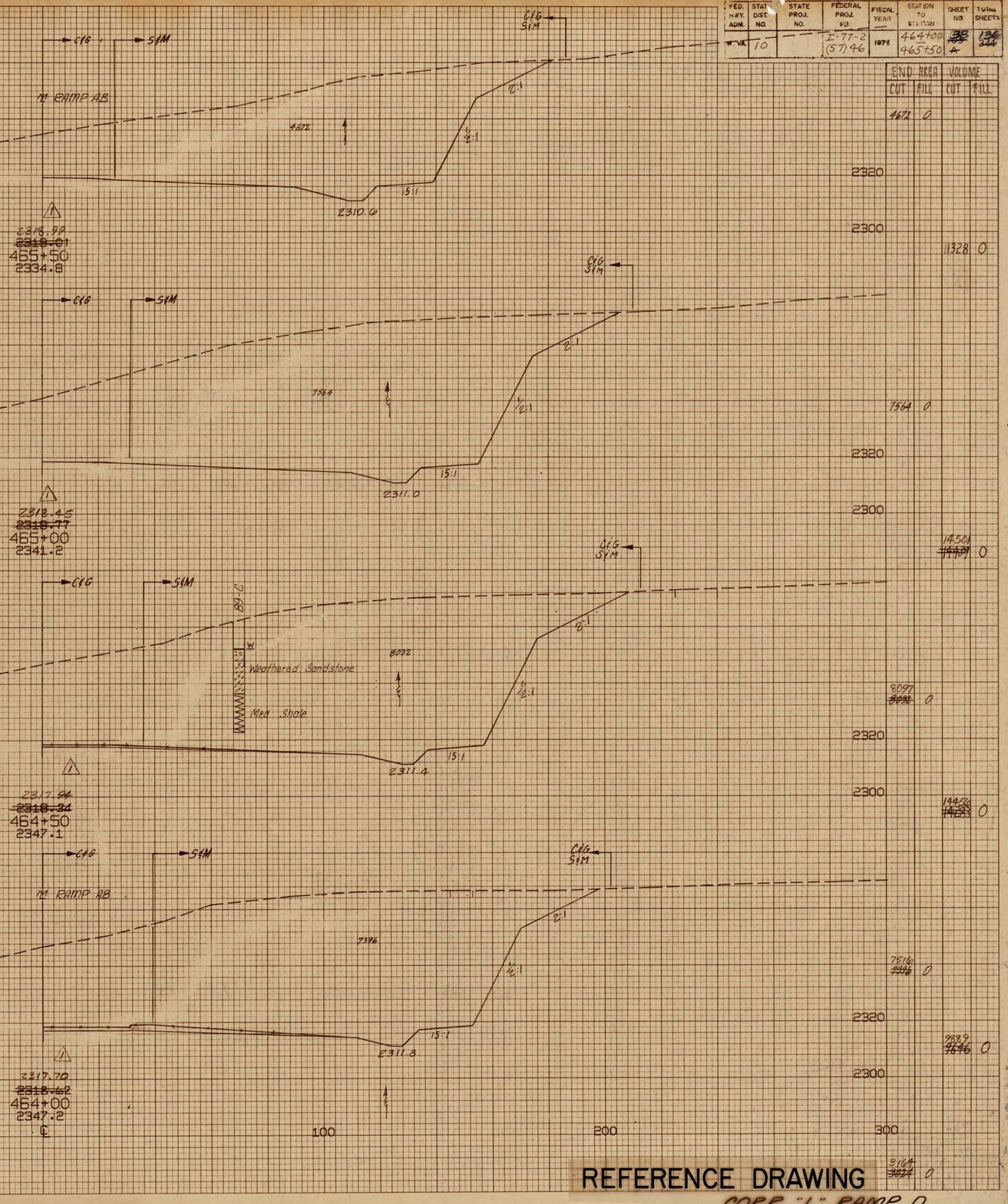
SOIL AND GEOLOGIC DATA
CORRIDOR "L" INTERCHANGE

SCALE DATE 1976

E.S. PRESTON ASSOCIATES, INC.

FED. HWY. ADM.	STAT. DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (57) 46	1978	464+00 465+50	~~33~~ 35 A	136 ~~344~~

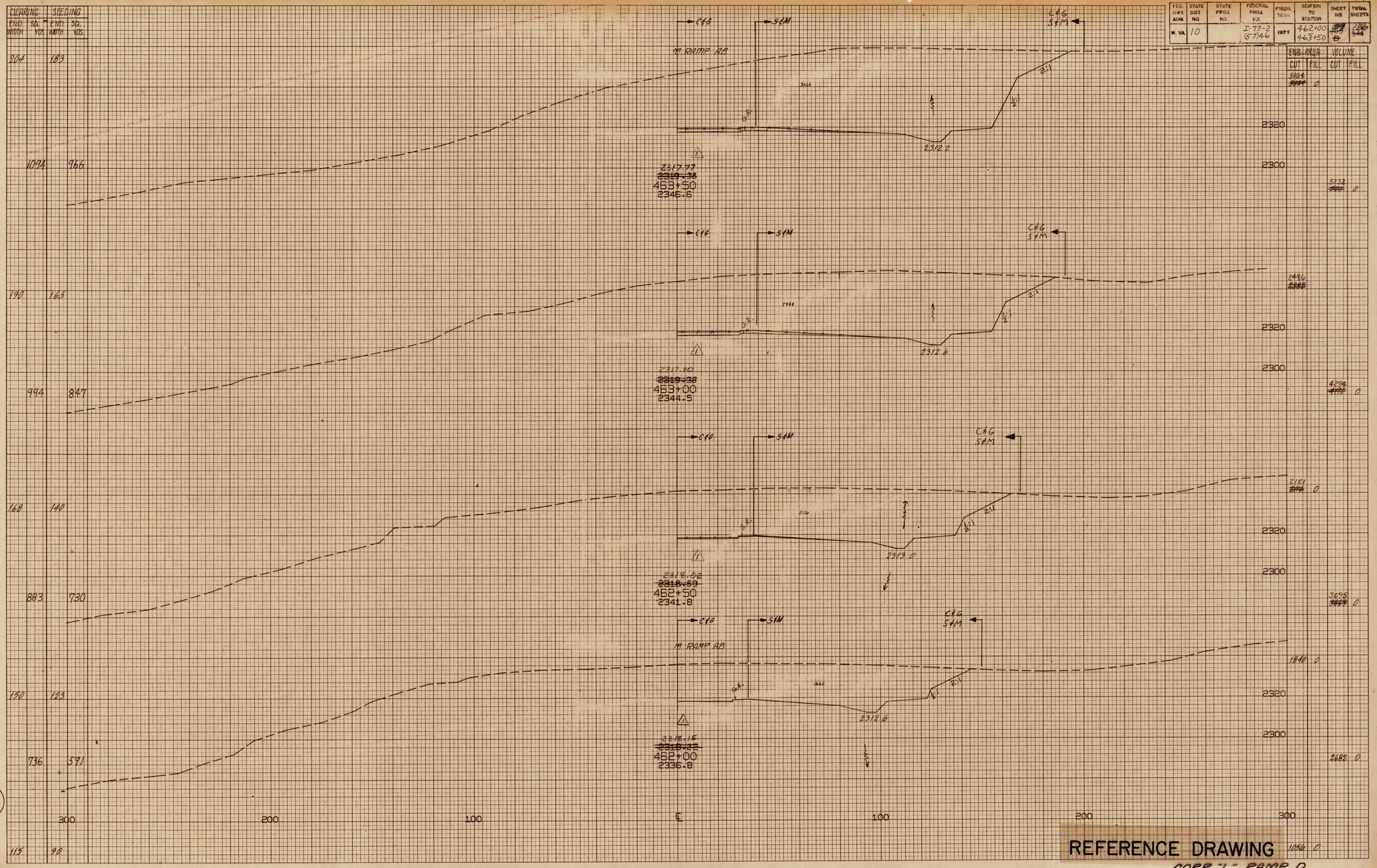
CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
188		183	
	1111		1086
212		208	
	1177		1139
212		202	
	1158		1088
205		190	
	1137		1036
204		183	



END AREA		VOLUME	
CUT	FILL	CUT	FILL
4672	0		
		11328	0
7564	0		
		14508	0
8097	0		
		14508	0
7516	0		
		7829	0
3164	0		

REFERENCE DRAWING
CORR. "L" RAMP D

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (57)46	1978	462+00 463+50	~~103~~ ~~B~~	136 ~~344~~

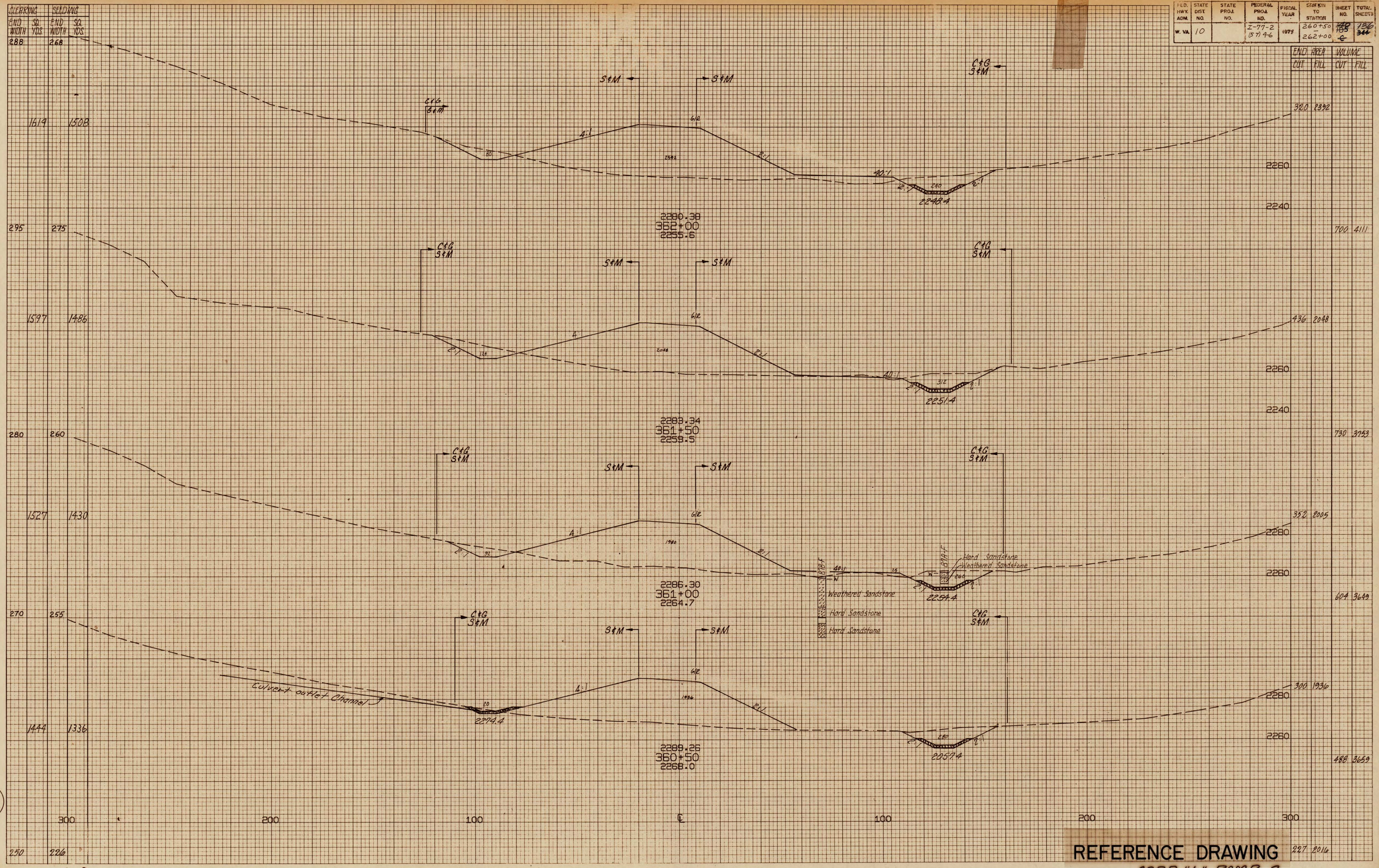


END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
3164 ~~3321~~	0		
		5232 ~~5011~~	0
2486 ~~2388~~			
		4294 ~~4170~~	0
2151 ~~2116~~	0		
		3695 ~~3663~~	0
1840	0		
		2682	0
1056	0		

REFERENCE DRAWING

CORR. "L" RAMP D

FED. HWY. ADM.	STATE DIST NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (57) 46	1978	260+50 – 262+00	140 105 ~~C~~	136 ~~344~~



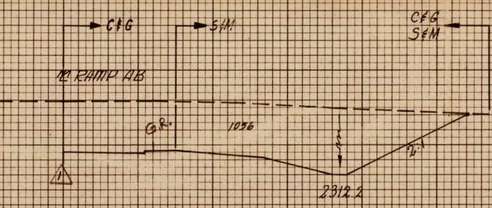
REFERENCE DRAWING

CORR. "L" RAMP C

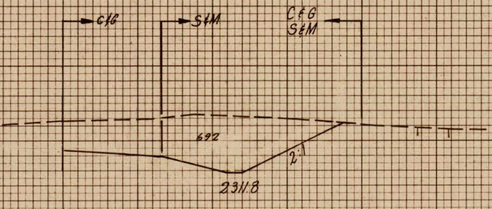
FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (57) 46	1975	459+50 461+50	~~105~~ D	344

CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
115	-	90	
	544		416
81		60	
	447		339
80		62	
	403		305
65		48	
	636		475
164		123	

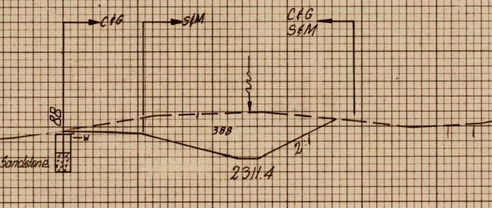
	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
2320	1036	0		
2300				
			1619	0
	692	0		
2320				
2300				
			1000	0
	388	0		
2320				
2300				
			404	130
	48	148		
2320				
2300				
			211	226
	Ahead	180	104	
	Back	228	444	
2320				
2300				
			239	755
			30	372



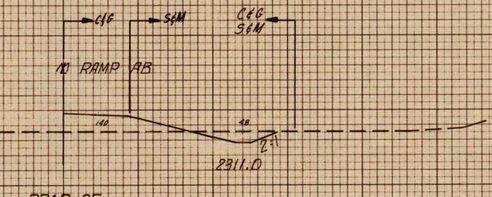
2318.30
~~2318.67~~
461+50
2331.9



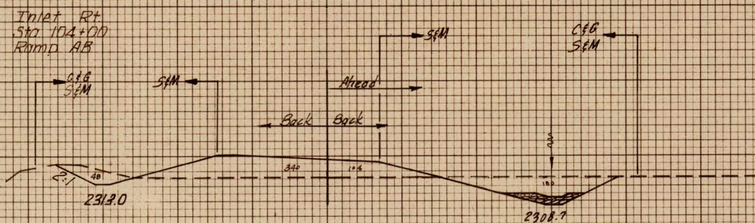
2318.53
461+00
2325.5



2318.78
460+50
2319.2



2319.05
460+00
2314.5



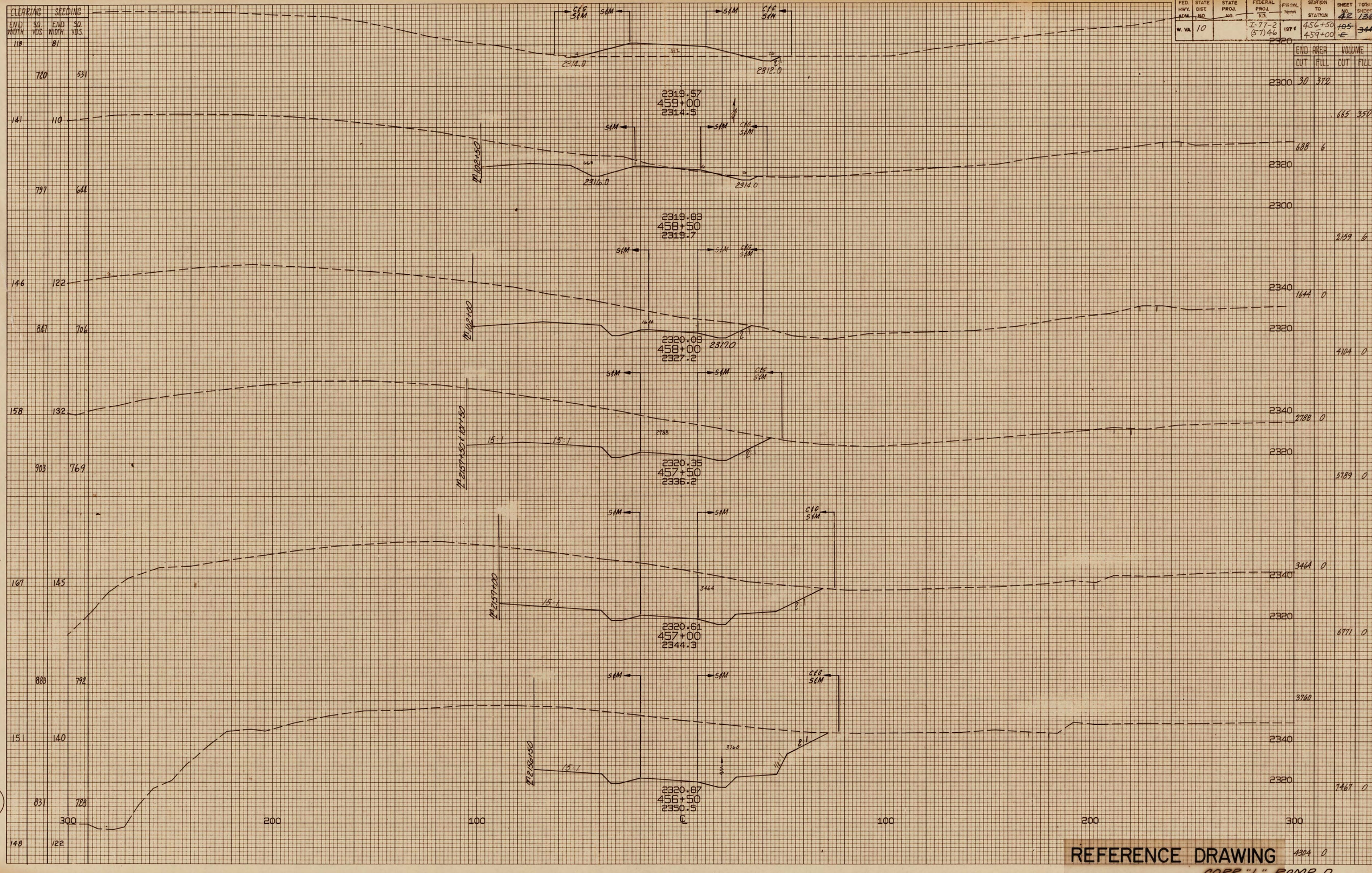
2319.31
459+50
2314.6

300 200 100 ℄ 100 200 300

REFERENCE DRAWING
CORR. "L" RAMP D

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2 (57)46	1978	456+50 457+00	105 E	344

CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
118		81	
	720		531
141		110	
	797		644
146		122	
	847		706
158		132	
	903		769
167		145	
	883		792
151		140	
	831		728
148		122	



END AREA		VOLUME	
CUT	FILL	CUT	FILL
30	372		
			665 350
		688	6
			2159 6
1644	0		
			4104 0
2788	0		
			5789 0
3464	0		
			6771 0
3760			
			7467 0
			4304 0

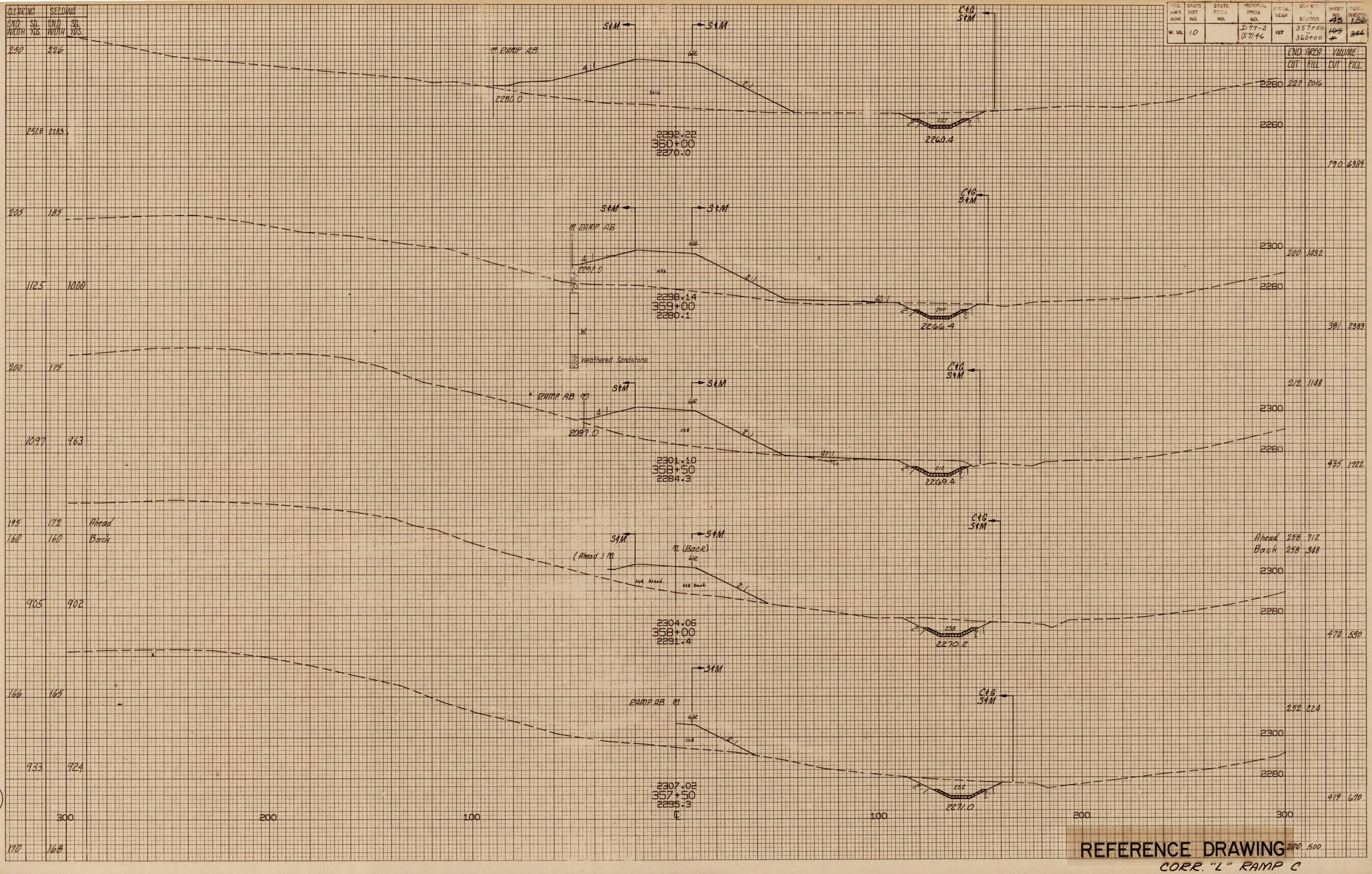
REFERENCE DRAWING

CORR. "L" RAMP D

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STA. NO. STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		X-77-2 (57)46	197	357+50 – 360+00	~~43~~ 105 ~~F~~	~~130~~ 344

CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
250	226		
252.8	228.3		
205	185		
112.5	100.0		
200	175		
109.7	96.3		
195	172	Ahead	
160	160	Back	
90.5	90.2		
166	165		
93.3	92.4		
170	168		

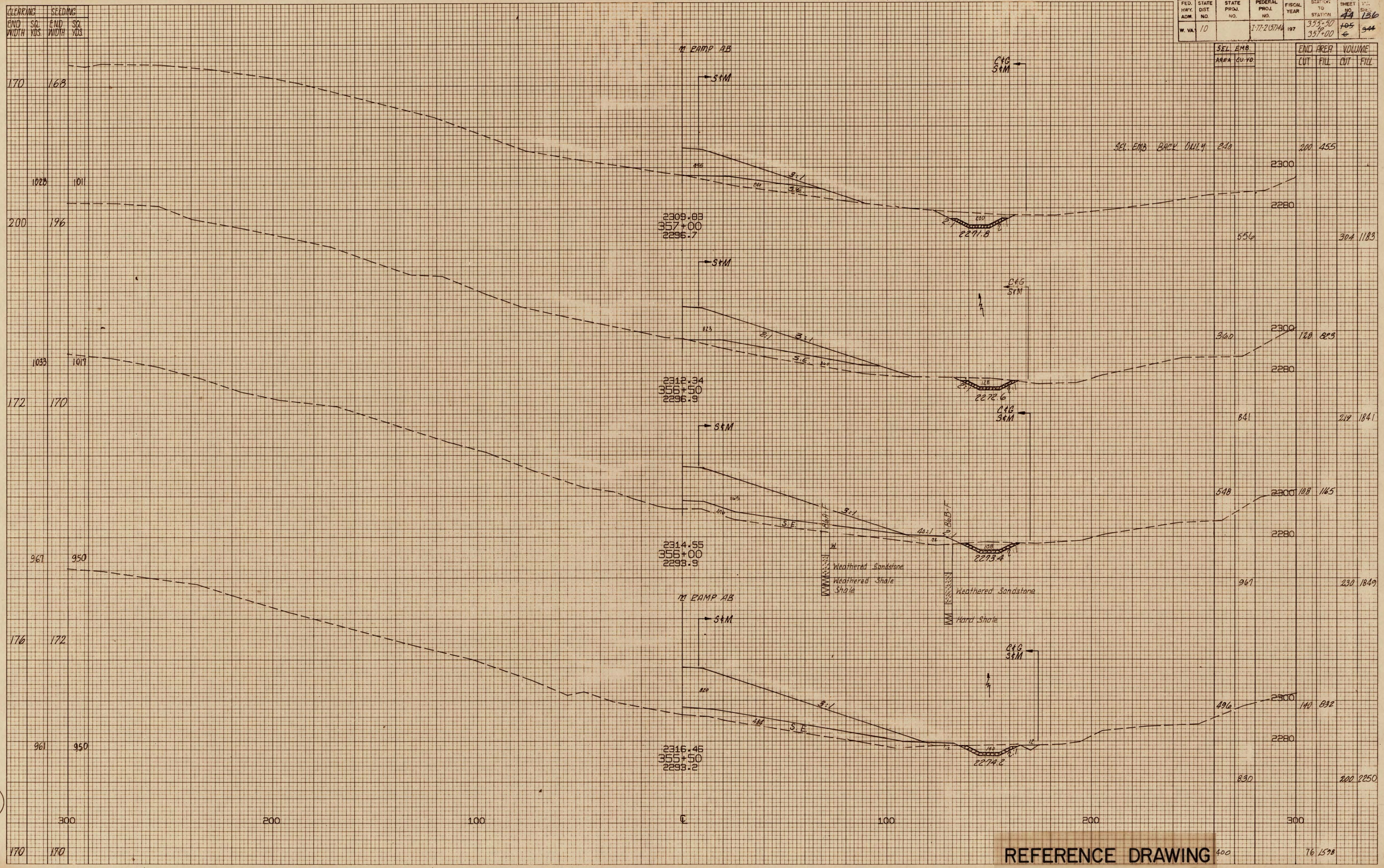
END AREA		VOLUME	
CUT	FILL	CUT	FILL
227	80.16		
		79.0	638.9
200	14.32		
		38.1	238.9
2.12	11.48		
		43.5	172.2
Ahead 25.8	7.12		
Back 25.8	3.48		
		47.2	59.0
25.2	8.24		
		41.9	67.0
		20.0	50.0



REFERENCE DRAWING

CORR. "L" RAMP C

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOT. SHEET
W. VA.	10		I-77-2(57)46	197	355+50 to 357+00	~~105~~ ~~6~~	~~344~~ 136



SEL. EMB. AREA	SEL. EMB. CU. YD.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
240		200	455		
	556			304	1183
360		128	823		
	841			219	1841
548		108	1165		
	967			230	1849
496		140	832		
	830			200	2250
400		76	1598		

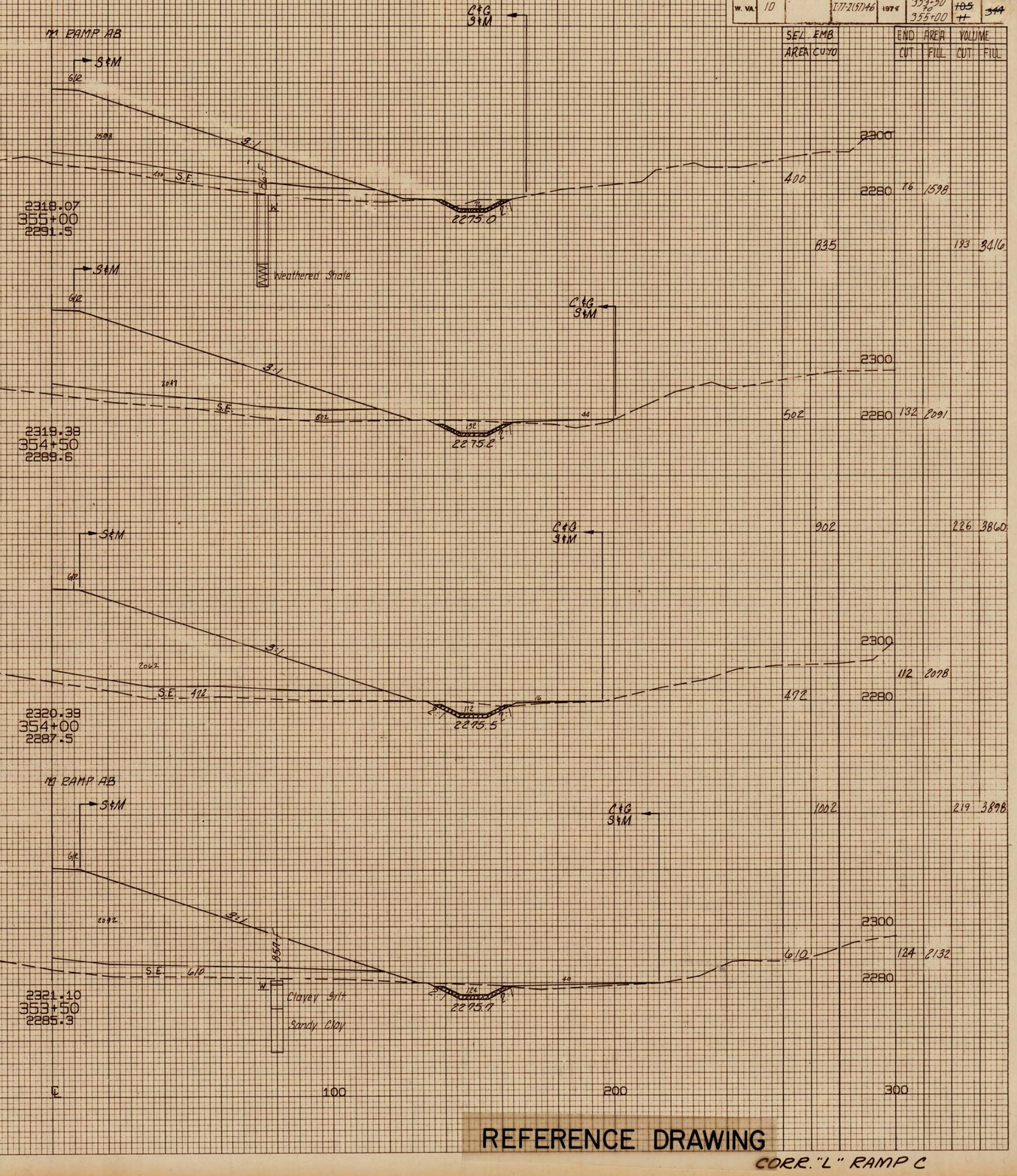
REFERENCE DRAWING

CORR. "L" RAMP C

FED. HWY. ADM.	STATE DIST NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	353+50 to 355+00	~~13~~ 105	~~336~~ 344

CLEARING		GRUBBING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
170		170	
	1028		1033
200		202	
	1097		1111
195		198	
	1147		1156
218		218	

SEL. EMB. AREA		END AREA		VOLUME	
	CU YD	CUT	FILL	CUT	FILL
		2300			
		400			
		2280	16	1598	
		835		193	3416
		2300			
		502			
		2280	132	2091	
		902		226	3860
		2300			
		112		2078	
		472			
		2280			
		1002		219	3898
		2300			
		610		124	2132
		2280			

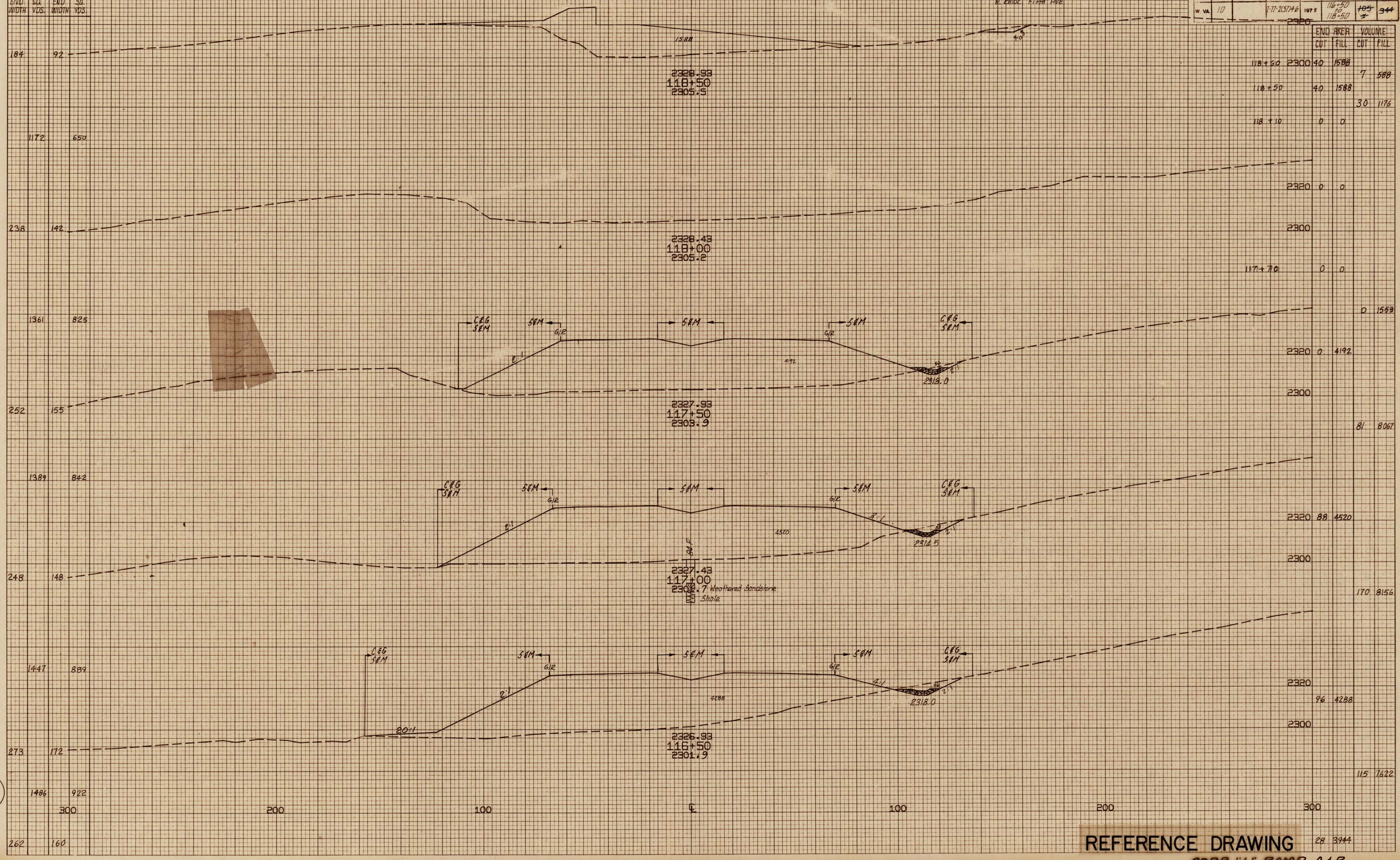


REFERENCE DRAWING

CORR. "L" RAMP C

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		S-77-2(57)46	1978	116+50 TO 118+50	~~105~~ 5	344

CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
184		92	
	1172		650
238		142	
	1361		825
252		155	
	1389		842
248		148	
	1447		889
273		172	
	1486		922
262		160	



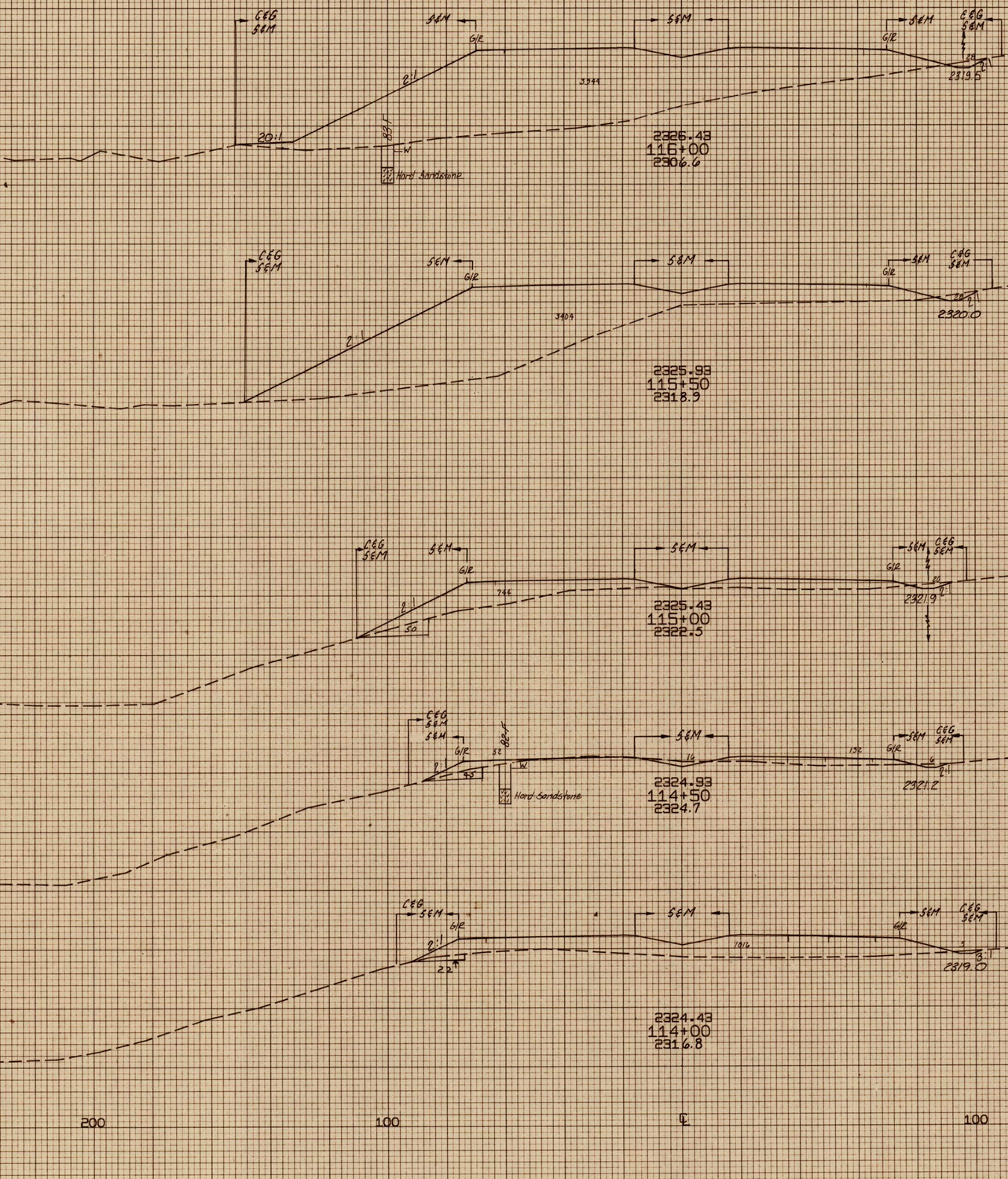
	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
118+60	2300 40	1588		
			7	588
118+50	40	1588		
			30	1176
118+10	0	0		
	2320 0	0		
	2300			
117+70	0	0		
			0	1553
	2320 0	4192		
	2300			
			81	8067
	2320 88	4520		
	2300			
			170	8156
	2320 96	4288		
	2300			
			115	7622

REFERENCE DRAWING 28 3944

CORR. "L" RAMP A & B

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1975	114+00 to 116+00	~~105~~ 47	~~344~~ 136

CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
262	160		
1458	883		
263	158		
1314	700		
210	94		
1125	461		
95	72		
1097	433		
200	84		
1305	664		
270	155		



	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
28	3944			
			52	6804
28	3404			
			91	3886
70	794			
			127	948
67	230			
			87	1174
27	1038			
			66	4227
44	3528			

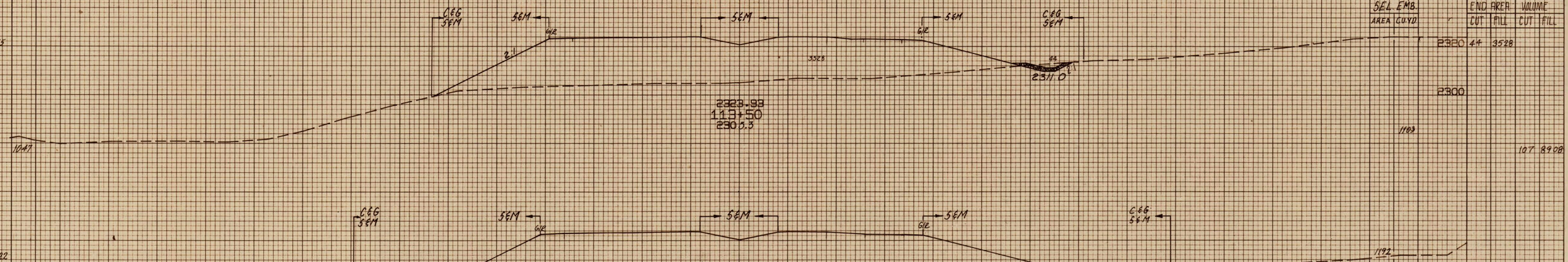
300 200 100 ℄ 100 200 300

REFERENCE DRAWING

CORR "L" RAMP A & B

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	112+00 to 113+50	~~103~~ 43 *	~~344~~ 136

CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
270	155		
1689	1047		
338	222		
1966	1428		
370	292		
1972	1411		
340	216	Ahead	
292	130	Back	
1422	672		
220	112		

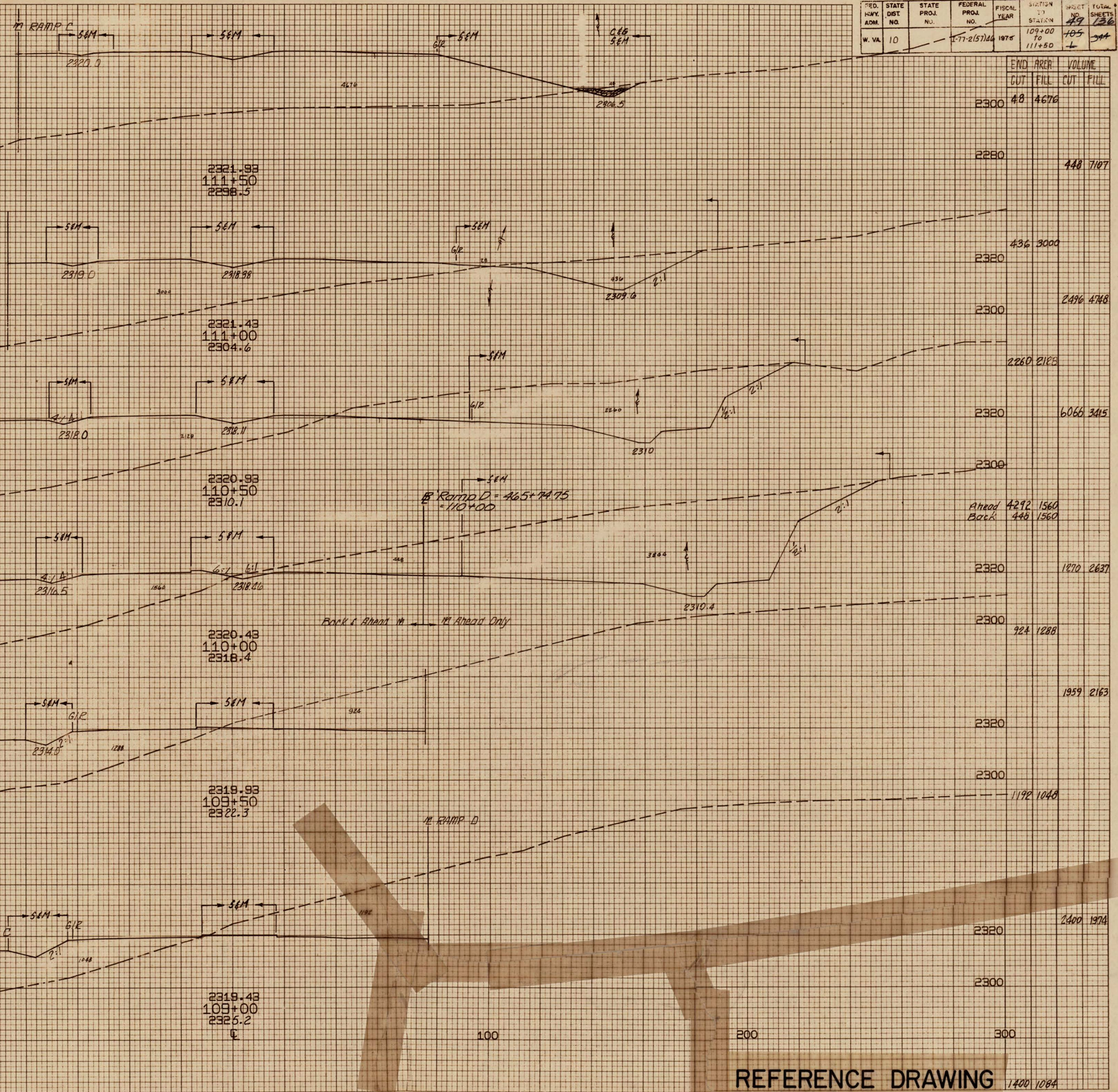


SEL. EMB. AREA CU.YD		END AREA VOLUME	
		CUT	FILL
2320	44	3528	
2300			
1183			107 8908
2300	72	6092	
2280			
2287			178 15892
2300	120	8820	
2280			
2293			174 16312
1284	Ahead	68	8796
974	Back	68	6956
2280			
902			107 10710
		48	4676

REFERENCE DRAWING
CORR. "L" RAMP A&B

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)44	1975	109+00 to 111+50	~~105~~ 1	~~344~~ 126

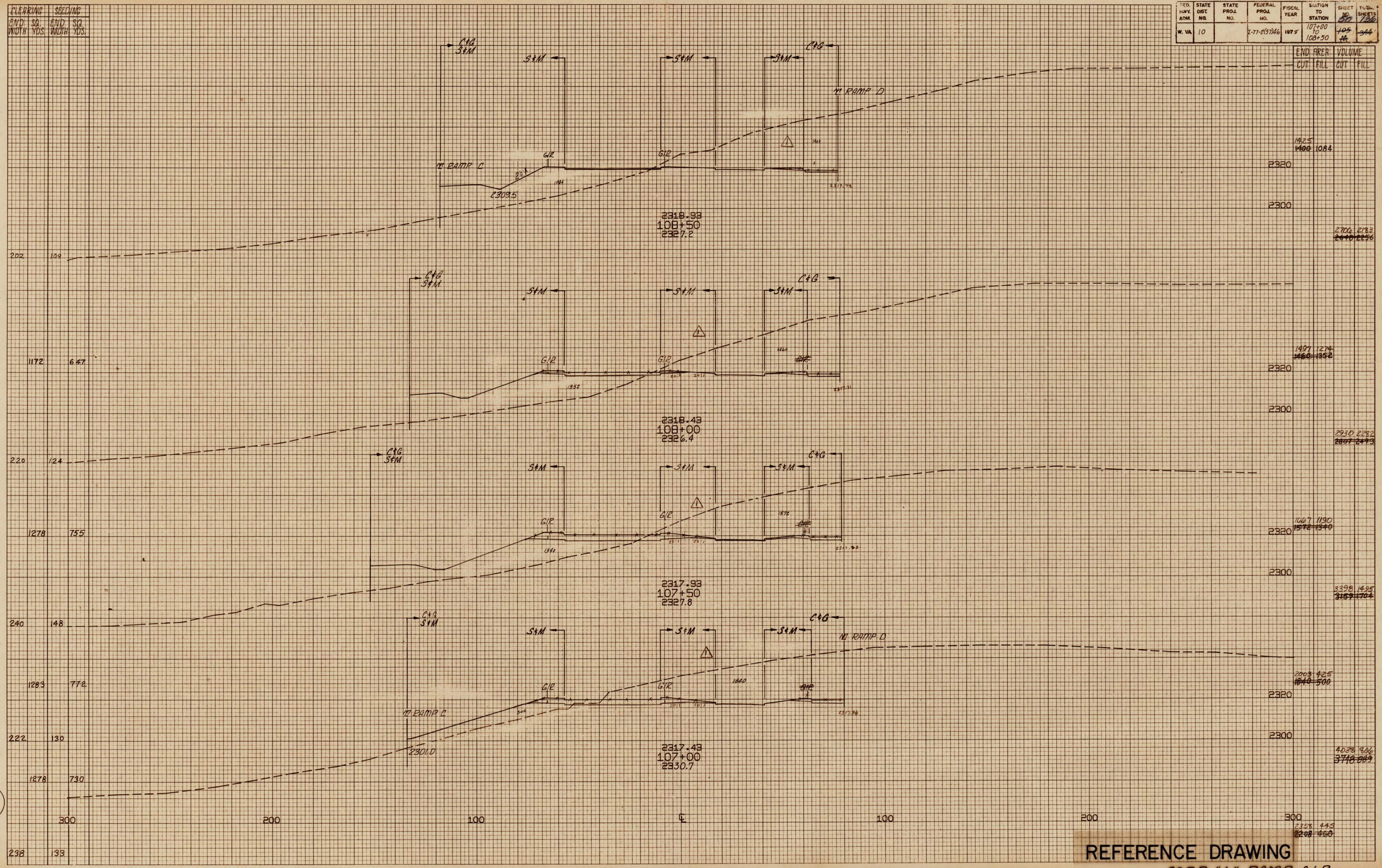
CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
220	112		
1374	611		
275	108		
1658	828		
322	190		
1392	1025		
179	179	Ahead	
179	50	Back	
1075	361		
190	70		
1055	378		
190	66		
300		200	
1089	486		
202	109		



END AREA		VOLUME	
CUT	FILL	CUT	FILL
48	4676		
			448 7107
436	3000		
		2496	4748
		6066	3415
Ahead	4292	1560	
Back	445	1560	
		1272	2637
		924	1288
		1959	2163
		1192	1048
		2400	1974
		1400	1084

REFERENCE DRAWING
CORR. "L" RAMP A & B

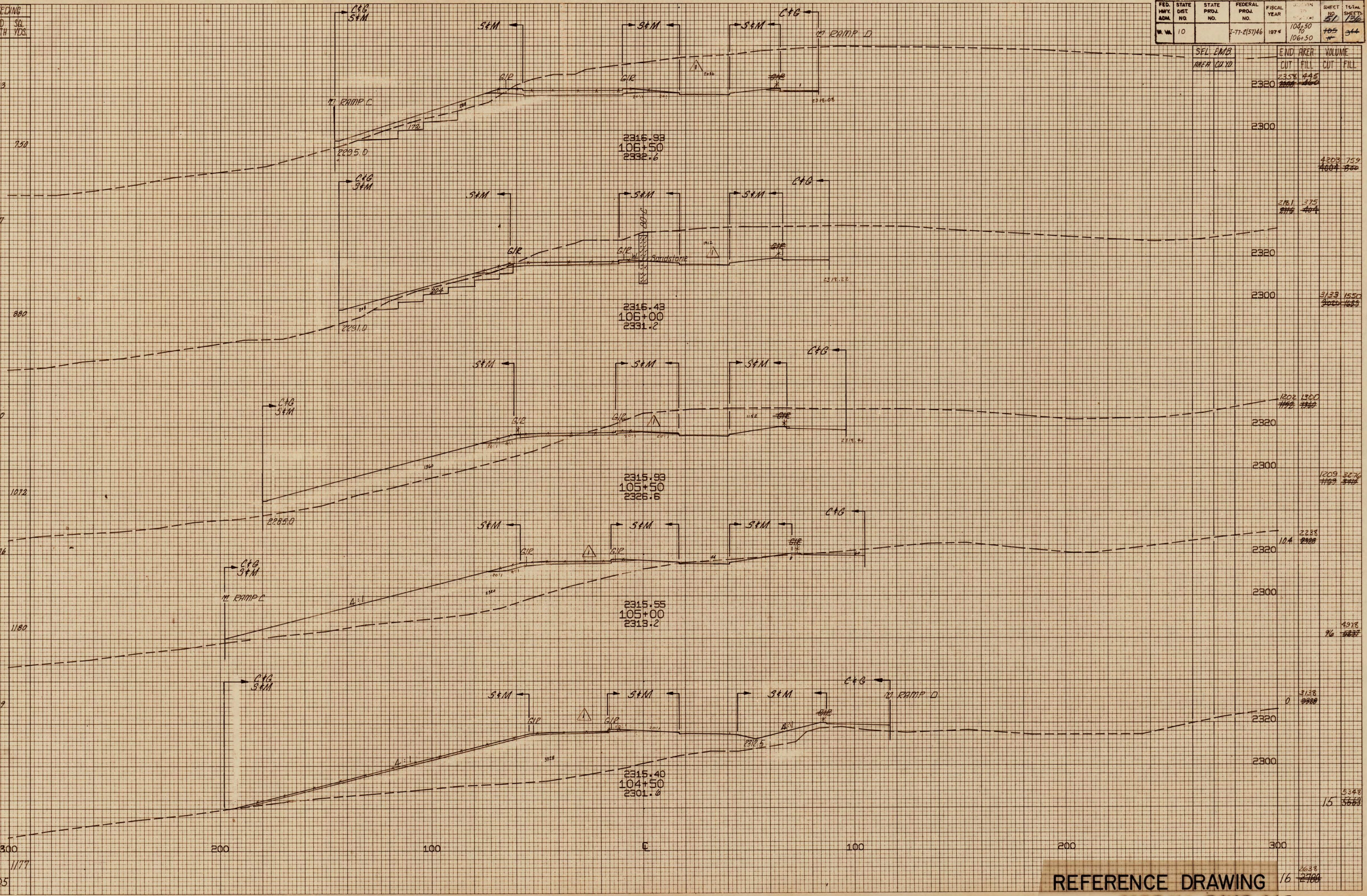
FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1978	107+00 TO 108+50	~~105~~ ~~44~~	~~344~~ 136



REFERENCE DRAWING

CORR. "L" RAMP A & B

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	[illegible]	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)46	1974	104+50 TO 106+50	~~105~~ ~~N~~	~~344~~ 136



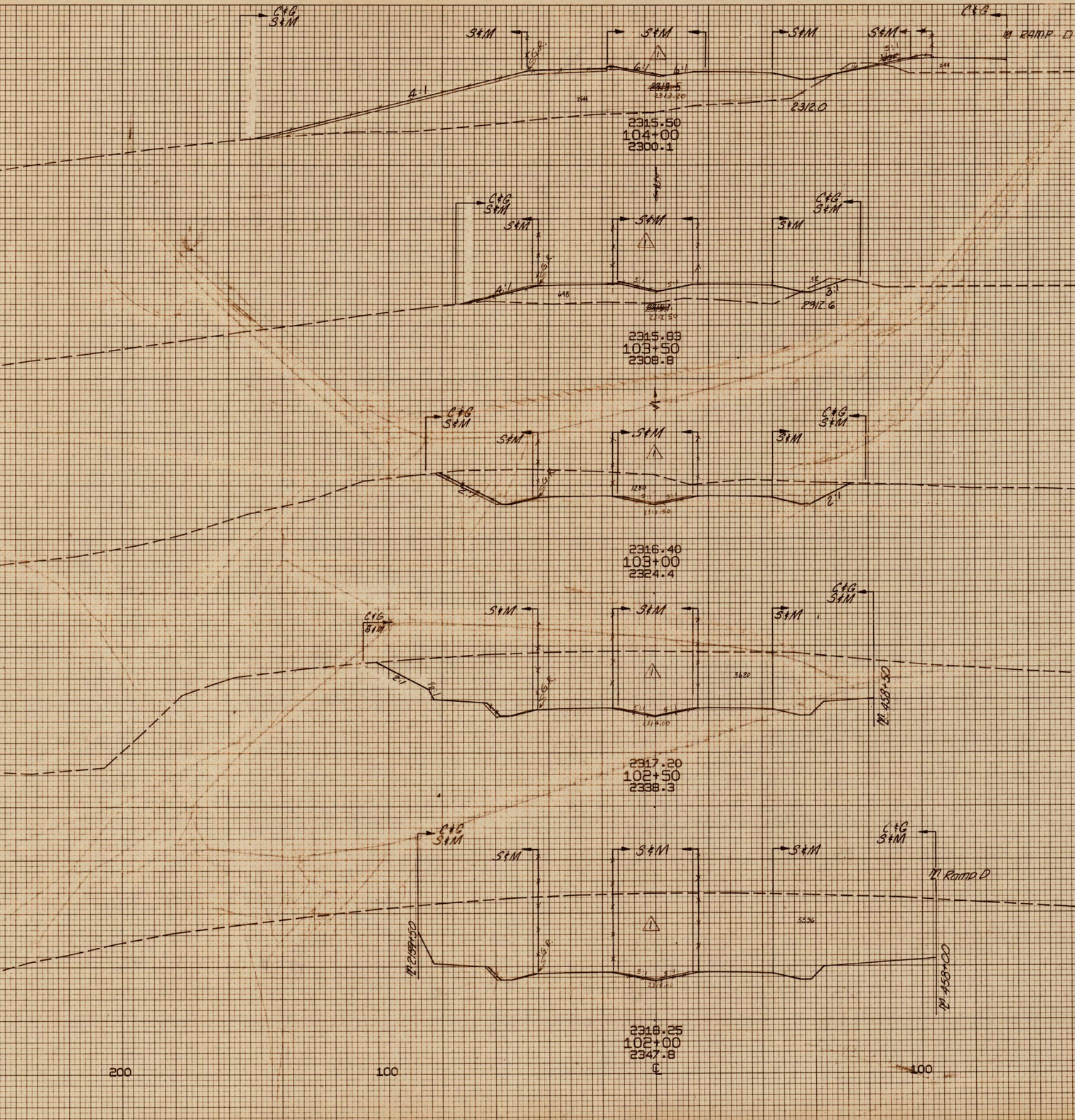
SEL. EMB. AREA	CU. YD.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
		2358 ~~2200~~	445 ~~460~~		
				4203 ~~4004~~	759 ~~800~~
		2181 ~~2116~~	375 ~~404~~		
				3133 ~~3020~~	1550 ~~1633~~
		1202 ~~1152~~	1300 ~~1360~~		
				1209 ~~1169~~	3276 ~~3418~~
		104	2288 ~~2320~~		
				96	4978 ~~5237~~
		0	3138 ~~3328~~		
				15	5348 ~~5563~~
		16	2638 ~~2700~~		

REFERENCE DRAWING

CORR. "L" RAMP A&B

FED. HWY. ADM.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	STATION TO STATION	SHEET NO.	TOTAL SHEETS
W. VA.	10		I-77-2(57)146	1978	102+00 TO 104+00	~~52~~ 105 ~~0~~	136 ~~344~~

CLEARING		SEEDING	
END WIDTH	SQ. YDS.	END WIDTH	SQ. YDS.
290	205		
1222	825		
150	92		
878	572		
166	114		
1017	739		
200	152		
1097	842		
195	151		
1050	786		
183	132		

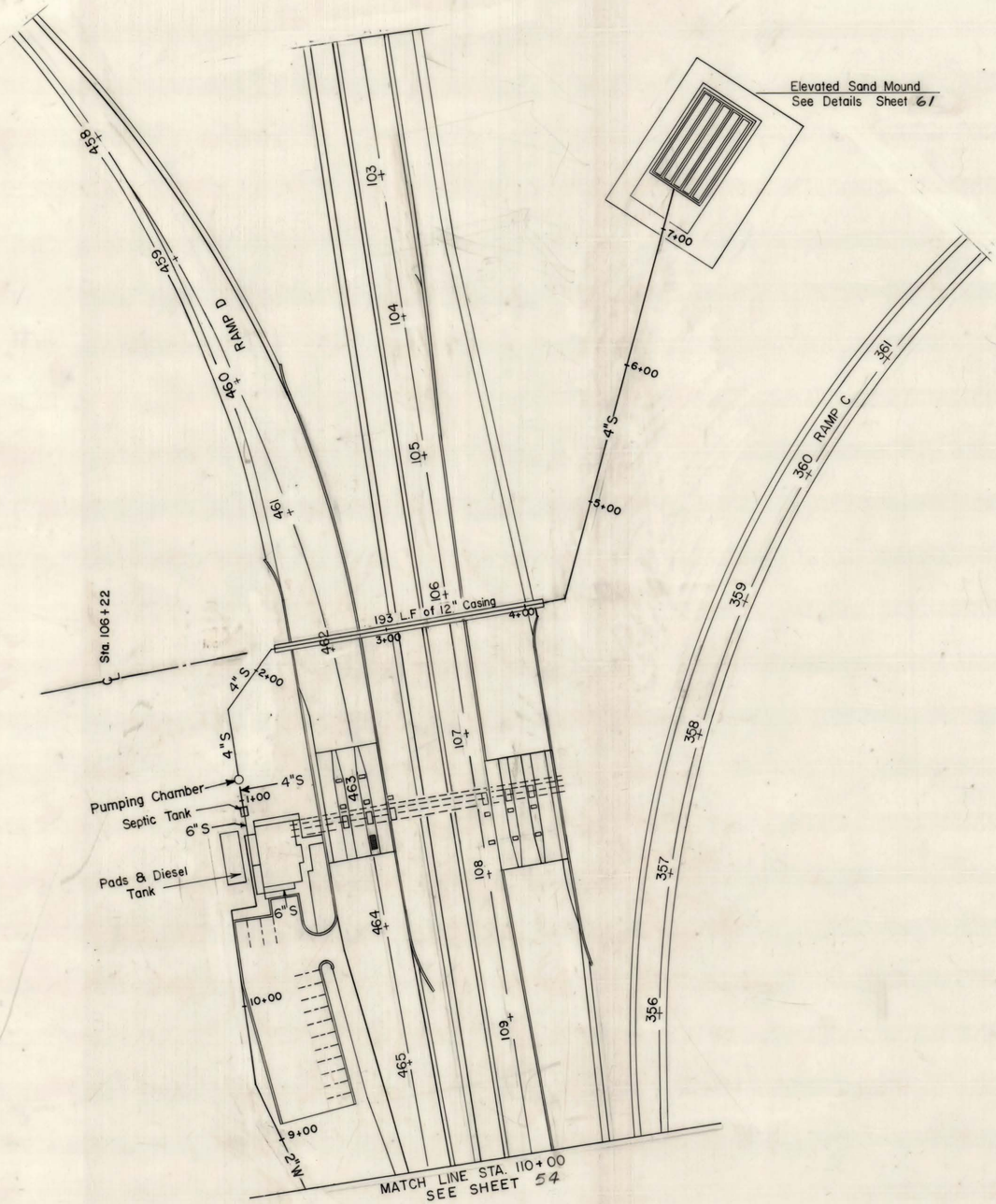


	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
2320				
2300	16	~~2760~~ 2638		
2320	44	~~3102~~ 3043		
2300				
2320	32	648		
2300				
2320			~~1215~~ 1239	600
2300			1206 ~~1280~~	0
2320			~~4537~~ 4561	0
2300				
2320			3620	0
2300				
2320			8534	0
2300				
2320			5596	0
2300				
2340			8835	
2320			3980	0

REFERENCE DRAWING
CORR "L" RAMP A & B

K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	53	136



REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1"= 50' Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

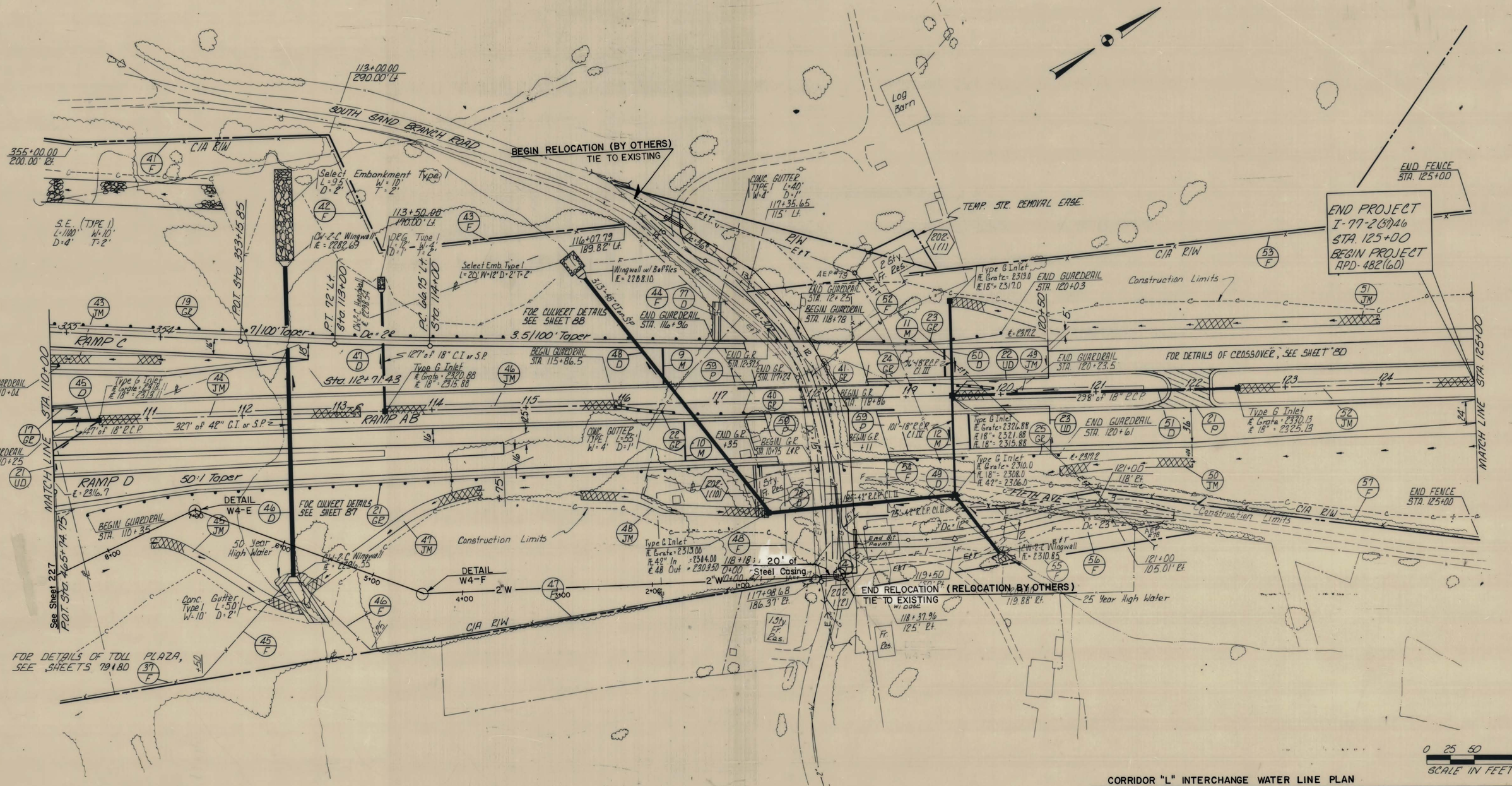
CORRIDOR "L"
WATER AND SEWAGE PLAN

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10		I-77-2(46)9		RALEIGH	54	136

FOR WATER LINE LOCATION ONLY



0 25 50 100
SCALE IN FEET

CORRIDOR "L" INTERCHANGE WATER LINE PLAN

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED DATE	REVISED

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

I-77-2(46)9

RALEIGH COUNTY

STA. 110+00 TO STA. 125+00

RAMP AB CORRIDOR "L" INTERCHANGE

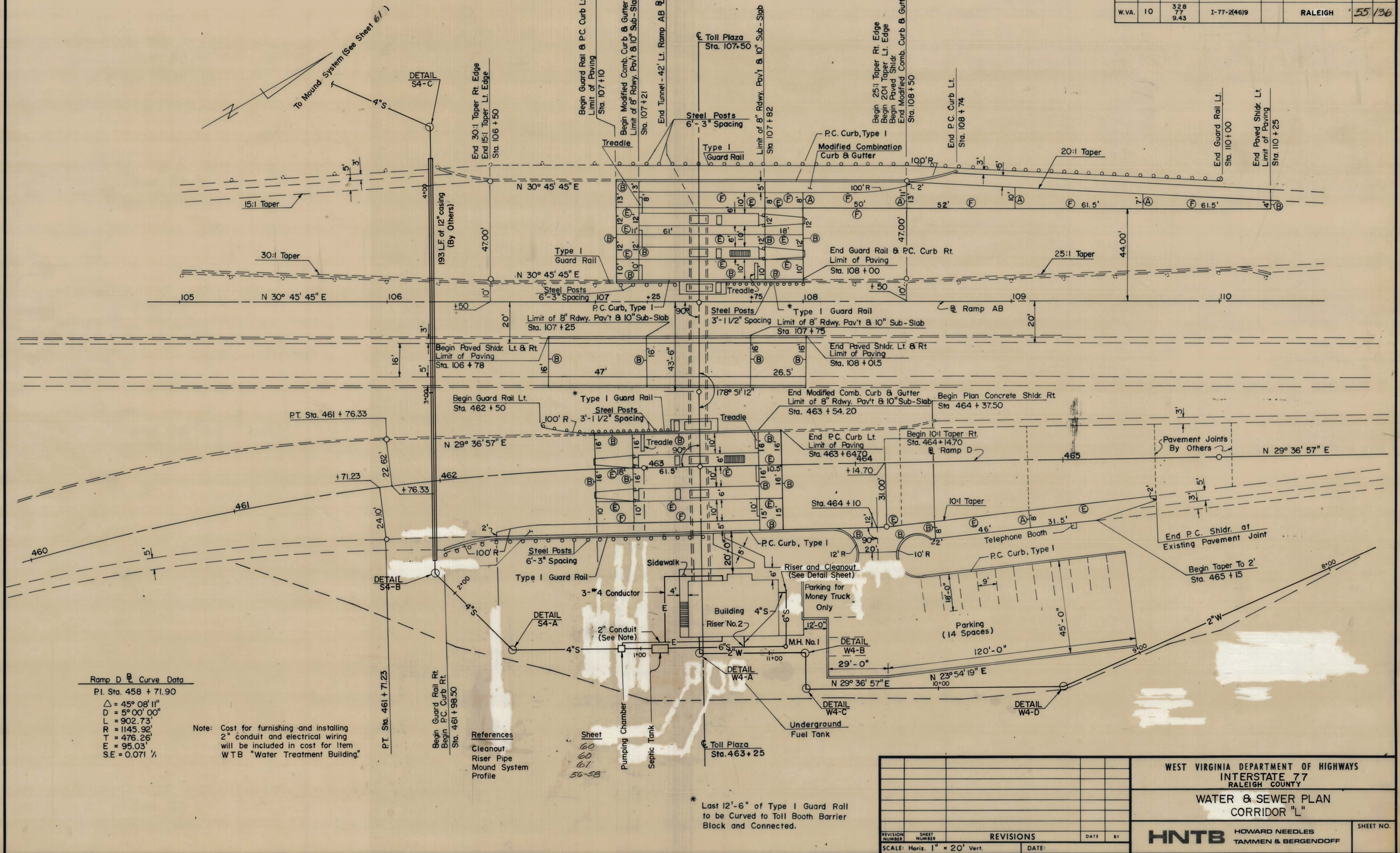
SCALE: DATE:

F. S. PRESTON ASSOCIATES, INC.

BRUNING 44-560 26702

K&E 19 1235 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	55	136



Ramp D ℄ Curve Data

P.I. Sta. 458 + 71.90
△ = 45° 08' 11"
D = 5° 00' 00"
L = 902.73'
R = 1145.92'
T = 476.26'
E = 95.03'
S.E = 0.071 ft

Note: Cost for furnishing and installing 2" conduit and electrical wiring will be included in cost for Item WTB "Water Treatment Building."

References

	Sheet
Cleanout	60
Riser Pipe	60
Mound System	61
Profile	56-58

* Last 12'-6" of Type I Guard Rail to be Curved to Toll Booth Barrier Block and Connected.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 20' Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

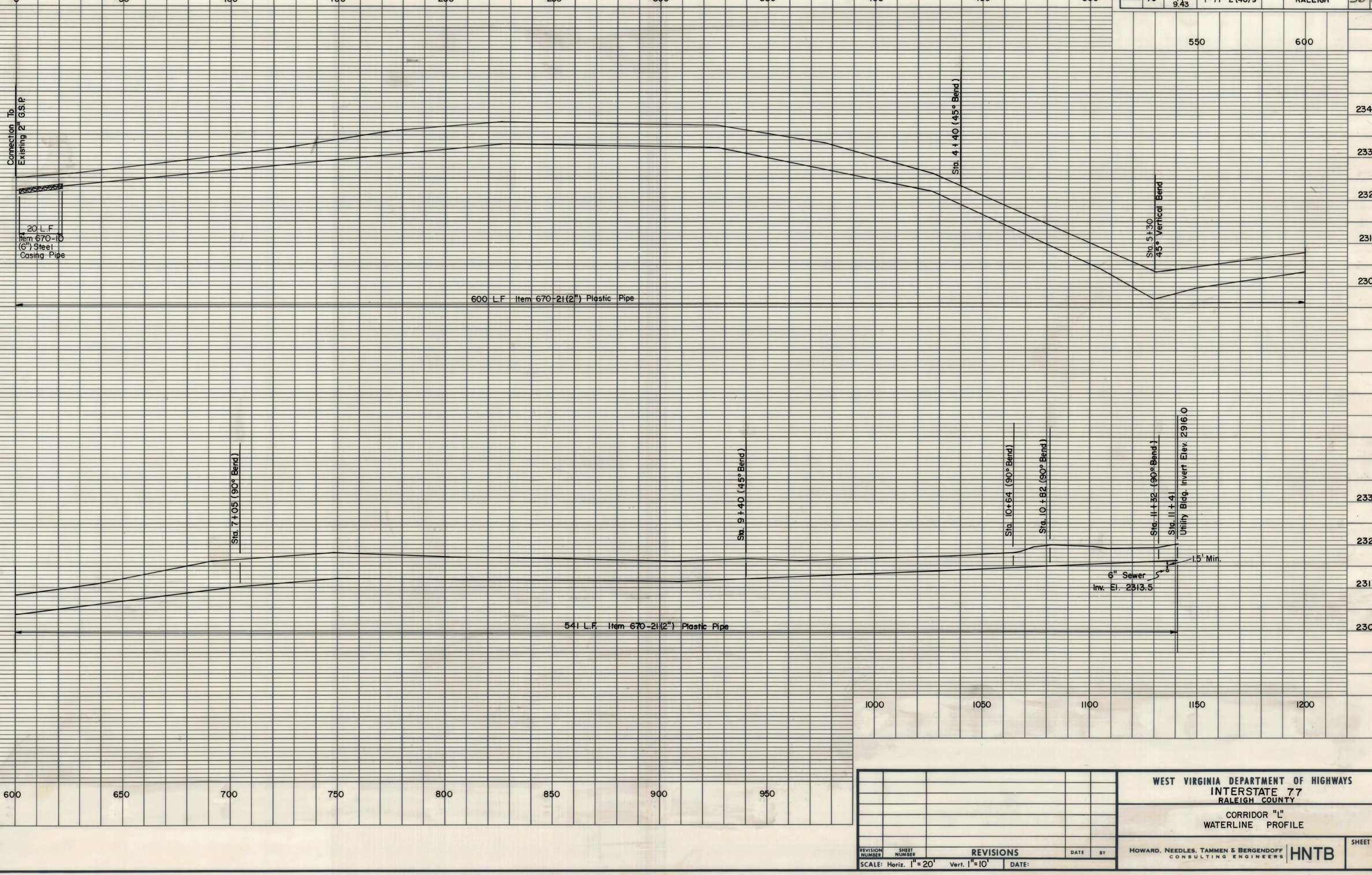
WATER & SEWER PLAN
CORRIDOR "L"

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	56	136

Appr'd ____ Date ____



REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 20' Vert. 1" = 10' DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

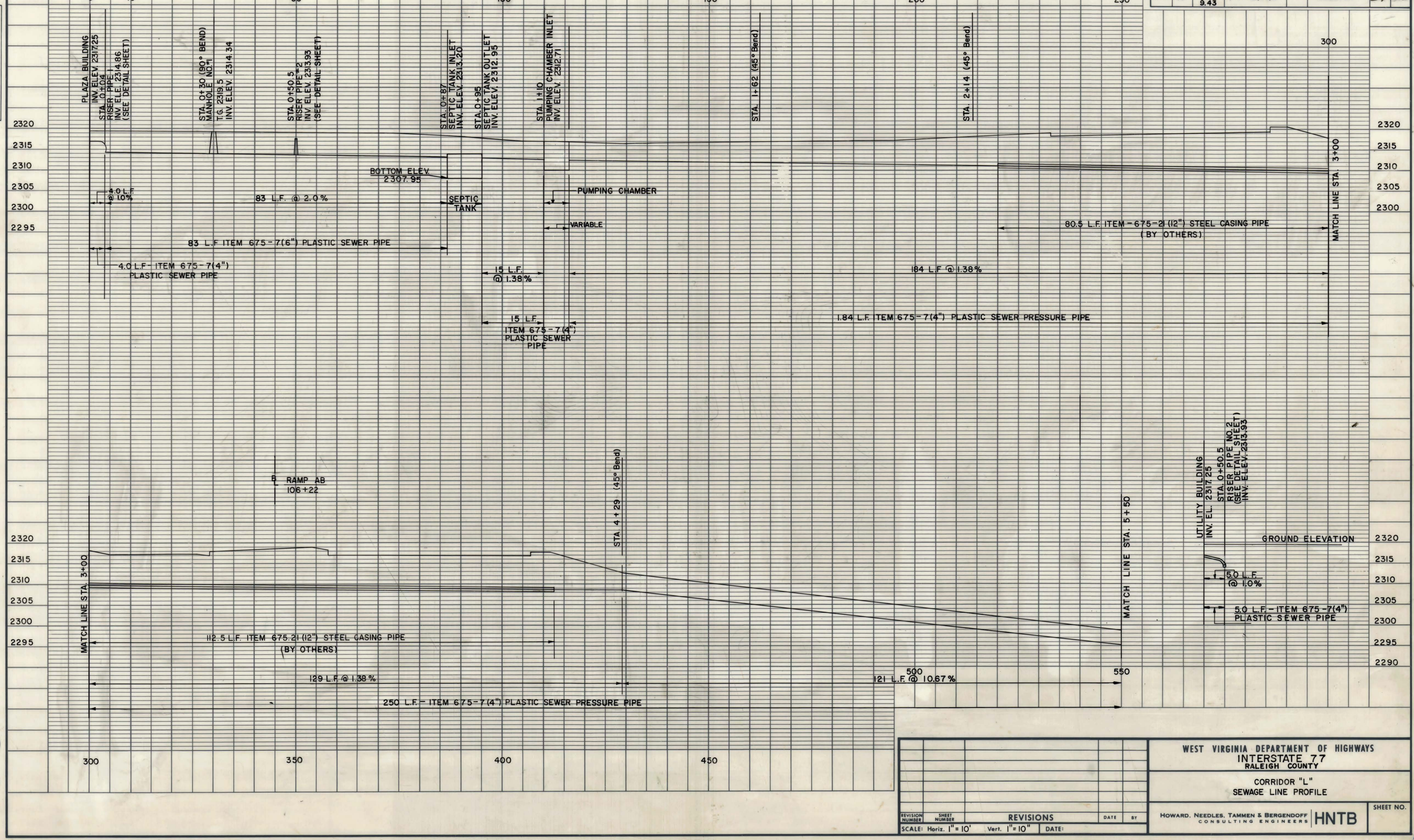
CORRIDOR "L"
WATERLINE PROFILE

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS | HNTB

SHEET NO.

00-1A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	57	136



REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 10' Vert. 1" = 10" DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR "L"
SEWAGE LINE PROFILE

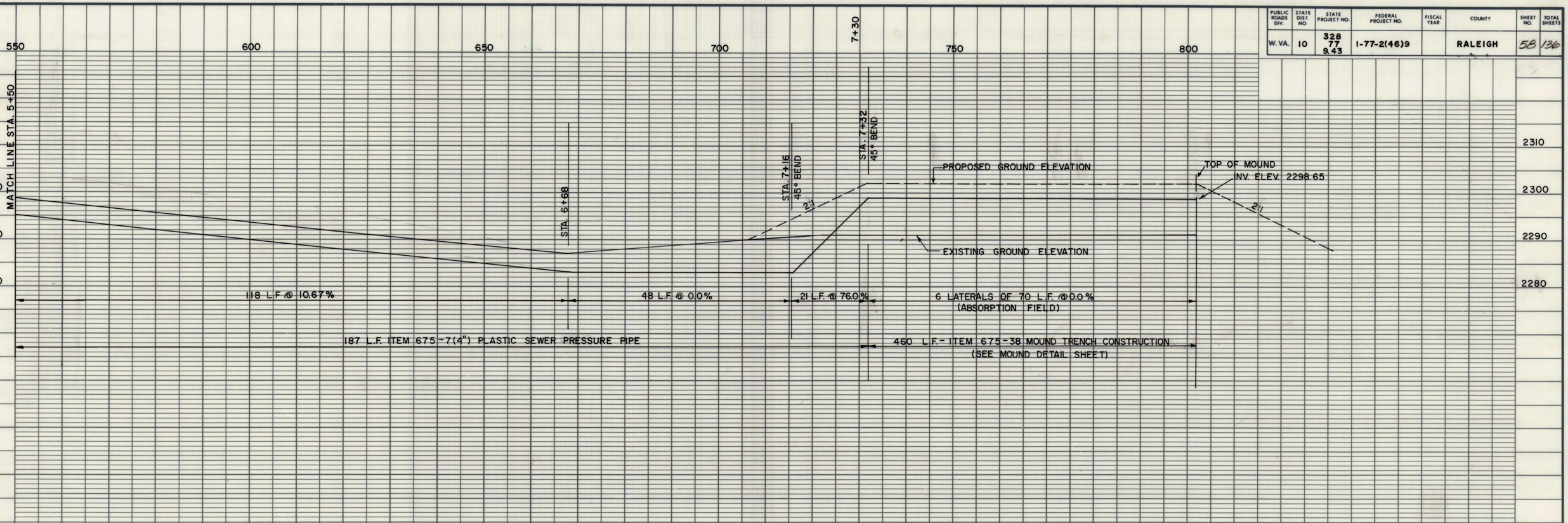
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS | HNTB

SHEET NO.

A100-1A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46)9		RALEIGH	58	136

Bkch. Date
Appr'd Date



REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 10' Vert. 1" = 10' DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR "L"
SEWAGE LINE PROFILE

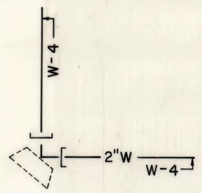
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS | HNTB

SHEET NO.

A100-1A

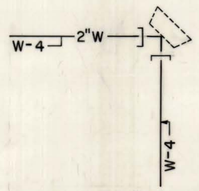
K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9		Raleigh	59	136



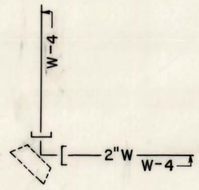
DETAIL W4-A

1-2"-90° BEND
1-CONCRETE THRUST BLOCK



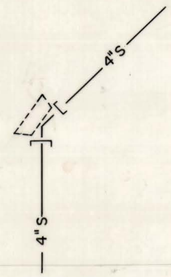
DETAIL W4-B

1-2"-90° BEND
1-CONCRETE THRUST BLOCK



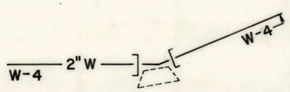
DETAIL W4-C

1-2"-90° BEND
1-CONCRETE THRUST BLOCK



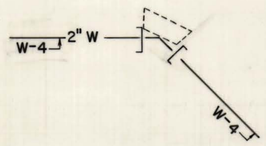
DETAIL S4-A

1-4"-45° BEND
1-CONCRETE THRUST BLOCK



DETAIL W4-D

1-2"-45° BEND
1-CONCRETE THRUST BLOCK



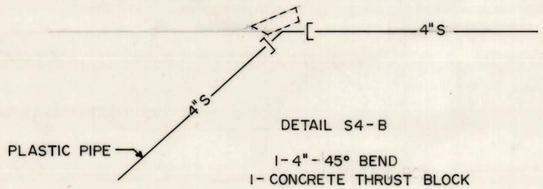
DETAIL W4-E

1-2"-45° BEND
1-CONCRETE THRUST BLOCK



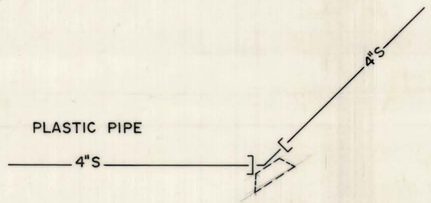
DETAIL W4-F

1-2"-45° BEND
1-CONCRETE THRUST BLOCK



DETAIL S4-B

1-4"-45° BEND
1-CONCRETE THRUST BLOCK



DETAIL S4-C

1-4"-45° BEND
1 CONCRETE THRUST BLOCK

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

WATER AND SEWER DETAILS

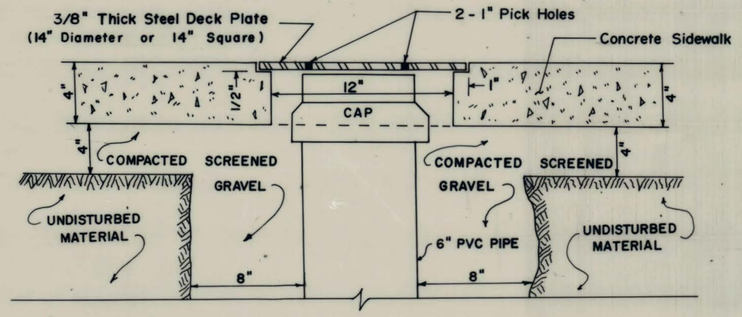
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

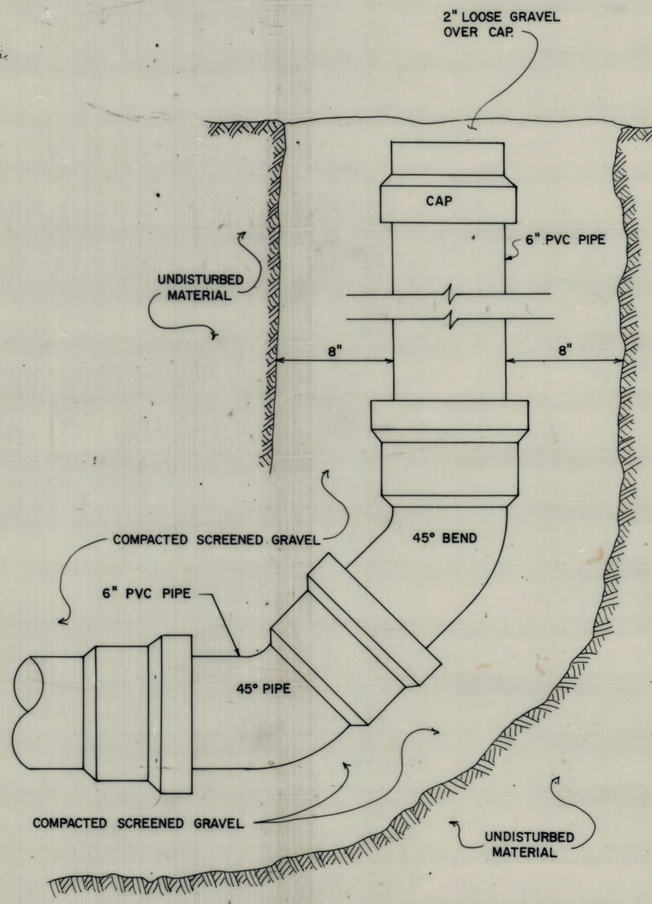
K&E 19 1255 5-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9		Raleigh	60	136

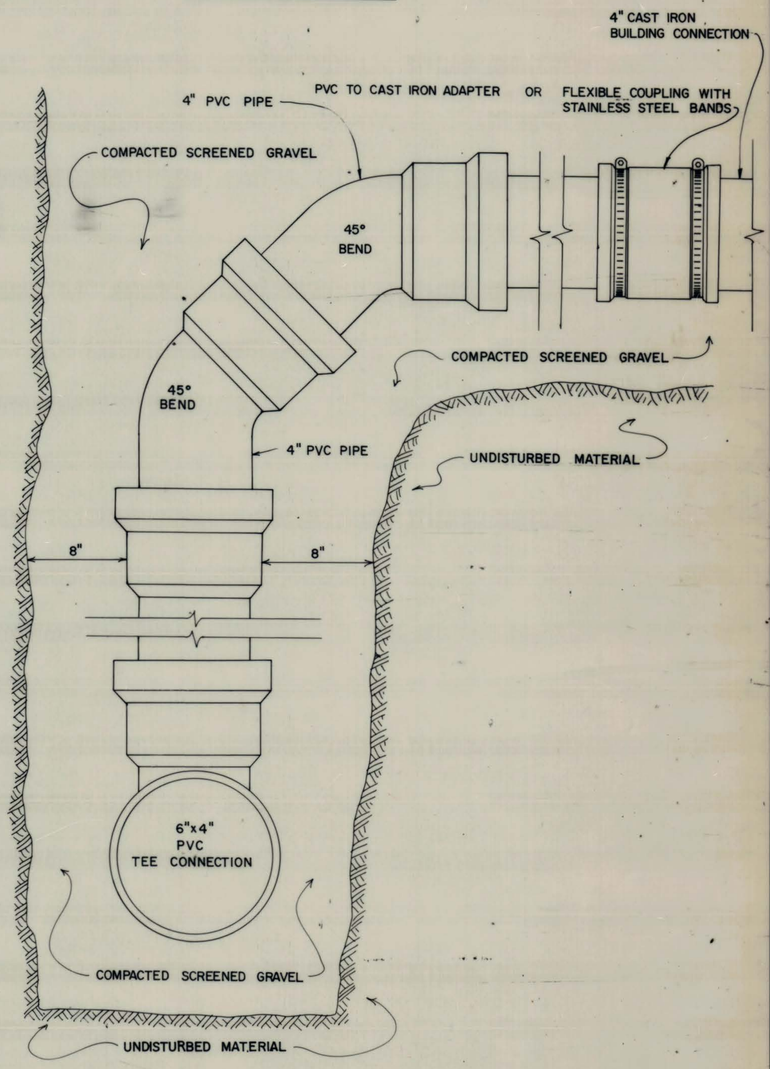
TERMINAL CLEANOUT STRUCTURE UNDER CONCRETE SIDEWALK



TERMINAL CLEANOUT STRUCTURE



RISER PIPE DETAIL



NOTE: ALL TERMINAL CLEANOUT STRUCTURES AND RISER PIPES SHALL BE INCLUDED IN ITEM 675-7, "PLASTIC SEWER PIPE," PER LINEAR FOOT. COMPACTED SCREENED GRAVEL, CLEANOUT CAPS AND FLEXIBLE COUPLING WITH STAINLESS STEEL BANDS SHALL BE CONSIDERED AS INCIDENTALS AND INCLUDED IN THE COST FOR ITEM 675-7. COST FOR FURNISHING AND INSTALLING STEEL PLATE SHALL BE INCLUDED IN COST FOR ITEM 675-7.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. N.T.S. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

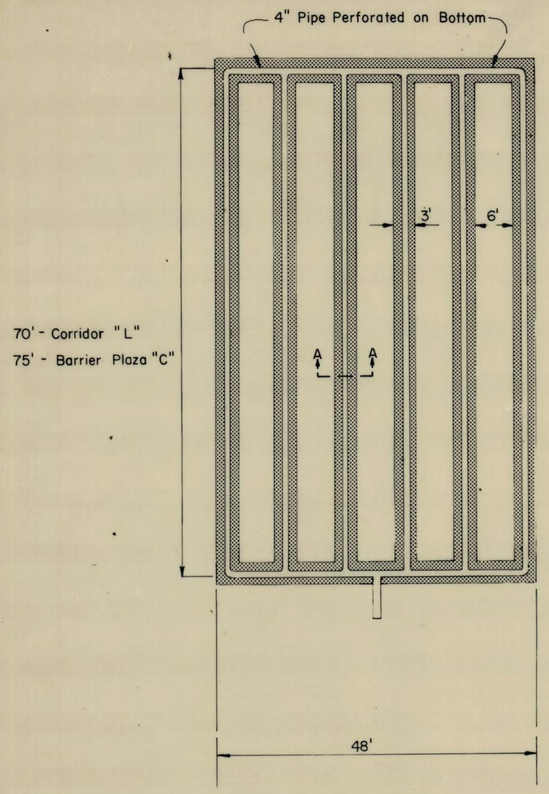
SEWER LINE DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

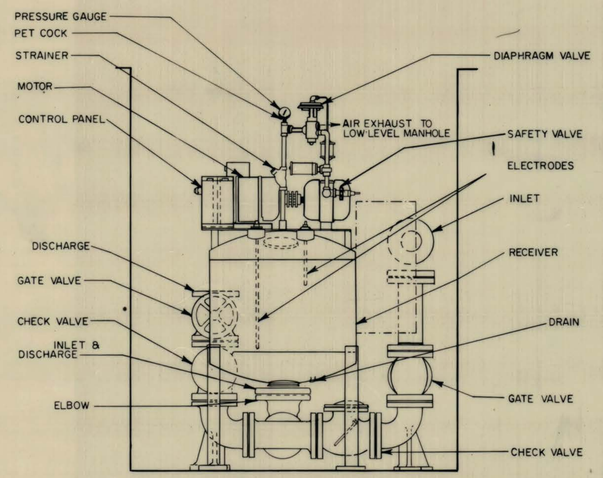
SHEET NO.

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W.VA		328 77 943	I-77-2(46)9			61.	136

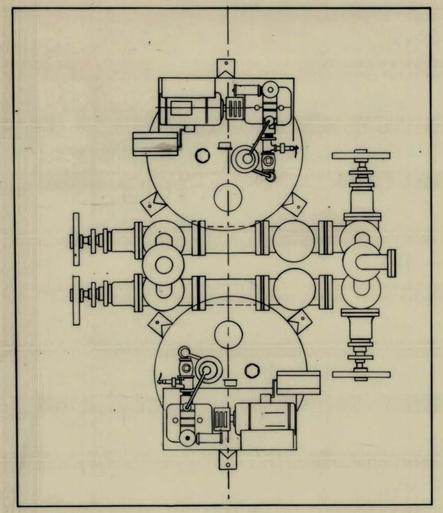
Appr'd ____ Date ____



ABSORPTION FIELD

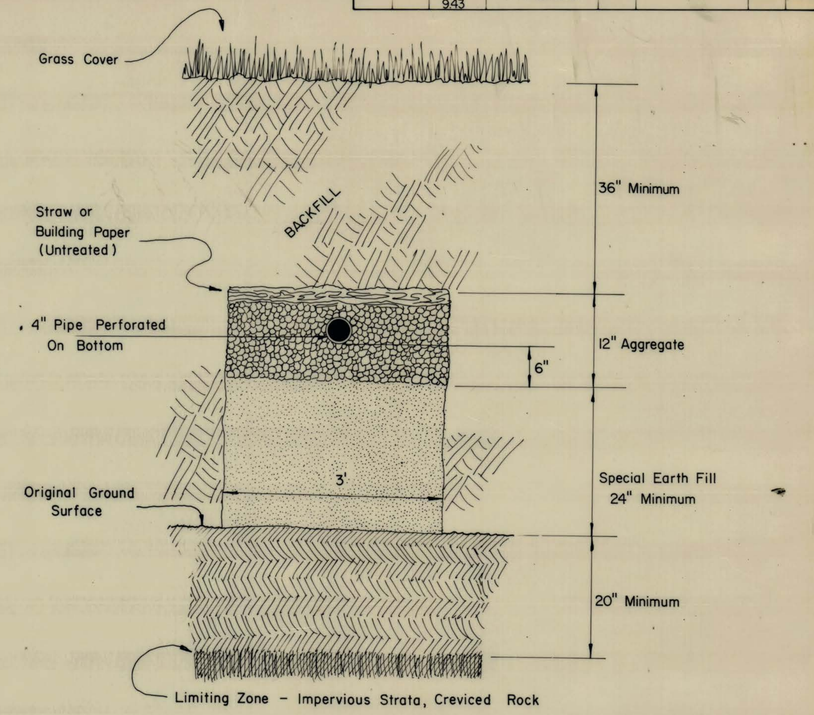


SIDE VIEW

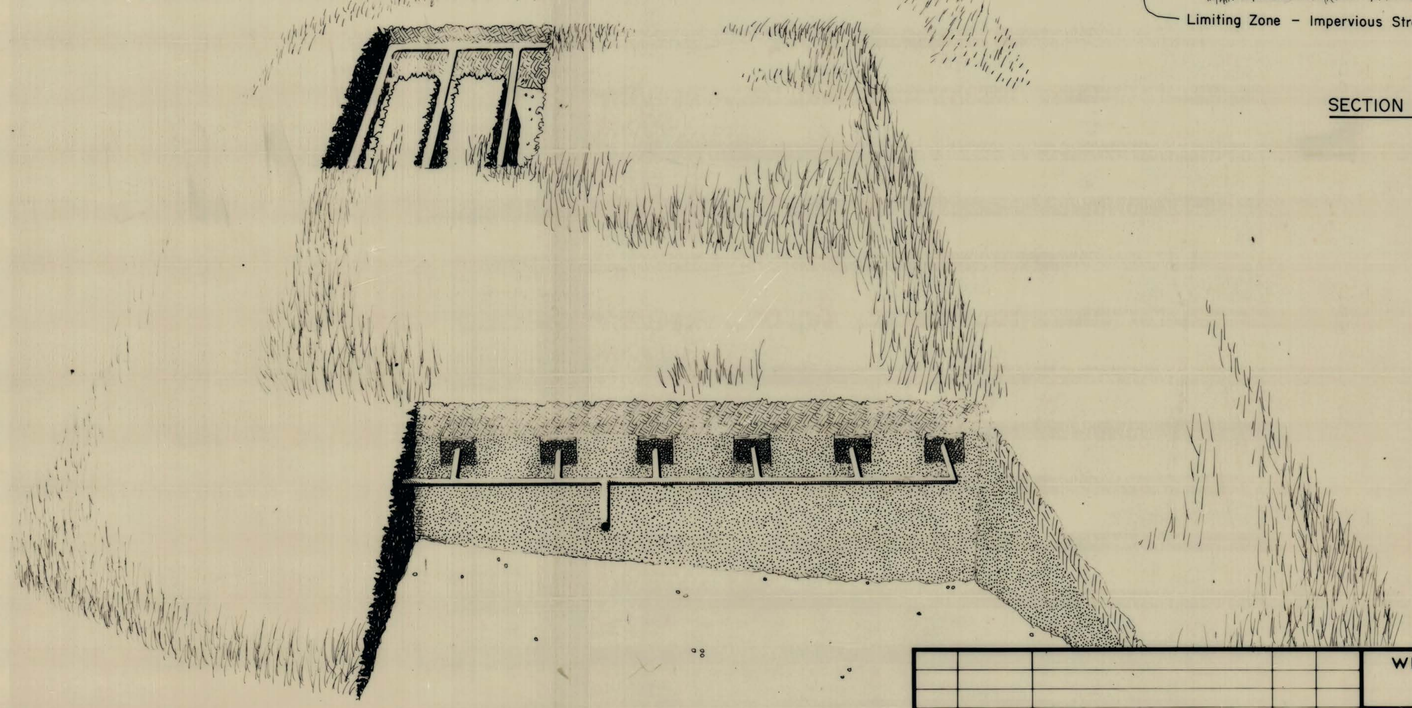


PLAN VIEW

TYPICAL SEWAGE PUMP STATION



SECTION A-A



ELEVATED SAND MOUND
WITH TRENCH DISTRIBUTION

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

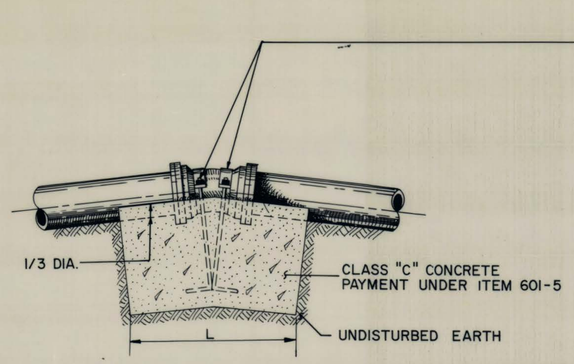
MOUND SYSTEM DETAILS AND
PUMP STATION TYPICAL

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — HNTB

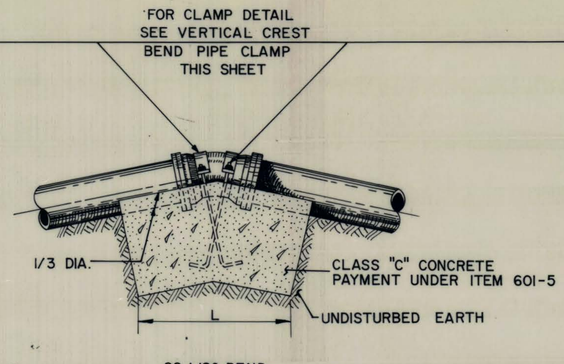
SHEET NO

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I- 77-2(46)9		Raleigh	62	136

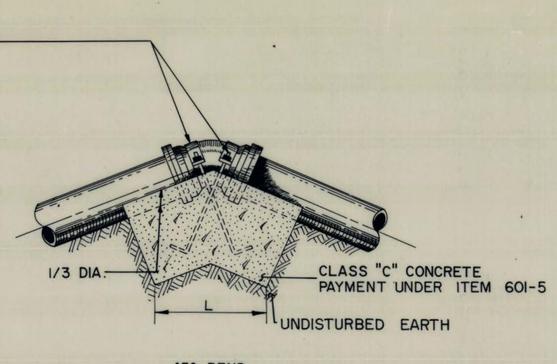
Appr'd _____ Date _____



11 1/4° BEND



22 1/2° BEND

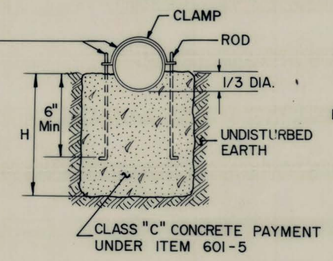


45° BEND

PIPE SIZE	DEGREE OF BEND											
	11 1/4°				22 1/2°				45°			
	L"	W"	H"	CU. FT.	L"	W"	H"	CU. FT.	L"	W"	H"	CU. FT.
2"	12	18	12	1.5	15	18	12	1.88	18	18	18	3.38
4"	18	24	18	4.5	20	36	21	8.74	28	36	29	16.7

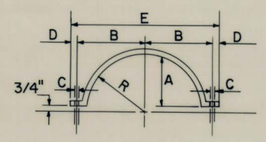
NOTE: Clamps, rods, etc. are to be included in price bid for item 601-5 Class "C" Concrete

FOR CLAMP DETAIL SEE VERTICAL CREST BEND PIPE CLAMP ON THIS SHEET

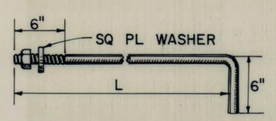


NOTE: The proposed pipe shall be wrapped with 8 mils thick polyethylene material. It shall be so placed as to protect the pipe from making contact with proposed concrete thrust block. Cost to be included in price bid item 601-5 Class "C" Concrete.

VERTICAL CREST BEND BLOCKING



CLAMP



ROD

PIPE SIZE	VERTICAL CREST BEND PIPE CLAMP							TIE ROD			
	R"	BAR SIZE	A"	B"	C"	D"	E"	DIA.	SIZE	THICK	HOLE
2"	1 5/8"	3/8 x 2	5/8	3 1/4	11/16	2 1/8	10 3/4	5/8	3x3	3/8	11/16
4"	2 5/6	3/8 x 2	1 7/8	4 1/2	11/16	2 1/8	1'-3 1/4"	5/8	3x3	3/8	11/16

DESIGN NOTES

VERTICAL CREST BEND PIPE CLAMP:

(1) Designed for 200 P.S.I. pressure + 50% safety factor
(2) Min. 1/8" on bar thickness added for corossion allowance
(3) All holes 1/16" diameter larger than holes
(4) Furnish all rods with hex nuts

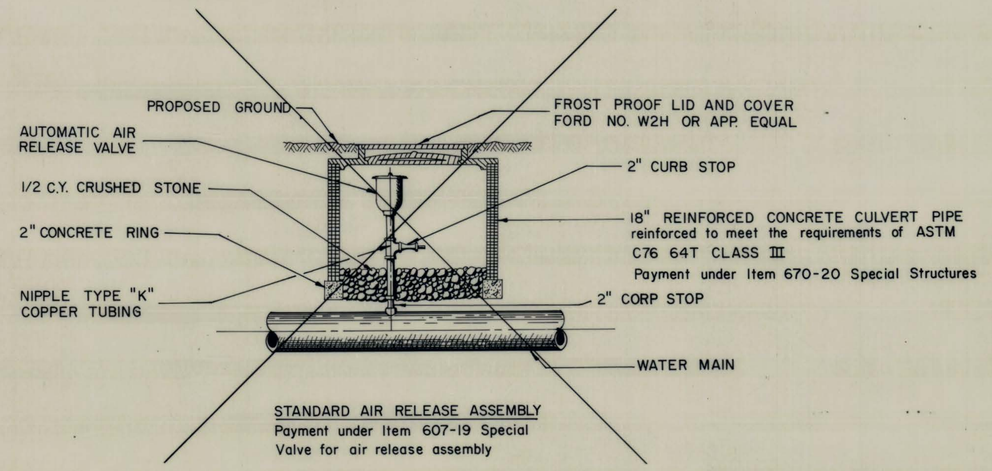
TIE ROD:

(1) Min. of 1/8" on rod diameter added for corossion allowance
(2) Dimension "L" (length) to be determined in field
(3) Holes in washer to be 1/16" larger than tie rod diameter

PAINT NOTE:

(1) One shop coat of red lead
(2) One field coat of bitumastic after insulation

SECTION A-A



STANDARD AIR RELEASE ASSEMBLY
Payment under Item 607-19 Special
Valve for air release assembly

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz N.T.S. Vert. DATE:

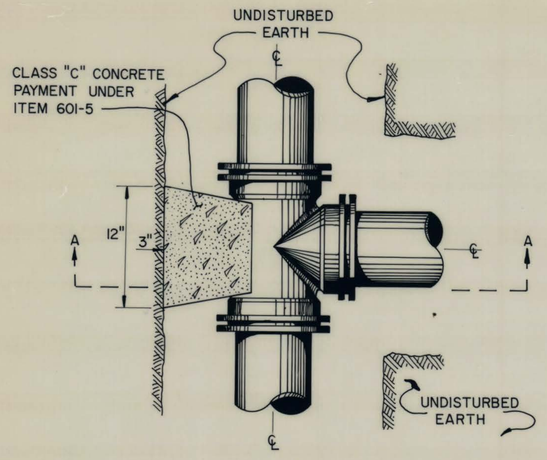
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

BLOCKING DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

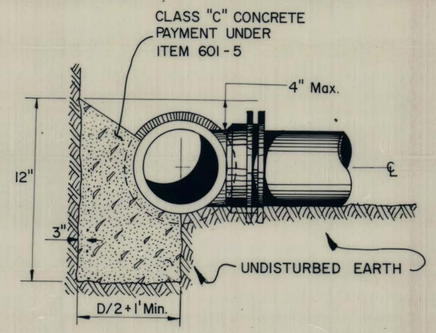
PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46)9		Raleigh	63	136



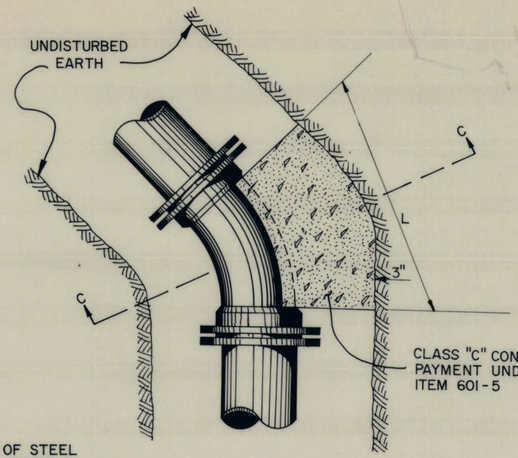
PLAN

BLOCKING AT TEES

NOTE: CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH

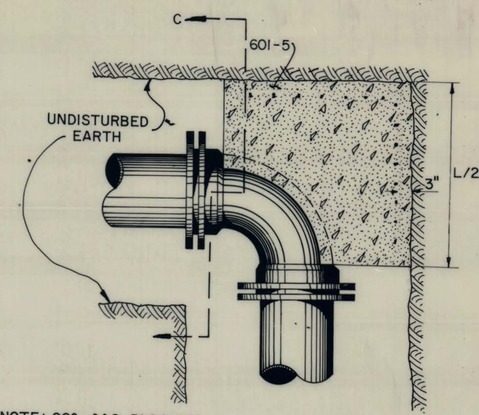


SECTION A-A



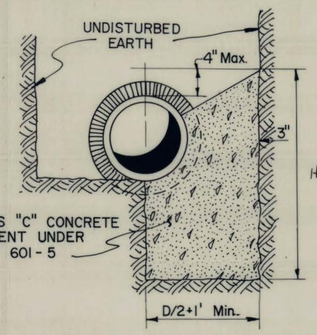
NOTE: COST OF STEEL REINFORCING TO BE INCLUDED IN UNIT PRICE BID FOR ITEM 601-5

PLAN
(LESS THAN 90°)



NOTE: 90° SAG BLOCKING SHALL BE INSTALLED THE SAME AS 90° HORIZONTAL BEND.

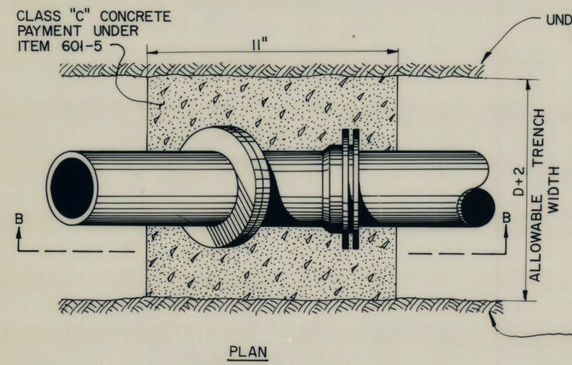
PLAN
(90° BEND)



SECTION C-C

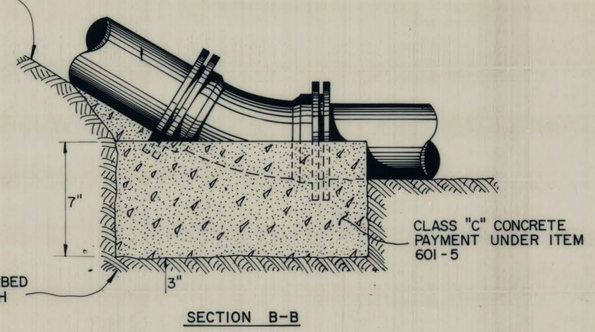
BLOCKING AT HORIZONTAL BENDS

PIPE SIZE	DEGREE OF BEND							
	11 1/4°		22 1/2°		45°		90°	
	L"	H"	L"	H"	L"	H"	L"	H"
2"	6"	12"	6"	12"	12"	12"	18"	12"
4"	8"	8"	8"	15"	13"	18"	32"	31"



PLAN

NOTE: THE 90° SAG BLOCKING SHALL BE INSTALLED THE SAME AS THE 90° HORIZONTAL BEND FOR 12" 22 1/2° SAG BENDS L=29"

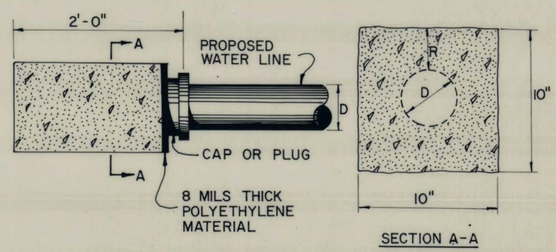


SECTION B-B

NOTE: CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH

NOTE: CONTRACTOR SHALL CENTER BLOCKING ON BEND HORIZONTALLY

BLOCKING AT VERTICAL SAG BENDS



SECTION A-A

BLOCKING AT PUSH ON JOINT CAP OR PLUG

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. N.T.S. Vert. DATE:

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

BLOCKING DETAILS

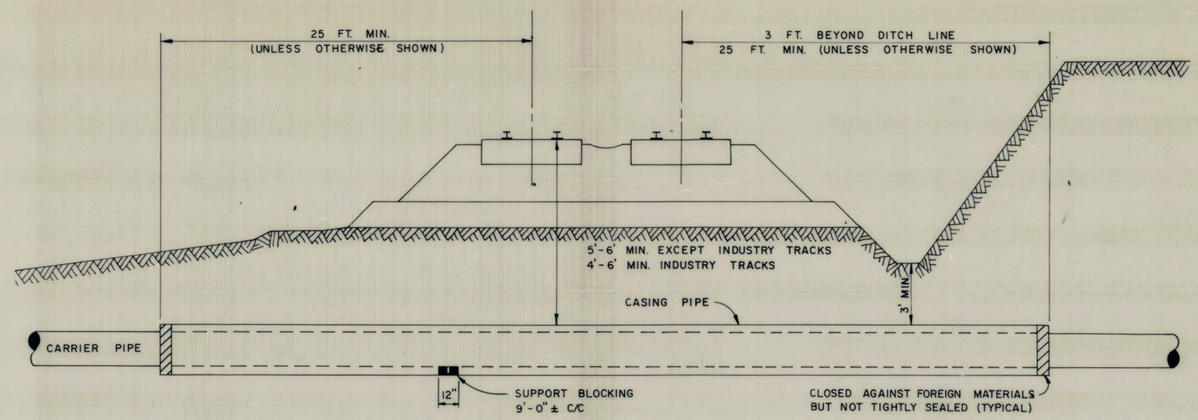
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS HNTB

SHEET NO.

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(46)9		Raleigh	64	136

Appr'd _____ Date _____

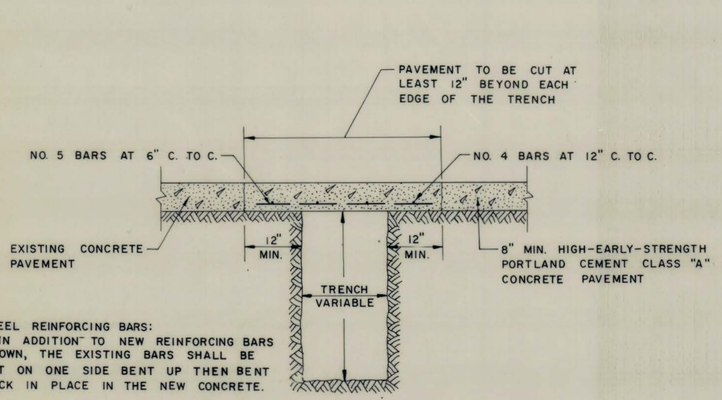
HORIZONTAL DISTANCES ARE MEASURED AT RIGHT ANGLES TO CENTER LINE OF TRACK



PROFILE

WATER LINE CASING DETAIL

(RAILROAD SHOWN HIGHWAY SIMILAR)

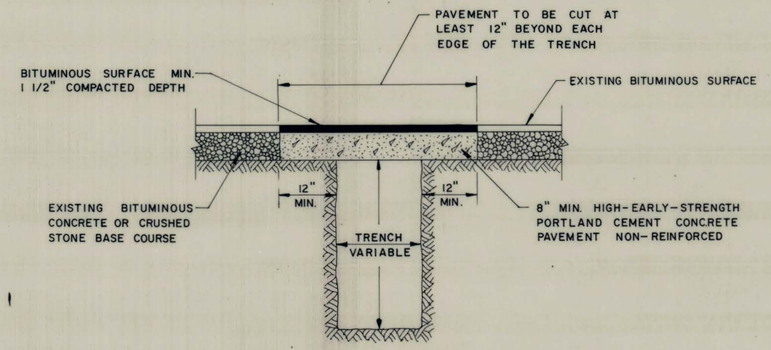


STEEL REINFORCING BARS:
IN ADDITION TO NEW REINFORCING BARS SHOWN, THE EXISTING BARS SHALL BE CUT ON ONE SIDE BENT UP THEN BENT BACK IN PLACE IN THE NEW CONCRETE.

ALTERNATE REINFORCING:
THE REINFORCING FOR TRENCHES NOT EXCEEDING TWO (2') IN WIDTH MAY BE WIRE MESH, EITHER 4 x 4 - 4/4, 85 POUNDS PER 100 SQ. FT., OR 6 x 6 - 0/0, 107 POUNDS PER 100 SQ. FT., PLACED TWO INCHES ABOVE THE BOTTOM OF THE NEW CONCRETE. THE EXISTING BARS TO BE USED AS NOTED ABOVE.

REPLACING PAVEMENT:
IN REPLACING CONCRETE PAVEMENTS WHICH HAVE BEEN BITUMINOUS SURFACED, THE PORTLAND CEMENT CONCRETE SHALL BE REPLACED TO THE ELEVATION ONE AND ONE-HALF INCH (1 1/2") MINIMUM BELOW THE FINISHED GRADE OF THE EXISTING BITUMINOUS SURFACE. ASPHALT CONCRETE SHALL BE USED TO COMPLETE THE PAVEMENT REPLACEMENT TO EXISTING SURFACE ELEVATION.

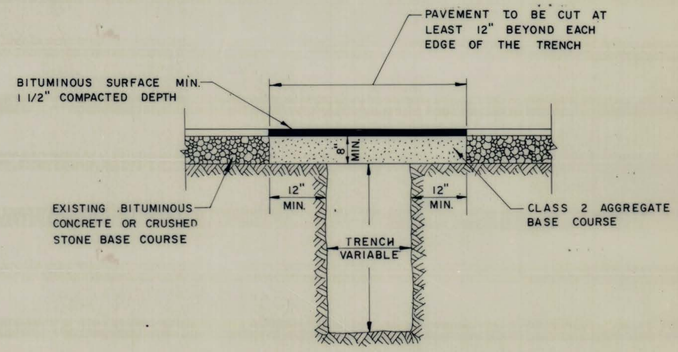
PAVEMENT RESTORATION
CONCRETE
(PERMANENT)



NOTE:
THE PAVEMENT RESTORATION SHALL BE ACCOMPLISHED AS SOON AS THE BACKFILLING HAS BEEN COMPLETED. IF THE CONTRACTOR ELECTS TO POSTPONE THE PERMANENT PAVEMENT RESTORATION, HE WILL MAINTAIN THE TRAVELED LANES IN A SATISFACTORY MANNER WITH EITHER AGGREGATE OR ASPHALT AT HIS OWN EXPENSE.

NOTE:
THE COST OF FURNISHING AND PLACING THE TEMPORARY PAVEMENT RESTORATION AND OTHER INCIDENTAL ITEMS SHALL BE INCLUDED IN THE UNIT PRICES BID.

PAVEMENT RESTORATION
ASPHALT OVERLAY
(PERMANENT)



TEMPORARY PAVEMENT RESTORATION
(NO SEPARATE PAYMENT).

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. Vert. DATE

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77

WATER LINE DETAILS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF — HNTB

SHEET NO

K&E 10 1255 5-77 TEM 2229

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)19 C-34	79	~~MERGER~~ RALEIGH ~~FAYETTE, KANAWHA~~	65	136

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY UNIT	QUANTITY TOTAL
	BARRIER PLAZA 21.0		
662-2(1)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(1)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	6
662-7(250)	LUMINAIRE, H.P.S.	EA.	16
662-7(150)	LUMINAIRE, H.P.S.	EA.	10
662-8(1)	CABLE	L.S.	L.S.
662-10(40-15)	LIGHTING SUPPORT, TYPE V	EA.	16
662-10(40-8)	LIGHTING SUPPORT, TYPE V	EA.	8
662-10(30-15)	LIGHTING SUPPORT, TYPE V	EA.	2
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(1)	ELECTRICAL TESTS	L.S.	L.S.
659-2(1)	SIGN LIGHTING, TYPE 3 (175W)	L.S.	L.S.
659-2(2)	**SIGN LIGHTING, TYPE 3 (175 W)**	**L.S.**	**L.S.**
	BARRIER PLAZA 47.4		
662-2(2)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(2)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	3
662-7(250)	LUMINAIRE, H.P.S.	EA.	17
662-7(150)	LUMINAIRE, H.P.S.	EA.	12
662-8(2)	CABLE	L.S.	L.S.
662-10(40-15)	LIGHTING SUPPORT, TYPE V	EA.	28
662-10(30-15)	LIGHTING SUPPORT, TYPE V	EA.	1
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(2)	ELECTRICAL TESTS	L.S.	L.S.
659-2(3)	SIGN LIGHTING, TYPE 3 (175 W)	L.S.	L.S.
659-2(4)	**SIGN LIGHTING, TYPE 3 (175 W)**	**L.S.**	**L.S.**
	BARRIER PLAZA 73.6		
662-2(3)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(3)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	6
662-7(250)	LUMINAIRE, H.P.S.,	EA.	19
662-7(150)	LUMINAIRE, H.P.S.,	EA.	6
662-8(3)	CABLE	L.S.	L.S.
662-10(40-15)	LIGHTING SUPPORT, TYPE V	EA.	24
662-10(30-15)	LIGHTING SUPPORT, TYPE V	EA.	1
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(3)	ELECTRICAL TESTS	L.S.	L.S.
659-2(3)	SIGN LIGHTING, TYPE 3 (175 W)	L.S.	L.S.
659-2(6)	**SIGN LIGHTING , TYPE 3 (175 W)**	**L.S.**	**L.S.**
	CORRIDOR "L" INTERCHANGE		
662-2(4)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(4)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	7
662-7(250)	LUMINAIRE, H.P.S., 250W	EA.	15
662-7(150)	LUMINAIRE, H.P.S., 150W	EA.	8
662-8(4)	CABLE	L.S.	L.S.
662-10(40-8)	LIGHTING SUPPORT, TYPE V	EA.	22
662-10(30-15)	LIGHTING SUPPORT, TYPE V	EA.	1
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(4)	ELECTRICAL TESTS	L.S.	L.S.
	GARDNER INTERCHANGE		
662-2(5)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(5)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	2
662-7(150)	LUMINAIRE, H.P.S.	EA.	4
662-8(5)	CABLE	L.S.	L.S.
662-10(40-15)	LIGHTING SUPPORT, TYPE V	EA.	4
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(5)	ELECTRICAL TESTS	L.S.	L.S.
	CAMP CREEK INTERCHANGE		
662-2(6)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(6)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	2
662-7(150)	LUMINAIRE, H.P.S.	EA.	4
662-8(6)	CABLE	L.S.	L.S.
662-10(40-15)	LIGHTING SUPPORT, TYPE V	EA.	4
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(6)	ELECTRICAL TESTS	L.S.	L.S.
	GHENT INTERCHANGE		
662-2(7)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(7)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	2
662-7(150)	LUMINAIRE, H.P.S.	EA.	4
662-8(7)	CABLE	L.S.	L.S.
662-10(40-15)	LIGHTING SUPPORT, TYPE V	EA.	4
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(7)	ELECTRICAL TESTS	L.S.	L.S.
	MARMET INTERCHANGE		
662-2(8)	GALVANIZED STEEL CONDUIT	L.S.	L.S.
662-3(8)	P.V.C. CONDUIT	L.S.	L.S.
662-6(H)	JUNCTION BOX 18"X18"	EA.	2
662-7(150)	LUMINAIRE, H.P.S.	EA	4
662-8(8)	CABLE	L.S.	L.S.
662-10(40-15)	LIGHTING SUPPORT, TYPE V	EA.	4
662-14	INCIDENTAL ELECTRICAL WORK	L.S.	L.S.
662-15(8)	ELECTRICAL TESTS	L.S.	L.S.

GOVERNING SPECIFICATIONS:

1. **The West Virginia Department of Highways Standard Specifications Roads and Bridges, Adopted 1978, as amended by the West Virginia Department of Highways Supplemental Specifications, Adopted January 1, 1979, the Contract Documents and the Contract Plans.**
2. **National Electrical Code, Standards of the National Board of Fire Underwriters and electric wiring and apparatus.**
3. EXACT LOCATION OF LIGHTING SUPPORT FOUNDATIONS, AND THEIR SETBACKS FROM THE CURB OR SHOULDER EDGE SHALL BE FOUR (4) FEET UNLESS OTHERWISE DIRECTED.
4. ALL CONDUITS TERMINATING UNDERGROUND FOR FUTURE EXTENSION SHALL BE THREADED, CAPPED AND MARKED WITH A BURIED CONCRETE CONDUIT MARKER See SHEET 67
5. ALL CONNECTIONS FROM BOXES TO LIGHTING SUPPORT BASES SHALL BE OF 2" METALLIC CONDUIT UNLESS NOTED OTHERWISE. NUMBER AND SIZE OF CONDUCTORS SHALL BE AS SHOWN ON PLANS AND ELSEWHERE IN THESE DETAIL DRAWINGS.
6. CONTRACTOR SHALL CLOSELY COORDINATE ALL GUARDRAIL INSTALLATIONS WITH THE UNDERGROUND CONDUITS. ALL DAMAGED UNDERGROUND CONDUITS WILL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE.
7. ALL CONDUITS SHALL BE MANDREL-TESTED (SEE SPECS.) AFTER THE INSTALLATION OF GUARDRAIL POSTS.
8. ALL UNDERGROUND CONDUITS SHALL BE SLOPED TO DRAIN TO JUNCTION BOXES OR MANHOLES, AND IF THIS CANNOT BE ACCOMPLISHED, THEY SHALL BE PROVIDED WITH DRAINAGE TEES, AS PER TEL-31.
9. ALL CONDUITS TO REMAIN EMPTY AS SPARES SHALL BE PROVIDED WITH #10 GALVANIZED STEEL DRAG WIRE.
10. ALL LIGHTING SUPPORTS SHALL BE FURNISHED WITH HIGH-PRESSURE SODIUM LUMINAIRES WITH BUILT-IN REGULATOR-TYPE BALLAST, EQUAL TO GENERAL ELECTRIC M250R1 AND M400A LUMINAIRES: PRODUCING PHOTOMETRIC DATA CONFORMING TO G.E. CURVES 35-175801 & 35-175820.
11. LIGHTING SUPPORT SPACING INDICATED ON THE PLANS ARE APPROXIMATE, BUT ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE, UNLESS OTHERWISE NOTED DIMENSIONS ARE TO BE MEASURED ALONG THE EDGE OF ROADWAY WHERE THE LIGHTING SUPPORTS ARE TO BE LOCATED.
12. PAYMENT FOR "SIGN LIGHTING, TYPE 3", SHALL INCLUDE WARNING LIGHTS (FLASHERS) FOR OVERHEAD SIGNS.
13. ~~LUMINAIRES AT GARDNER, CAMP CREEK, GHENT AND MARMET INTERCHANGES SHALL BE FURNISHED AND INSTALLED WITH PHOTO-ELECTRIC CELLS.~~
14. SECTIONS 662,2.12 ENTITLED "SERVICES AND CONTROL STATIONS" OF ROADWAY LIGHTING SPECIAL PROVISIONS, DOES NOT APPLY TO WORK ON THESE DRAWINGS.
15. NUMBERS ALONGSIDE LIGHTING SUPPORTS INDICATE CIRCUIT NUMBER AND POLE NUMBER, RESPECTIVELY.
16. ALL LIGHTING FIXTURES SHALL HAVE 120V BALLASTS UNLESS NOTED OTHERWISE ON PLANS.
17. **ALL LIGHTING SUPPORTS SHALL HAVE TRUSS TYPE ARMS.**

SYMBOLS

ALUMINUM LIGHTING SUPPORT TYPE V - WITH ANCHOR BASE. 40' MOUNTING HEIGHT - 15' TRUSS ARM - 250 WATT H.P.S. LUMINAIRE, WALL-MOUNTED.

SEE NOTE 15 1,3 ALUMINUM LIGHTING SUPPORT TYPE V - WITH ANCHOR BASE. 40' MOUNTING HEIGHT - 15' TRUSS ARM - 150 WATT H.P.S. LUMINAIRE, WALL-MOUNTED.

ALUMINUM LIGHTING SUPPORT TYPE V - WITH CAST ALUMINUM BASE OR FLUTED ALUMINUM BREAKAWAY COUPLING PER TEL-18A. 40' MOUNTING HEIGHT - 15' TRUSS ARM - 250 WATT H.P.S. LUMINAIRE, AND FOUNDATION.

ALUMINUM LIGHTING SUPPORT TYPE V - WITH CAST ALUMINUM BASE OR FLUTED ALUMINUM BREAKAWAY COUPLING PER TEL-18A. 40' MOUNTING HEIGHT - 8' TRUSS ARM - 250 WATT H.P.S. LUMINAIRE, AND FOUNDATION.

ALUMINUM LIGHTING SUPPORT TYPE V - WITH CAST ALUMINUM BASE OR FLUTED ALUMINUM BREAKAWAY COUPLING PER TEL-18A. 40' MOUNTING HEIGHT - 15' TRUSS ARM - 150 WATT H.P.S. LUMINAIRE, AND FOUNDATION.

ALUMINUM LIGHTING SUPPORT TYPE V - WITH CAST ALUMINUM BASE OR FLUTED ALUMINUM BREAKAWAY COUPLING PER TEL-18A. 40' MOUNTING HEIGHT - 8' TRUSS ARM - 150 WATT H.P.S. LUMINAIRE, AND FOUNDATION.

ALUMINUM LIGHTING SUPPORT TYPE V - WITH CAST ALUMINUM BASE OR FLUTED ALUMINUM BREAKAWAY COUPLING PER TEL-18A. 30' MOUNTING HEIGHT - 15' TRUSS ARM - 250 WATT H.P.S. LUMINAIRE, AND FOUNDATION.

ALUMINUM LIGHTING SUPPORT TYPE V - WITH CAST ALUMINUM BASE OR FLUTED ALUMINUM BREAKAWAY COUPLING PER TEL-18A. 30' MOUNTING HEIGHT - 15' TRUSS ARM - 150 WATT H.P.S. LUMINAIRE, AND FOUNDATION.

CONCRETE JUNCTION BOX 18" X 18" - TYPE H. (NUMBER INDICATES JUNCTION BOX NUMBER)

2-3#8-1#8 gnd. GALVANIZED STEEL CONDUIT - UNDERGROUND - TYPE R

2-3#8-1#8 gnd. P.V.C. CONDUIT - UNDERGROUND - TYPE P
1ST NUMBER INDICATES SIZE OF CONDUIT
2ND NUMBER INDICATES NUMBER OF CONDUCTORS
3RD NUMBER INDICATES SIZE OF CONDUCTORS
4TH & 5TH NUMBERS INDICATE NUMBER AND SIZE OF GROUND CONDUCTORS

TOLL PLAZA SIGN

CAPPED CONDUIT

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. None Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERGER~~, RALEIGH, ~~FAYETTE, KANAWHA COUNTIES~~

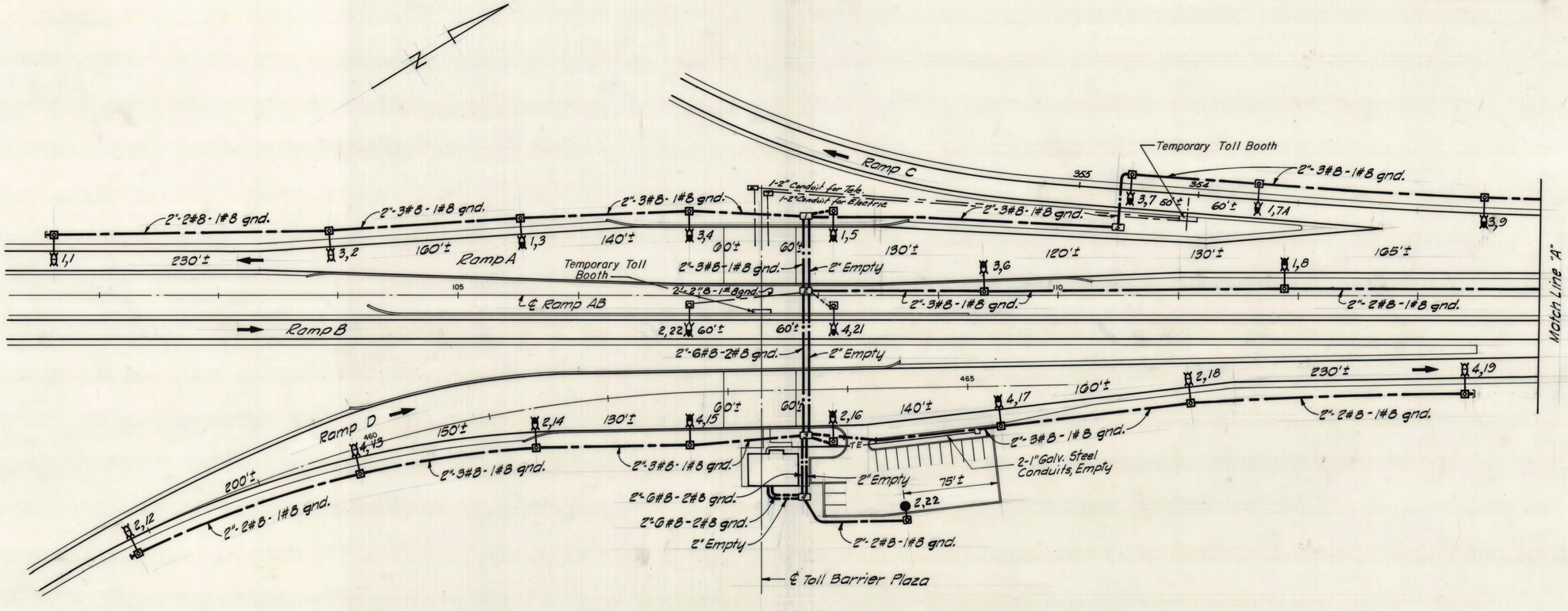
ELECTRICAL NOTES, SYMBOLS & SUMMARY OF QUANTITIES

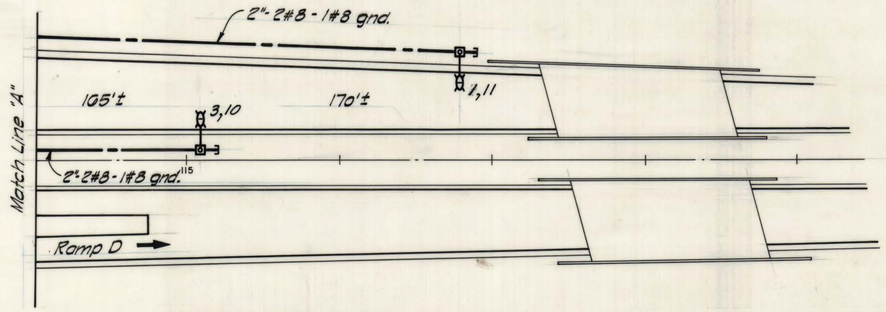
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

K&E 19 1235 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-84	79	RALEIGH	66	136





NOTES:

For Symbols and Electrical Notes, see Sh. No. 65

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1"= 50' Vert. DATE: JULY, 1978

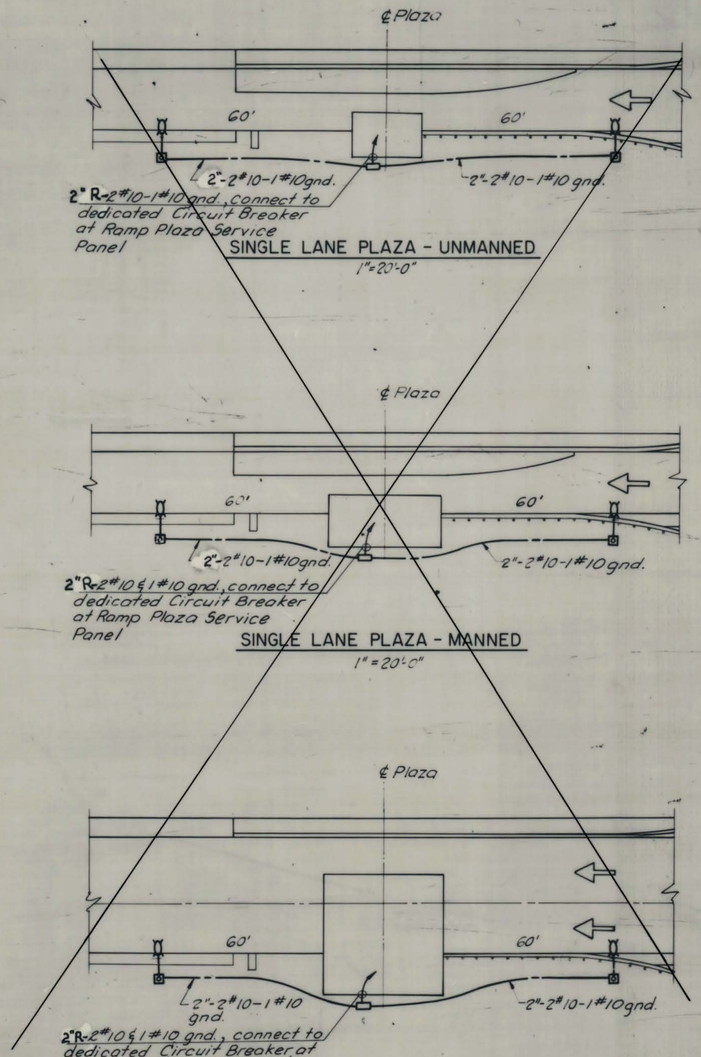
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR "L" INTERCHANGE
ELECTRICAL PLAN

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-334	79	~~MERCER~~, RALEIGH ~~FAYETTE, KANAWHA~~	67	136



SINGLE LANE PLAZA - UNMANNED

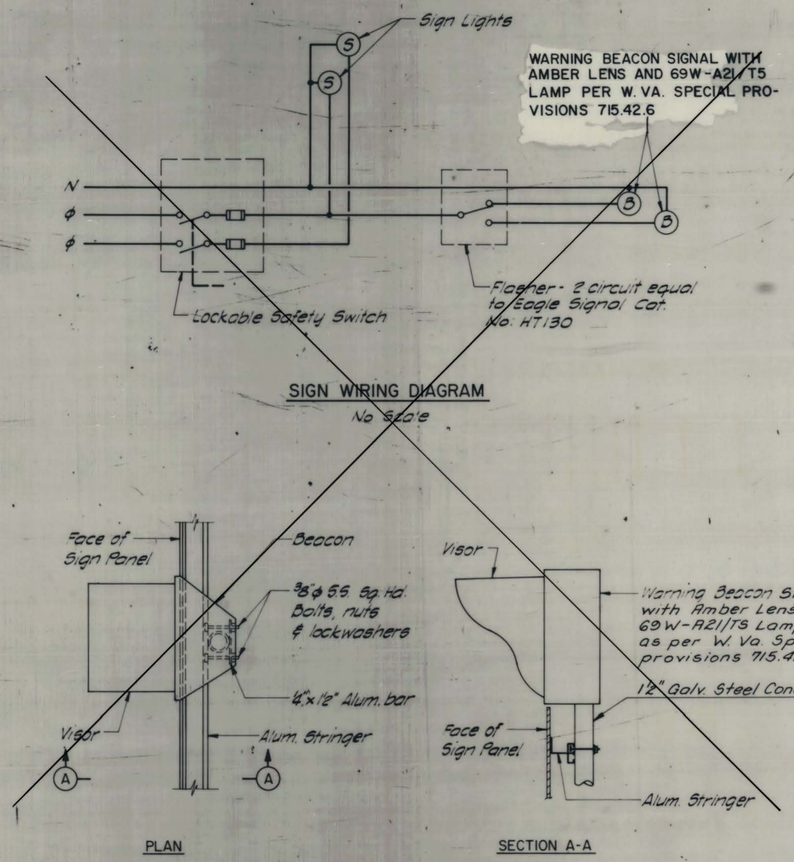
1"=20'-0"

SINGLE LANE PLAZA - MANNED

1"=20'-0"

TWO LANE PLAZA

1"=20'-0"



SIGN WIRING DIAGRAM

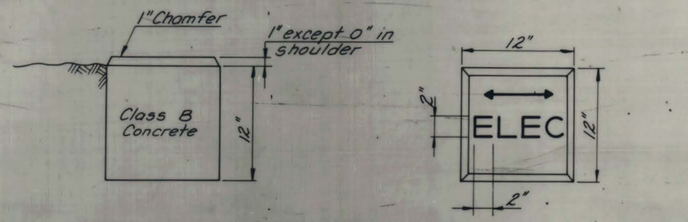
No Scale

PLAN

SECTION A-A

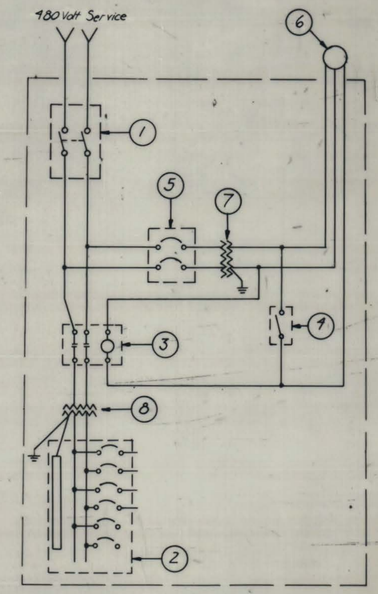
WARNING BEACON MOUNTING DETAIL

1/2"=1'-0"



Note: Directional arrows as required. Arrow and letter depth 2 inch.

BURIED CONDUIT MARKER



PANEL R FOR ~~BARRIER PLAZAS AND~~ CORRIDOR "L" INTERCHANGE

N.T.S.

SERVICE PANEL EQUIPMENT

(1) Disconnect Switch: 60A, 480V, 2 pole with NEMA 1 enclosure equal to General Electric Cat. # THN3362.

(2) Distribution Panel: 1ϕ, 3W, 120/240V, S/N, 100 A main with lugs, column type, complete with 8 (eight) single pole (15A trip) and 1 (one) double pole (30A trip) branch circuit breakers equal to General Electric Cat.#NLABX310L.

(3) Contactor: 60A, 480V, 2 pole with 120V control, within NEMA 1 enclosure, equal to Westinghouse Cat.#A202S2BR.

(4) By Pass Switch: Single pole toggle switch equal to Hubbell Cat. # 3031 in conduit box with switch cover equal to Crouse-Hinds Cat. # FS1013 and FS1020G.

(5) 2 pole, 480V air circuit breaker, equal to Westinghouse Cat. # EHB2015.

(6) Photo Electric Cell Equal to General Electric Cat. # 4026660 with mounting bracket equal to General Electric Cat # C403G001.

(7) 5KVA Transformer, 480-120V, equal to General Electric Cat. # 6E191.

(8) 10 KVA Transformer, 480-120/240V, equal to General Electric Cat. # 6E189.

NOTES:

For Symbols and Electrical Notes, see Sh. No. 65

For Location of Service Panel R see Sh. No. 134

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. As Noted Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

INTERSTATE 77

~~MERCER~~, RALEIGH, ~~FAYETTE, KANAWHA~~ COUNTIES

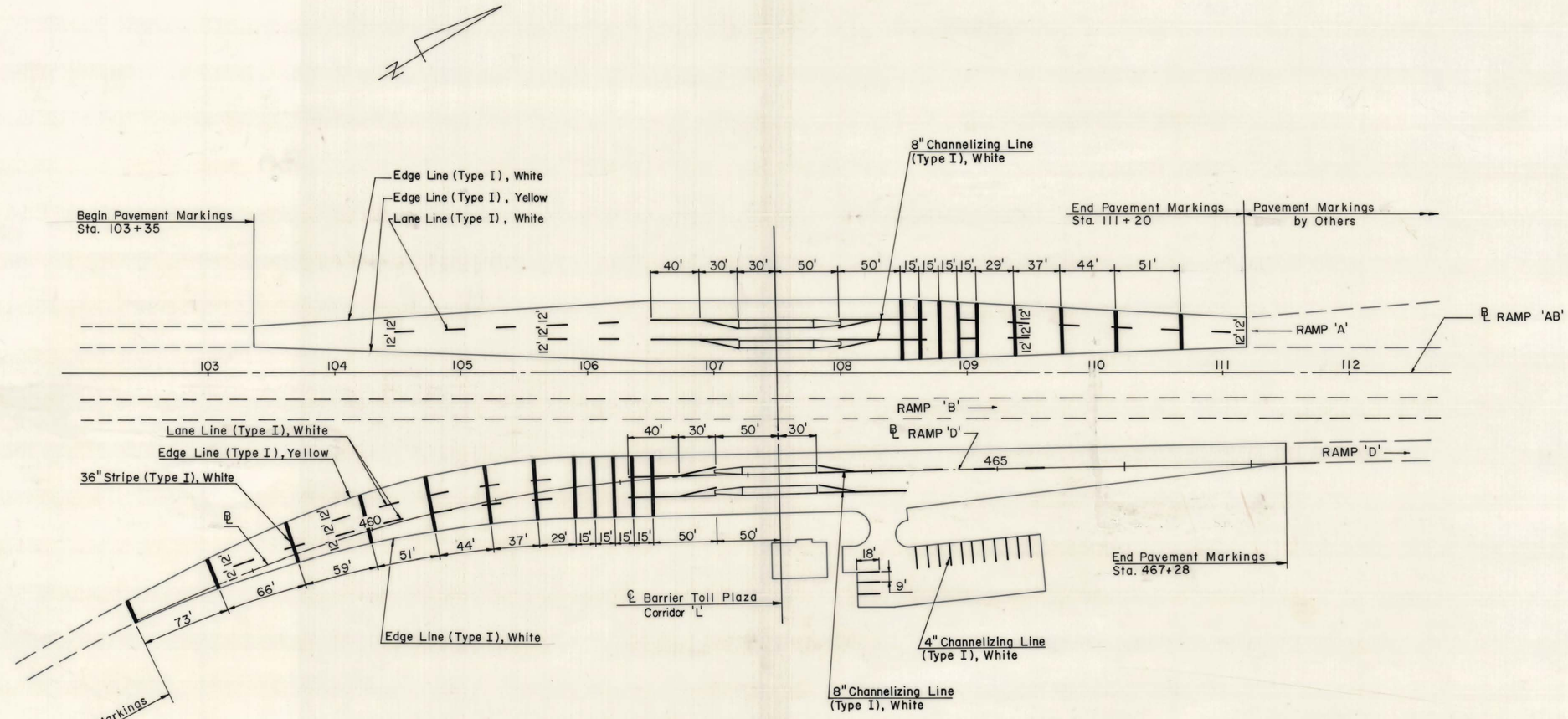
RAMP PLAZAS & MISCELLANEOUS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	68	136



PAVEMENT MARKINGS

ESTIMATE OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL
663-1-1	(Type I) Edge Line, White	L.F.	1,700
663-1-1	(Type I) Edge Line, Yellow	L.F.	1,700
663-2-1	(Type I) Lane Line, White	L.F.	300
663-4	(Type I) 4" Channelizing Line, White	L.F.	300
663-4	(Type I) 8" Channelizing Line, White	L.F.	350
663-7	(Type I) Stripe, White	L.F.	900

NOTE:
1. The quantity of 36" wide stripes for which payment will be made will be the total length of equivalent 12" wide stripes.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 50' Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

PAVEMENT MARKINGS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH ~~KANAWHA~~ ~~FAYETTE~~	69	136

DELINEATORS

STATIONS BEGIN & END	LOCATION		QUANTITY							
			ITEM 661-4(1)	ITEM 661-4(1)	ITEM 661-5(1)	ITEM 661-6	ITEM 657-8	SUPPORT BRACKET		
	SIDE*	INTERVAL	SINGLE WHITE	DOUBLE WHITE	SINGLE AMBER	NINE AMBER	U-CHANNEL 2.00#/FT.	TYPE "A" ITEM 661-8	TYPE "B" ITEM 661-9	TYPE "C" ITEM 661-10
			EACH	EACH	EACH	EACH	LIN. FT.	EACH	EACH	EACH
~~Barrier Plaza A~~										
~~Sta. 1178+53 to 1180+70 (N.B.)~~	~~Right~~	~~100'~~	~~18~~				~~84~~			
~~Sta. 1178+00 to 1180+10 (S.B.)~~	~~Right~~	~~100'~~	~~11~~				~~77~~			
~~Barrier Plaza B~~										
~~Sta. 2620+44 to 2630+83 (N.B.)~~	~~Right~~	~~100'~~	~~19~~				~~126~~			
~~Sta. 2616+22 to 2626+65 (S.B.)~~	~~Right~~	~~100'~~	~~26~~				~~182~~			
~~Barrier Plaza C~~										
~~Sta. 1797+20 to 1816+55 (N.B.)~~	~~Right~~	~~95'~~	~~22~~				~~154~~			
~~Sta. 1797+20 to 1816+55 (S.B.)~~	~~Right~~	~~90'~~	~~22~~				~~154~~			
Barrier Plaza-Corridor L										
Sta. 458+00 to 467+28 ("D")	Right	100'	9				63			
Sta. 103+35 to 111+20 ("A")	Right	100'	8				56			
		Total	17				119			

*with respect to the direction of traffic.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

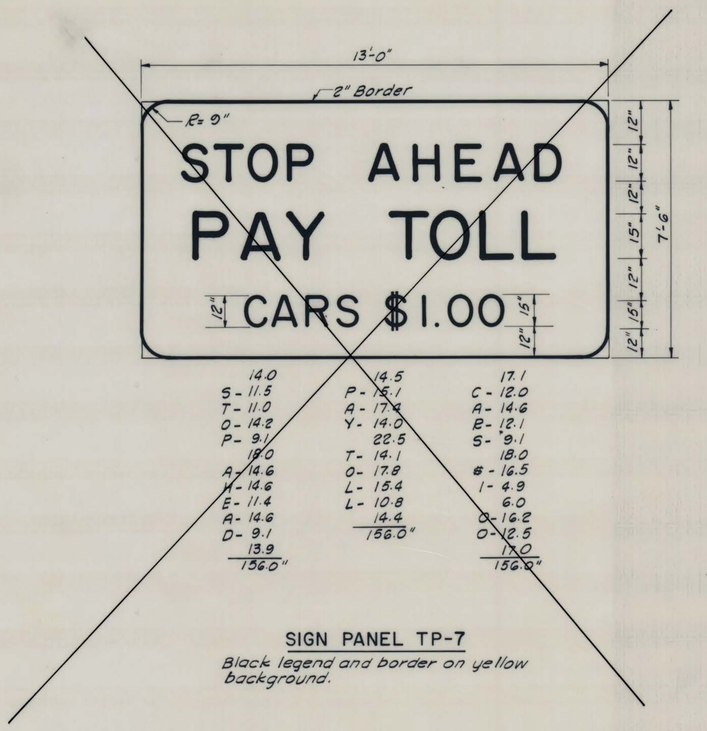
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~KANAWHA & FAYETTE COUNTIES~~

DELINEATORS
QUANTITY SUMMARY

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO.

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10 ← 77 →	328 77 9.43	I-77-2(63)9	1979	~~MERCER~~ RALEIGH ~~FAYETTE KANAWHA~~	70	136



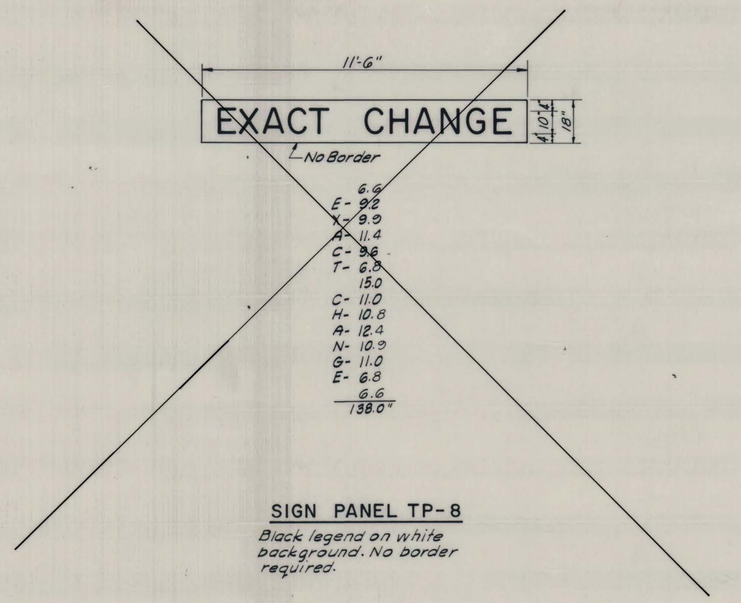
14.0 S-11.5 T-11.0 O-14.2 P-9.1 18.0 A-14.6 M-14.6 E-11.4 A-14.6 D-9.1 13.9 = 156.0"

14.5 P-15.1 A-17.4 Y-14.0 22.5 T-14.1 O-17.8 L-15.4 L-10.8 14.4 = 156.0"

17.1 C-12.0 A-14.6 B-12.1 S-9.1 18.0 G-16.5 I-4.9 6.0 O-16.2 O-12.5 1.0 = 156.0"

SIGN PANEL TP-7

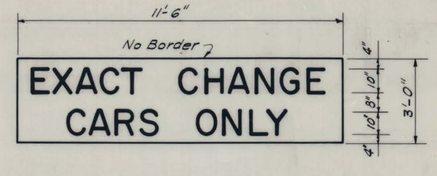
Black legend and border on yellow background.



6.6 E-9.2 X-9.9 A-11.4 C-9.6 T-6.8 15.0 C-11.0 H-10.8 A-12.4 N-10.9 G-11.0 E-6.8 6.6 = 138.0"

SIGN PANEL TP-8

Black legend on white background. No border required.

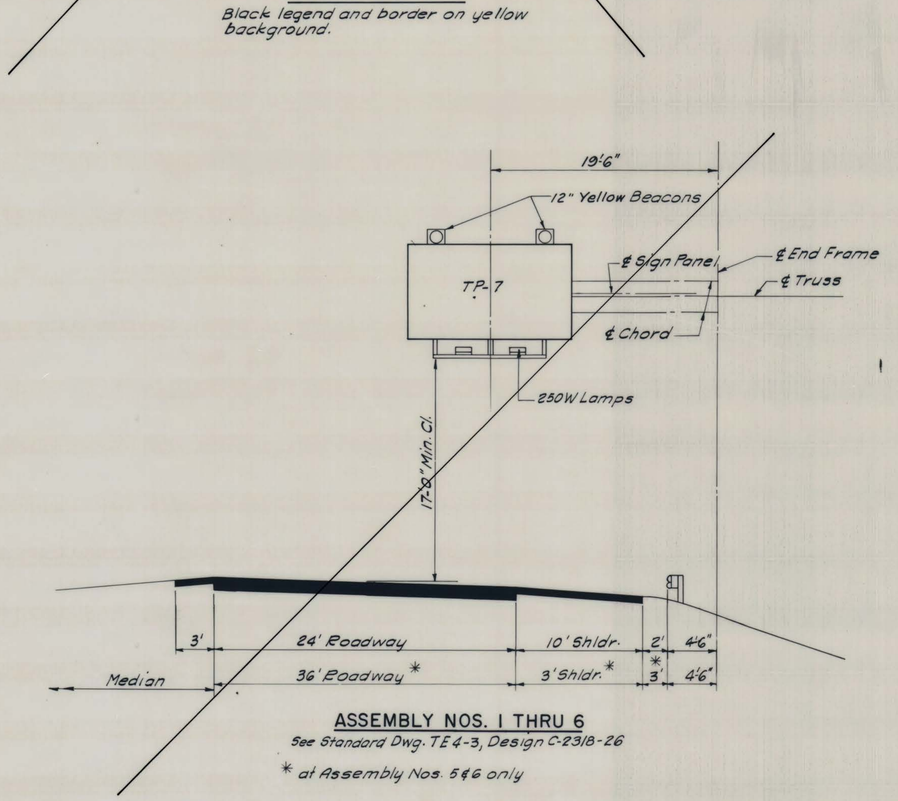


6.6 E-9.2 X-9.9 A-11.4 C-9.6 T-6.8 15.0 C-11.0 H-10.8 A-12.4 N-10.9 G-11.0 F-6.8 6.6 = 138.0"

21.4 C-9.9 A-12.4 R-9.9 S-7.4 15.0 O-11.1 N-11.9 L-8.6 Y-9.0 21.4 = 138.0"

SIGN PANEL TP-9

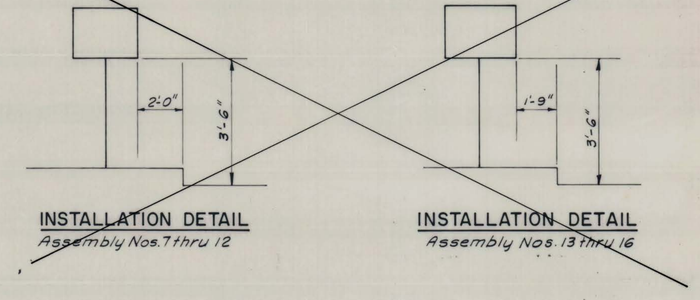
Black legend on white background. No border required.



ASSEMBLY NOS. 1 THRU 6

See Standard Dwg. TE4-3, Design C-2318-26

* *at Assembly Nos. 5 & 6 only*



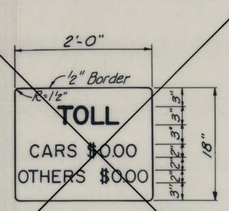
INSTALLATION DETAIL

Assembly Nos. 7 thru 12

INSTALLATION DETAIL

Assembly Nos. 13 thru 16

8.07 T-2.0 O-2.36 L-2.0 L-1.5 8.07 = 24.00"



Type C Letters

C-1.32 A-1.59 R-1.43 S-1.09 3.0 $-1.52 O- O- O- = 24.00"

O-1.49 T-1.34 H-1.52 E-1.34 R-1.43 S-1.09 3.00 $-1.52 O- O- O- O- = 24.00"

SIGN PANEL TP-10

Black legend and border on white background.

Assembly Nos. 7, 8 @ Ghent Interchange
Assembly Nos. 9, 10 @ Camp Creek Interchange
Assembly Nos. 11, 12 @ Ghent Interchange
Assembly Nos. 13, 14, 15, 16 @ Marmet Interchange

Notes:

~~1. For locations of Assembly Nos. 7 thru 16 see sheets P16, P17 and P18~~

2. Payment for fabrication and installation of Sign Panels ~~TP-8 and~~ TP-9 shall be included under Items ~~TP5-5 and~~ TP6-1.

~~3. Payment for the 12" Yellow Beacon to be included under the appropriate Sign Lighting Bid Item.~~

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

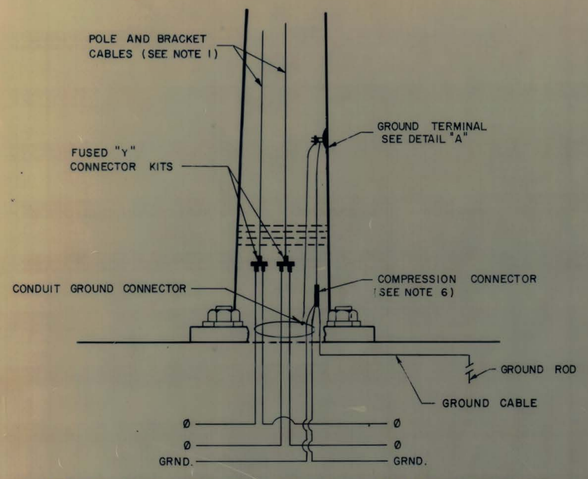
SCALE: Horiz. NONE Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERCER~~, RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

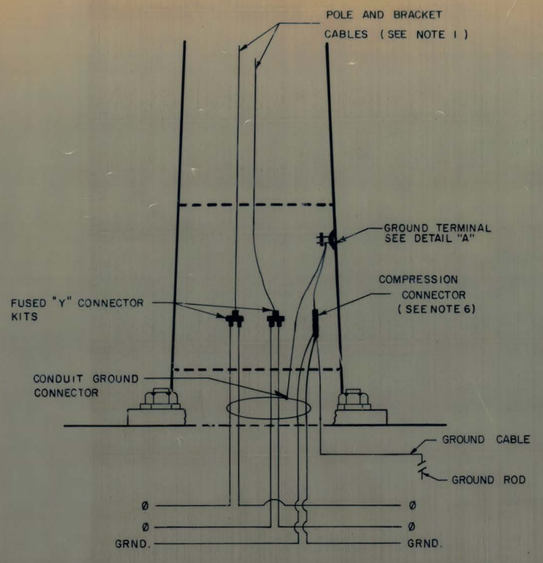
FABRICATION DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

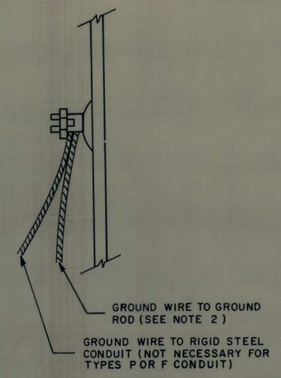
SHEET NO.



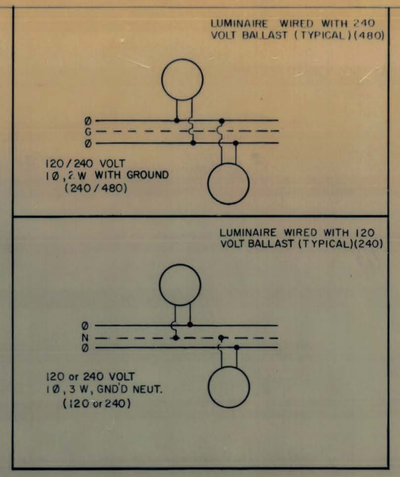
ANCHOR, SLIP AND FLUTED ALUMINUM BREAKAWAY COUPLING BASE POLES



CAST ALUMINUM BASE POLES



DETAIL "A"

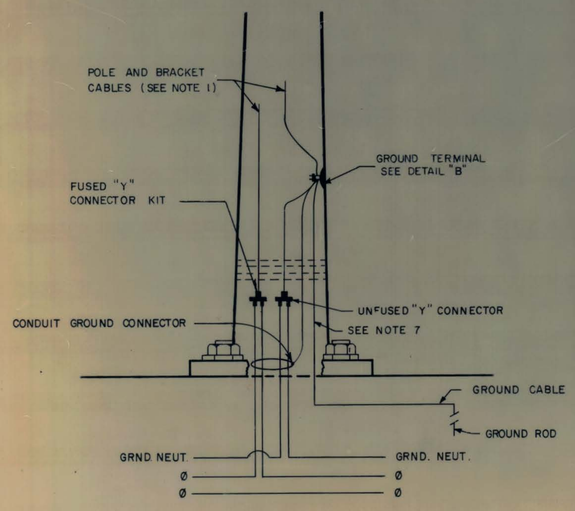


PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET No.	TOTAL SHEETS
W.VA	10	328 77 9.43	I-77-2(63)9	79	RALEIGH	71	136

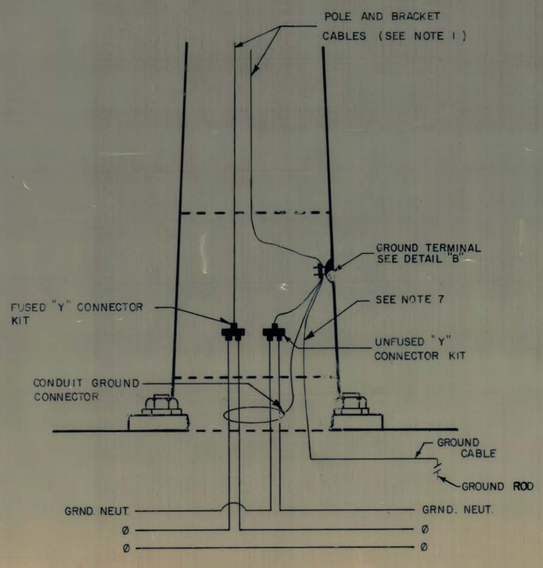
NOTES:

1. ALL INTERNAL ROADWAY LIGHTING SHALL BE DONE USING # 10AWG STRANDED COPPER WIRE.
2. FOR CONNECTOR KIT DETAILS SEE TEL-9A.
3. GROUND RODS SHALL BE A MINIMUM OF 1" Ø, 10 FEET IN LENGTH, SOLID, WITH DRIVING POINT AT ONE END.
4. CONDUIT SHALL EXTEND 4 INCHES ABOVE TOP OF FOUNDATION INTO POLE BASE AND SHALL HAVE BUSHINGS. (UNLESS OTHERWISE INDICATED ON THAT BASE DETAIL).
5. GROUND WIRES SHALL BE INSULATED (GREEN) COPPER CONDUCTOR EQUAL IN SIZE TO THE LARGEST ADJOINING PHASE WIRE EXCEPT WHERE OTHERWISE CALLED FOR ON THE PLANS.
6. WHEN USING TYPE P CONDUIT, AN ADDITIONAL SYSTEM BARE GROUND SHALL BE INSTALLED FROM THIS COMPRESSION CONNECTOR OUTSIDE THE CONDUIT FOR THE ENTIRE SYSTEM.
7. WHEN USING TYPE P CONDUIT, A COMPRESSION CONNECTOR SHALL BE INSTALLED AT THIS LOCATION WHICH SHALL CONNECT THE GROUND ROD WIRE AND AN ADDITIONAL SYSTEM BARE GROUND WHICH SHALL BE INSTALLED FROM THIS COMPRESSION CONNECTOR OUTSIDE THE CONDUIT FOR THE ENTIRE SYSTEM.

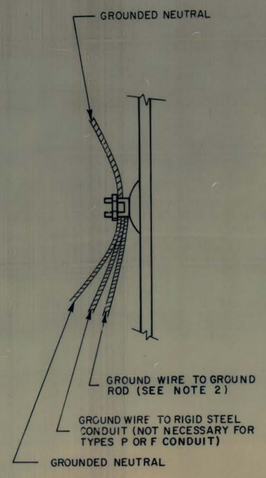
120/240 VOLTS, TWO WIRE WITH GROUND
(240 VOLT BALLAST)
OR 240/480 (480 VOLT BALLAST)



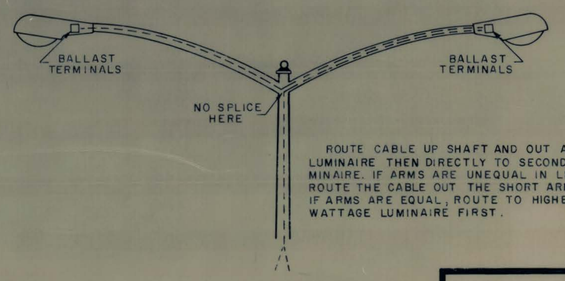
ANCHOR, SLIP AND FLUTED ALUMINUM BREAKAWAY COUPLING BASE POLES



CAST ALUMINUM BASE POLES



DETAIL "B"



120 or 240 VOLTS, THREE WIRE, GROUNDED NEUTRAL
(120 or 240 VOLT BALLAST)

⚠1 CHANGED TOP TO WITH GROUND, BOTTOM TO 120 or 240
⚠2 ADDED NEW APPROVED BREAKAWAY BRACES

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL POLE AND SYSTEM WIRING DETAILS

PREPARED: HMA 9-2-75

REVISIONS
6/1/76
⚠1 12/10/76
⚠2 10/24/77

STANDARD SHEET TEL-01

Public Roads Div.	State Dist. No.	State Proj. No.	Federal Proj. No.	Fiscal Year	County	Sheet No.	Total Sheets
W VA	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	72	136

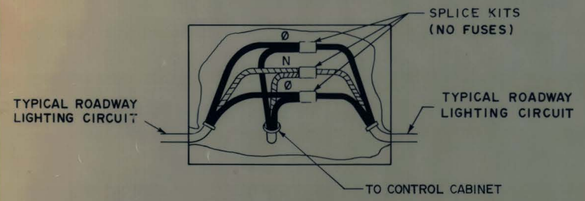
SIGN LIGHTING CONTROL CABINET WIRING DIAGRAMS
(FOR USE WITH ROADWAY LIGHTING POWER SOURCE)

GENERAL

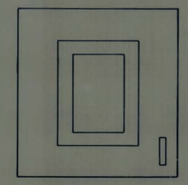
DETAIL OF THIS SHEET SHALL APPLY TO EACH OVERHEAD SIGN STRUCTURE THAT SUPPORTS EXTERNALLY ILLUMINATED SIGNS POWERED FROM A ROADWAY LIGHTING CIRCUIT
ADDITIONAL NOTES APPLICABLE TO THIS SHEET MAY BE FOUND ON STANDARD SHEET TE6-3B, TE6-3C, AND TE6-3D.

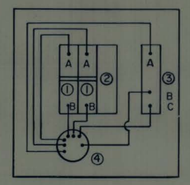
NOTE

1. COMPONENTS SHALL BE SIZED AS REQUIRED ACCORDING TO LOAD.



120/240 VOLT JUNCTION BOX DETAIL





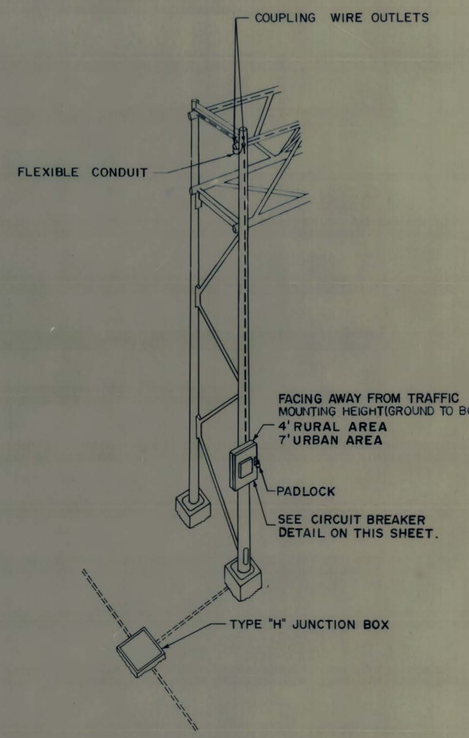
LEGEND

1. CIRCUIT BREAKER, SEE NOTE 1.
2. SPACE FOR FUTURE BREAKER.
3. SOLID NEUTRAL GROUND BAR
4. CONDUIT HUB (POLE TYPE) (2" CHASE NIPPLE)

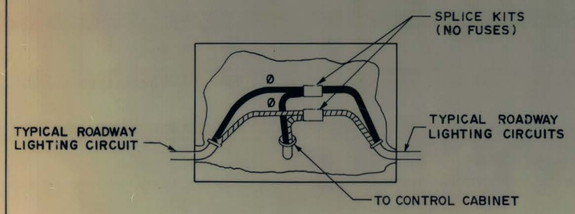
WIRING

1A- LINE SERVICE
3A- LINE NEUTRAL
1B- TO APPLIANCE
3B- APPLIANCE GROUND
3C- LINE TO GROUND

120 or 240 VOLT CONTROL CABINET

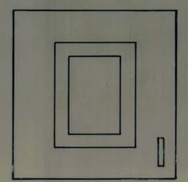


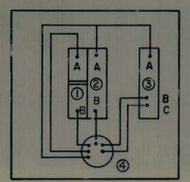
TYPICAL INSTALLATION



480 VOLT* JUNCTION BOX DETAIL

(*) FOR 480 VOLT UNGROUNDED SYSTEM BOTH WIRES ARE PHASE WIRES WITHOUT ANY NEUTRAL WIRE.





LEGEND

1. CIRCUIT BREAKER, SEE NOTE 1
2. SPACE FOR FUTURE BREAKER
3. SOLID NEUTRAL GROUND BAR
4. CONDUIT HUB (POLE TYPE) (2" CHASE NIPPLE)

WIRING

1A- LINE SERVICE
3A- LINE NEUTRAL
1B- TO APPLIANCE
3B- APPLIANCE GROUND
3C- LINE TO GROUND

480 VOLT* CONTROL CABINET

(*) FOR 480 VOLT UNGROUNDED SYSTEMS, THE SECOND BREAKER IS INSTALLED AND WIRE LEAD 3A BECOMES 2A (A PHASE WIRE), WIRE 2B PARALLELS WIRE 1B.

⚠1 DELETED UNIVERSAL QUICK DISCONNECT
⚠2 CHANGED TO WIRING AT TOP

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
STANDARD DETAIL
SIGN LIGHTING WITH ROADWAY LIGHTING

PREPARED J.T.L.M. 1/20/75

REVISIONS
⚠1 7-22-76
⚠2 12-10-76

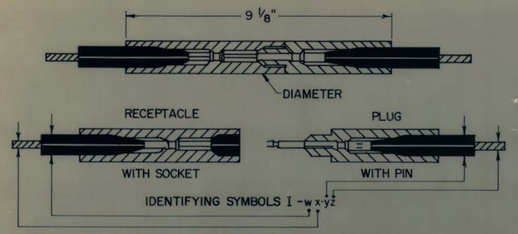
STANDARD SHEET TEL 06

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 943	I-77-2(63) 9	1979	RALEIGH	73	136

CABLE CONNECTOR KITS
TYPES I THRU 6

NOTES:

1. WHERE A LIGHT IS LOCATED AT THE END OF THE CIRCUIT, ONE OPENING OF THE "Y" CONNECTOR KIT SHALL BE PLUGGED. THE PLUG SHALL BE OF INSULATING MATERIAL AND HAVE THE SAME OVERALL DIAMETER OF THE LIGHTING CIRCUIT CABLE OCCUPYING THE OTHER OPENING.



To specify the proper kit for an installation select from the tables below the symbols which coincide with the requirements and substitute for (W,X)(Y,Z) respectively.

CABLE DIAMETER		Symbol for W and Y
Min.	Max.	
.195"	.260"	B*
.250"	.330"	C*
.320"	.430"	D*
.420"	.585"	E
.575"	.785"	F
.775"	.985"	G
.975"	1.125"	H

CONDUCTOR SIZE AWG		Symbol for X and Z
Concentric Stranded	Solid	
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3
#4	—	2
#2	—	1

* Molded rubber adapters are a part of these kits for small diameter cables.

EXAMPLE

If the installation requires a receptacle for no.6 stranded conductor and a cable diameter of .660" and a plug for no. 8 solid conductor and a cable diameter of .460", the kit required will be I-F3-E6.

TYPE I
IN-LINE SELF-LOCKING CONNECTOR KIT FOR PULL* BOX INSTALLATION

(*) WHEREVER JUNCTION BOXES ARE USED FOR WIRE PULLING PURPOSES ONLY.

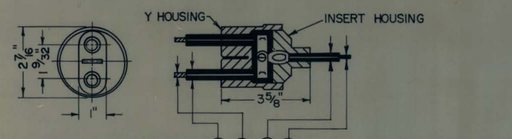


TABLE W

CABLE DIAMETER		Symbol for W
Min.	Max.	
.195"	.260"	B
.250"	.330"	C
.320"	.380"	DA
.370"	.430"	DB
.420"	.505"	EA
.495"	.585"	EB
.575"	.685"	FA
.675"	.785"	FB

TABLE X

COPPER CONDUCTOR (AWG)		Symbol for X
Concentric Stranded	Solid	
—	#8	6
#8	#6	4
#6	#4	3
#4	—	2
#2	—	1
#1	—	0
#1/0	—	10
#2/0	—	20

TABLE Y

CABLE DIAMETER		Symbol for Y
Min.	Max.	
.120"	.160"	S
.155"	.205"	A
.195"	.260"	B
.250"	.330"	C
.320"	.430"	D
.420"	.585"	E
.575"	.785"	F

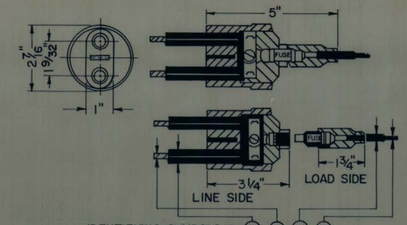
TABLE Z

COPPER CONDUCTOR (AWG)		Symbol for Z
Concentric Stranded	Solid	
#14, #16	#12, #14	8
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3
#4	—	2
#2	—	1
#1	—	0
#1/0	—	10
#2/0	—	20

EXAMPLE

If the twin cable outside diameter (W) is .54" and their conductor (X) is no. 2 stranded, and the single cable outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be IV-EB1-C6.

TYPE 4
UNFUSED "Y" CONNECTOR KIT FOR PULL* BOX INSTALLATION



CABLE DIAMETER		Symbol for W
Min.	Max.	
.195"	.260"	B
.250"	.330"	C
.320"	.380"	DA
.370"	.430"	DB
.420"	.505"	EA
.495"	.585"	EB
.575"	.685"	FA
.675"	.785"	FB

COPPER CONDUCTOR (AWG)		Symbol for X
Concentric Stranded	Solid	
—	#8	6
#8	#6	4
#6	#4	3
#4	—	2
#2	—	1
#1	—	0
#1/0	—	10
#2/0	—	20

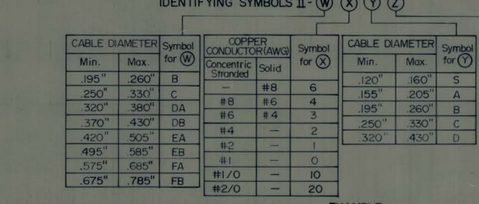
CABLE DIAMETER		Symbol for Y
Min.	Max.	
.120"	.160"	S
.155"	.205"	A
.195"	.260"	B
.250"	.330"	C
.320"	.430"	D

COPPER CONDUCTOR (AWG)		Symbol for Z
Concentric Stranded	Solid	
#14, #16	#12, #14	8
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3

EXAMPLE

If the line outside diameter (W) is .42" and the conductor (X) is no. 6 stranded, and the load side outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded the kit required will be II-DB3-C6.

TYPE 2
FUSED "Y" CONNECTOR KIT FOR POLE BASE INSTALLATION



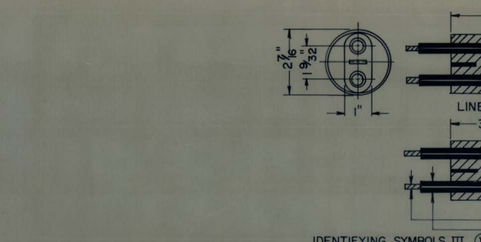
CABLE DIAMETER		Symbol for W and Y
Min.	Max.	
.120"	.160"	S
.155"	.205"	A
.195"	.260"	B
.250"	.330"	C
.320"	.430"	D

CONDUCTOR SIZE AWG		Symbor for X and Z
Concentric Stranded	Solid	
#14, #16	#12, #14	8
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3

EXAMPLE

If the installation requires a plug for a cable diameter of .38" and a no. 8 stranded conductor, and a receptacle for a cable diameter of .27", and a no. 14 stranded conductor, the kit required will be V-D4-C8.

TYPE 5
UNFUSED IN-LINE CONNECTOR KIT FOR JUNCTION BOX INSTALLATION



CABLE DIAMETER		Symbol for W
Min.	Max.	
.195"	.260"	B
.250"	.330"	C
.320"	.380"	DA
.370"	.430"	DB
.420"	.505"	EA
.495"	.585"	EB
.575"	.685"	FA
.675"	.785"	FB

COPPER CONDUCTOR (AWG)		Symbol for X
Concentric Stranded	Solid	
—	#8	6
#8	#6	4
#6	#4	3
#4	—	2
#2	—	1
#1	—	0
#1/0	—	10
#2/0	—	20

CABLE DIAMETER		Symbol for Y
Min.	Max.	
.120"	.160"	S
.155"	.205"	A
.195"	.260"	B
.250"	.330"	C
.320"	.430"	D

COPPER CONDUCTOR (AWG)		Symbol for Z
Concentric Stranded	Solid	
#14, #16	#12, #14	8
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3

EXAMPLE

If the line side cable outside diameter (W) is .54" and the conductor (X) is no. 2 stranded, and the load side cable outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be III-EB1-C6.

TYPE 3
UNFUSED "Y" CONNECTOR KIT FOR POLE BASE INSTALLATION

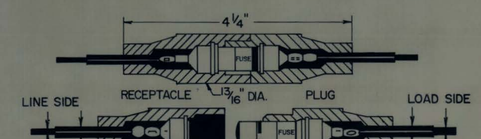


TABLE A

CABLE DIAMETER		Symbol for W and Y
Min.	Max.	
.110"	.110"	T
.120"	.160"	S
.155"	.205"	A
.195"	.260"	B
.250"	.330"	C
.320"	.430"	D

TABLE B

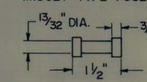
CONDUCTOR SIZE AWG		Symbol for X and Z
Concentric Stranded	Solid	
#14, #16	#12, #14	8
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3

EXAMPLE

If the line outside diameter (W) is .42" and the conductor (X) is no. 6 stranded, and the load side outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be VI-D3-C6.

TYPE 6
FUSED IN-LINE CONNECTOR KIT FOR JUNCTION BOX INSTALLATION

MIDGET TYPE FUSE



Any standard Midget, Ferrule type fuse, (except glass tube) may be used in this connector.
Fuses rated 600 volts and 10 amperes, minimum shall be used unless otherwise specified.

⚠ SIGNATURE BLOCK

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL

ELECTRICAL CABLE CONNECTOR KITS

PREPARED- 7/18/75

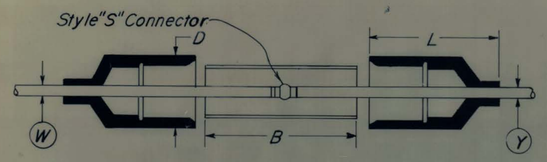
REVISIONS
⚠ 12-10-76

STANDARD SHEET TEL-09A

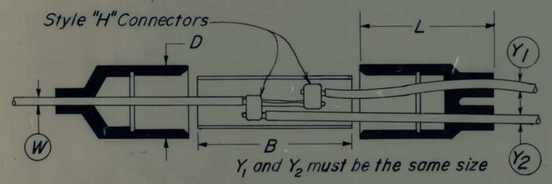
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.V.A.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	74	136

CABLE CONNECTOR KITS
TYPE 7 THRU 9

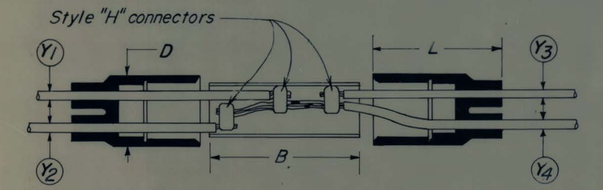
TYPE 7 CABLE CONNECTOR KITS



Straight line Splice
Type 7A



Two-way splice
Type 7B



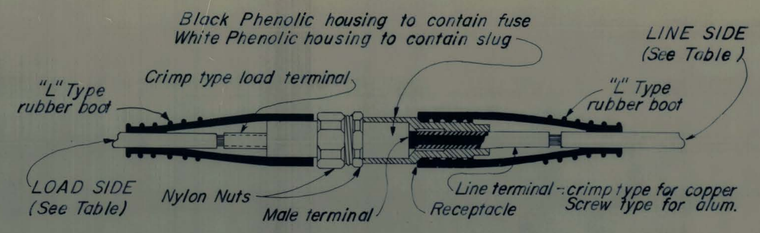
Three-way Splice
Type 7C

TABLE OF NOMINAL TYPE 7 KIT
STYLE VARIATIONS REQUIRED

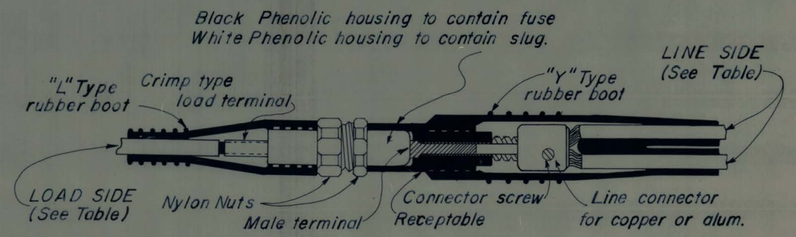
B	D	L	Cable Diameter min.	Cable Diameter max.	AWG 600V cable
3" and 7"	1 23/32"	4 1/16"	.320"	.430"	No. 6 and No. 4
	"	"	.420"	.585"	No. 2 and No. 2/0
	"	"	.575"	.785"	No. 3/0-250 MCM*
	"	"	.775"	.985"	200 MCM-400 MCM
	"	4 3/16"	.975"	1.185"	500 MCM
	"	4 5/16"	1.175"	1.385"	600 MCM-750 MCM

*Maximum "Y" cable size. See catalogs or design drawings for specific kit symbolization required in each application.

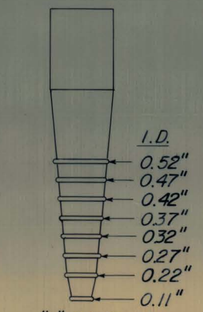
TYPE 8&9 CABLE CONNECTOR KITS



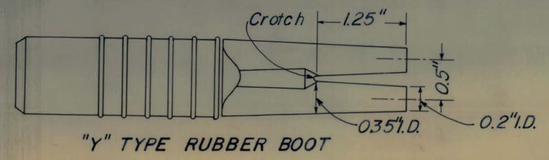
TYPE 8 "AL" - IN-LINE ALUMINUM
TYPE 8 "CU" - IN-LINE COPPER



TYPE 9 "AL" - T-TAP ALUMINUM
TYPE 9 "CU" - T-TAP COPPER



"L" TYPE
RUBBER BOOT



"Y" TYPE RUBBER BOOT

NOTES:

1. STYLE "S" CONNECTORS SHALL BE THE SPLICING SLEEVE TYPE CONSISTING OF A CRIMPABLE PLATED COPPER SLEEVE WITH A THIN METAL WALL ("STOP") IN THE BARREL CENTERED BETWEEN EACH SLEEVE END IN SUCH A MANNER THAT THE SLEEVE SHALL ENCLOSE EQUAL LENGTHS OF THE TWO CONDUCTORS BEING SPLICED END TO END. THE BARREL OF THE SLEEVE WILL FIT SPECIFIC RANGES OF CONDUCTOR SIZES. THE MANUFACTURER'S INSTRUCTIONS RELATING THERETO SHALL BE STRICTLY FOLLOWED.

2. STYLE "H" CONNECTORS SHALL BE THE PARALLEL GROOVE CONNECTOR CONSISTING OF A METAL BODY HAVING TWO FULLY-OPENED GROOVES OR SLOTS PARALLEL TO EACH OTHER, AND SEPARATED BY A PORTION OF THE CENTER SECTION OF THE BODY. THE TOTAL CIRCUMFERENCE OF EACH CONDUCTOR SHALL BE COMPLETELY SURROUNDED BY METAL WHEN THE CONNECTOR IS DEPRESSED.

3. THE FUSEHOLDER SHALL BE CAPABLE OF RETAINING A 13/32 INCH DIAMETER BY 1 1/2 INCH LONG FUSE RATED AT 600 VOLT AND A MINIMUM OF 10 AMPERES.

4. THE "Y" TYPE BOOT SHALL NOT BE CUT BEYOND THE CROTCH WHERE THE INSIDE DIAMETER OF EACH LEG IS 0.35". USE OF A CABLE OF 0.48" O.D. IN THE "Y" TYPE BOOT MAY REQUIRE THE APPLICATION OF A LUBRICATING COMPOUND ON THE CABLE INSULATION FOR IT TO SLIDE INTO THE BOOT.

5. IF THE CABLE HAS A NYLON JACKET, THE JACKET SHALL BE PEELED BACK TO A POINT WHERE NO PART OF THE JACKET IS ENCASED IN THE BOOT OF THE INSULATED CABLE.

⚠ SIGNATURE BLOCK

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
STANDARD DETAIL

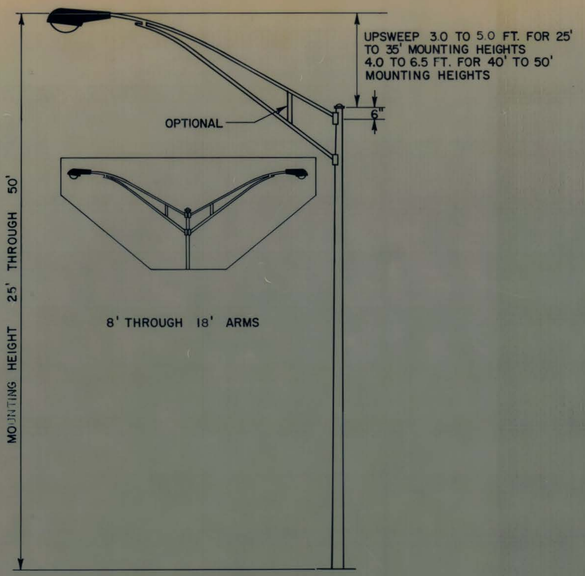
ELECTRICAL CABLE CONNECTOR KITS

PREPARED - F.N. 7/18/75

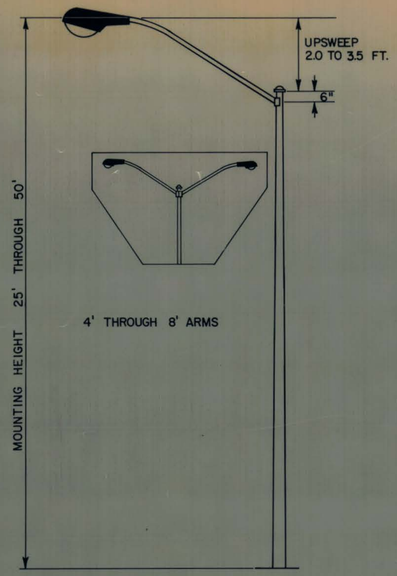
REVISIONS
⚠ 12-10-76

STANDARD SHEET TEL-09B

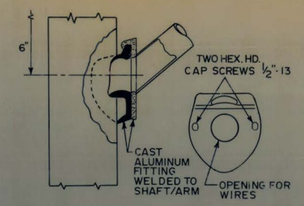
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	75	136



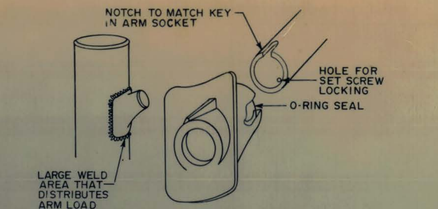
TRUSS ARM
TYPE V



SINGLE ARM
TYPE V

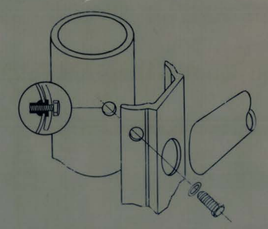


TWO BOLT TYPE



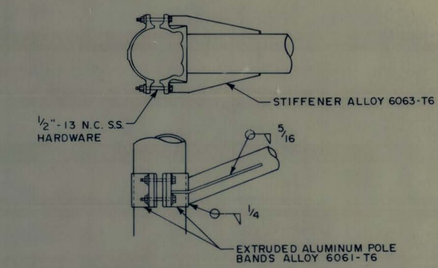
A SPECIAL SOCKET OF ALLOY 356-T6 IS FACTORY WELDED TO THE SHAFT. INCORPORATED IN THE CASTING IS AN INTEGRAL KEY AND A POSITIVE SET SCREW WHICH LOCKS THE ARM INTO POSITION

SOCKET TYPE



MAIN ARM AND UNDERBRACE (AS APPLICABLE) IS WELDED TO AN EXTRUDED MOUNTING PLATE OF ALLOY 6061 T6. THE TRUSS ARM(S) IS ASSEMBLED TO THE SHAFT BY MEANS OF FOUR OR EIGHT RIVNUTS, DEPENDING ON LENGTH

MOUNTING PLATE TYPE

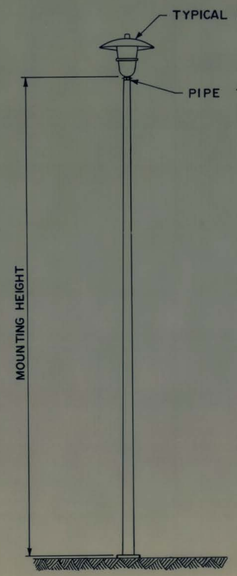


EXTRUDED BAND TYPE

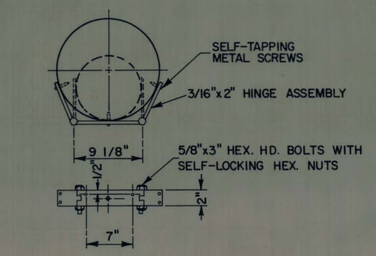
ARM ATTACHMENT OPTIONS
TYPE V

GENERAL NOTES:

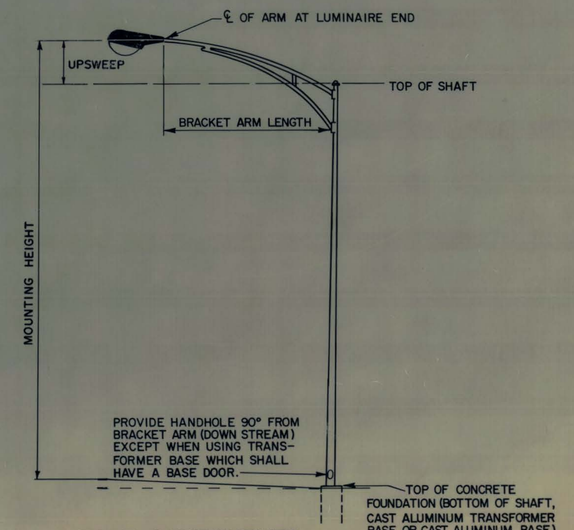
1. POLE:
   - A. EACH POLE SHALL BE COMPLETE WITH A J-HOOK, AND A HAND HOLE.
   - B. SEE TEL-15B FOR FOUNDATION DETAILS.
   - C. FOR BASES, SEE CONTRACT PLANS AND/OR TEL-18A.
2. CONDUIT: (FOR CABINET MOUNTING AND/OR POSSIBLE POWER SERVICE)
   - A. CONDUIT SHALL BE FASTENED TO THE POLE WITH CONDUIT CLAMPS 4 FEET C.C.
   - B. CONDUIT CLAMPS SHALL BE FASTENED TO THE POLE WITH SELF-TAPPING SCREWS.
3. CABINET MOUNTING BRACKET:
   - A. WHEN CABINET OR CABINETS ARE TO BE MOUNTED ON A POLE, THE POLE SHALL BE COMPLETE WITH TWO BRACKETS PER CABINET.
   - B. THE HEIGHT OF THE CABINET IS SPECIFIED ON THE CONTRACT PLANS.
   - C. CONTRACTOR SHALL FIELD DRILL THE HOLES FOR THE SELF-TAPPING SCREWS AFTER THE FINAL POSITION HAS BEEN DETERMINED.
4. HAND HOLES:
   - A. THE HAND HOLE IN THE BASE SHALL BE A MINIMUM SIZE OF 4" x 6".
   - B. THE HAND HOLE FOR TYPE V POLES SHALL BE LOCATED 90° FROM BRACKET ARM (DOWN STREAM).
5. BRACKET ARM:
   - A. THE ARM FOR TYPE V POLES SHALL BE ATTACHED TO THE POLE SO THAT IT CAN TRANSFER THE FULL STRENGTH OF THE ARM TO THE POLE SHAFT.
   - B. BRACKET ARM SHALL BE EQUIPPED WITH A 2" SLIP FIT TYPE CONNECTION FOR THE LUMINAIRE.
6. WELDING:
   - A. CONNECTIONS SHALL BE DESIGNED FOR THE LOAD ON THE MEMBERS.



TYPE VII



CABINET
MOUNTING BRACKET



POLE COMPONENTS
TYPE V

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL

ALUMINUM LIGHTING POLE DETAILS TYPES V AND VII

PREPARED-
11/3/76

REVISIONS
10/24/77

STANDARD SHEET TEL-15A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	76	136

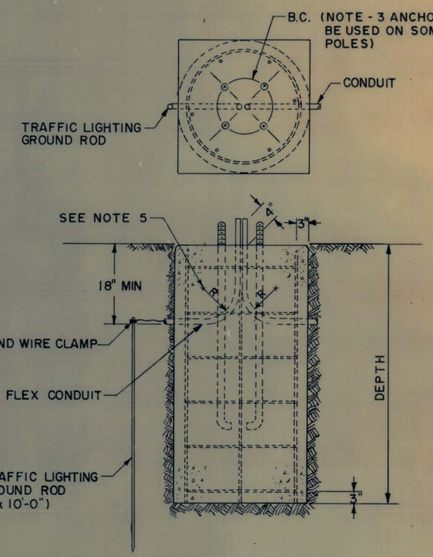
POLE SIZE BASE O.D. (INCHES)							FOUNDATION			ANCHORAGE		REINFORCING STEEL	
.125	.135	.156	.188	.219	.250	.270	DIAMETER W OR SIDE (FT)	DEPTH D (FEET)	VOLUME V (YD³)	B.C.	A.B.**	NO BARS	SIZE
4							1.5	3.0	0.250	7	3/4	—	—
5							1.5	3.0	0.250	8	3/4	—	—
		6					2.0	4.0	0.592	10	1	6	4
		7	7				2.0	4.0	0.592	11	1	6	4
	8.8.9	8	8.8.9	8.8.9	8		2.0	4.0	0.592	12	1	6	4
			9*		9		2.0	4.5	0.667	12	1	6	5
			10				2.0	4.0	0.592	15	1	6	4
				10	10		2.0	4.5	0.667	15	1	6	5
				11			2.5	4.5	1.042	15	1	6	5
	11.5						2.5	4.5	1.042	15	1 1/4	6	4
	12						2.5	4.5	1.042	16	1 1/4	6	5
				12			2.5	5.0	1.157	16.5	1	6	5
	13.8.13.5						2.5	5.0	1.157	16	1 1/4	6	5
				9*		9	2.0	5.0	0.741	12	1 1/4	6	5

* ALLOY H086-H34 ONLY

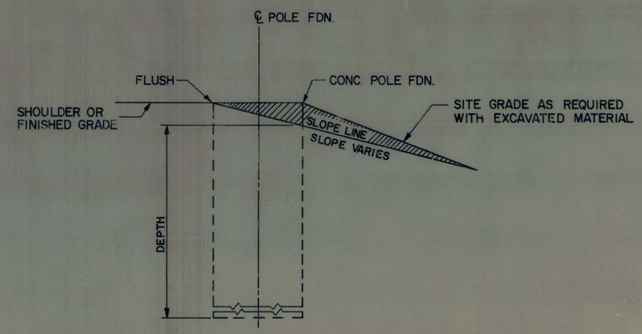
** MINIMUM SIZES 3/4 x 26"x4", 1"x36"x4" & 1 1/4"x42"x6"

FOUNDATION NOTE:

1. CONCRETE:
   - A. All exposed concrete shall have a normal finish.
   - B. All outside concrete corners and edges shall have a 3/4" chamfer.
   - C. Concrete to be rodded or vibrated while pouring.
   - D. All concrete shall be Class "B".
2. STEEL:
   - A. Reinforcing steel shall not be closer than 3" to the outside surface of the footing and shall be tied or welded.
   - B. Vertical bars shall be tied with #4 hoop bars at 1'-0" on center. The #4 hoop bars shall have a 1'-0" minimum lap.
3. FOOTINGS:
   - A. All footing in sidewalks shall be finished flush with the existing sidewalks, unless otherwise specified by the project engineer.
   - B. Footings may be either circular or square in cross-section. Circular footings shall be square for the top 12".
   - C. With permission of the project engineer, the depth of the footing may be reduced one (1) foot when the footing is placed in a concrete or asphaltic concrete sidewalk or paved surface. The footings may be reduced by one (1) foot when the footing is in rock.
4. FORMS:
   - A. No forms may extend to a depth greater than 12" unless approval is granted by the project engineer
5. CONDUIT:
   - A. The Radius (R) of the curve of the inner edge of any bend shall not be less than the size specified in the N.E.C.



FOUNDATION DETAILS



FOOTER IN SLOPE

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL

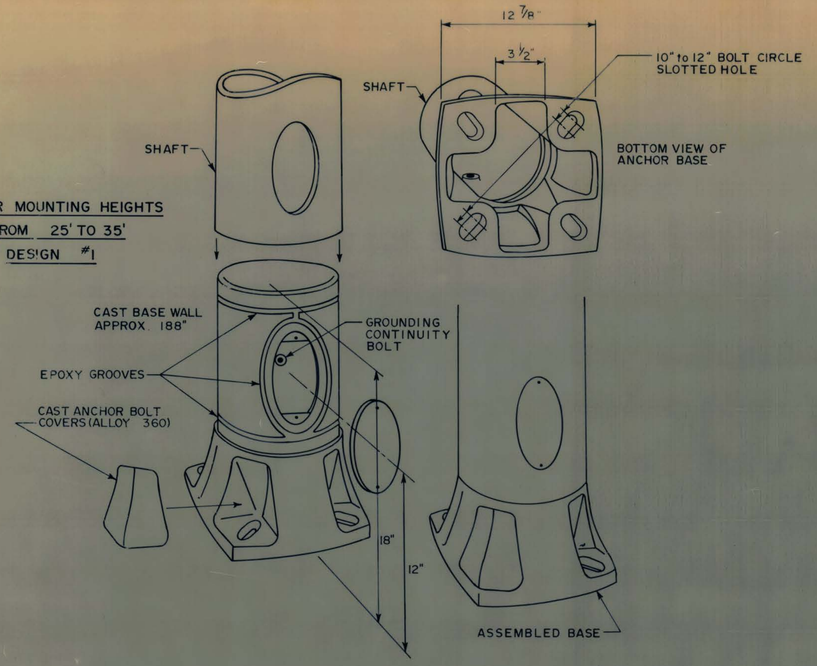
ALUMINUM POLE FOUNDATIONS

PREPARED 5-1-77

REVISIONS
10/24/77

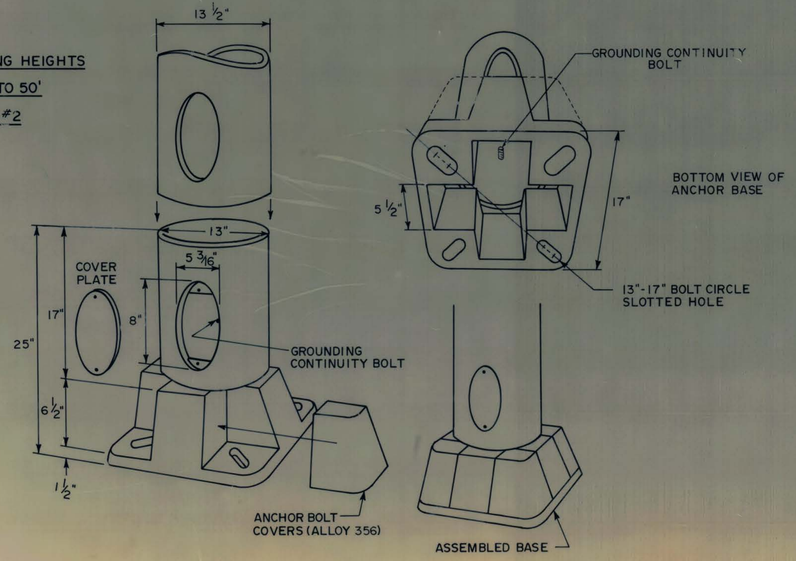
STANDARD SHEET TEL-15B

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET No.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	77	136

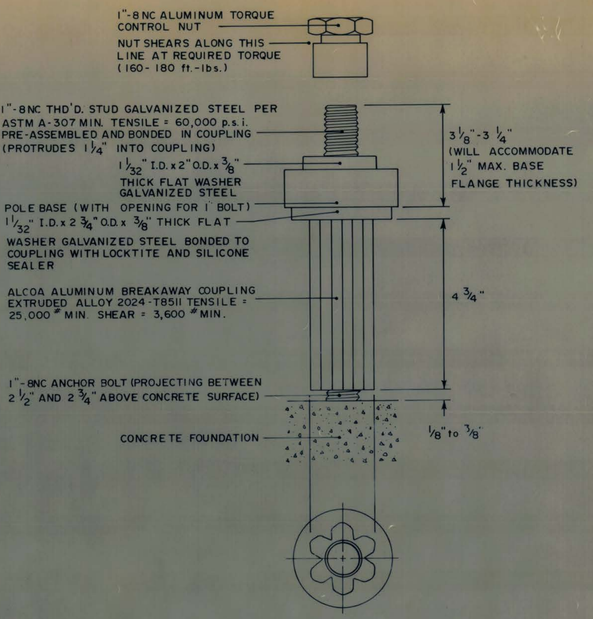


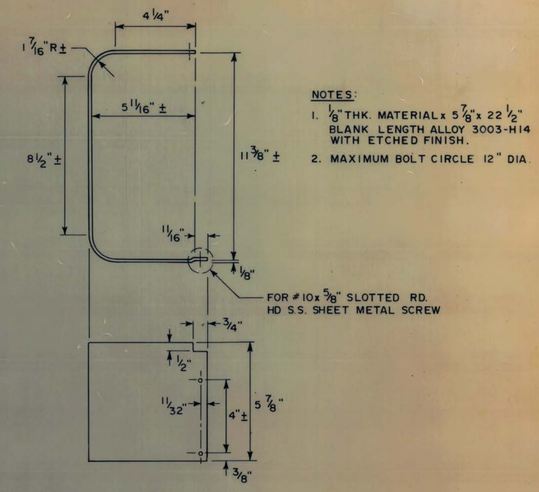
BASE DESIGN - THE BASE CASTING IS 18" HIGH AND SLIPFITS A FULL 12" UP INSIDE THE FABRICATED SHAFT. BASE AND SHAFT ARE BONDED WITH AN EPOXY RESIN. THE BASE UTILIZES FOUR 1"x 36"x 4" ANCHOR BOLTS.

CAST ALUMINUM BASES



BASE DESIGN - THE BASE FOR THE 35' - 50' POLE HAS A CAST ALUMINUM INTEGRAL RISER THAT IS 25" HIGH AND SLIPFITS 17" UP INSIDE THE BOTTOM OF THE SHAFT. THE CAST INTEGRAL RISER AND THE SHAFT ARE BONDED WITH AN EPOXY RESIN. THE BASE UTILIZES FOUR 1 1/4"x 48"x 6" ANCHOR BOLTS.

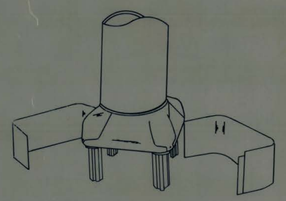




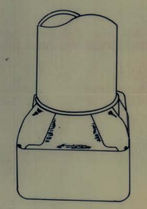
NOTES:
1. 1/8" THK. MATERIAL x 5 7/8" x 22 1/2" BLANK LENGTH ALLOY 3003-H14 WITH ETCHED FINISH.
2. MAXIMUM BOLT CIRCLE 12" DIA.

TYPICAL TWO-PIECE SKIRT DIMENSIONS FOR 8" BASE
(SIMILAR DIMENSIONS AND PROPERTIES FOR OTHER SIZES)

FLUTED ALUMINUM BREAKAWAY COUPLINGS



WITH TWO-PIECE SKIRT TYPE COVER UNASSEMBLED



WITH TWO-PIECE SKIRT TYPE COVER ASSEMBLED

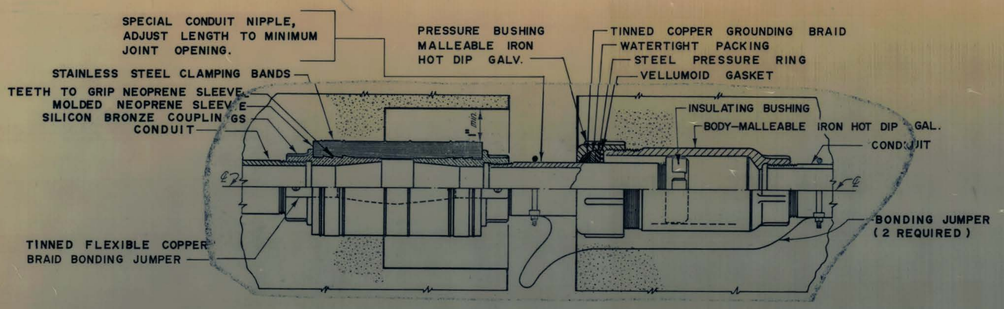
GENERAL NOTES:
1. THE BASE CASTING FOR CAST ALUMINUM BASES SHALL BE MADE FROM ALLOY 356-T6 PER ASTM B108 AND BE APPROXIMATELY 0.188 INCHES THICK.
2. THE USE OF STEEL POLES WITH THE FLUTED ALUMINUM BREAKAWAY COUPLING IS LIMITED TO STEEL POLES WITH A TOTAL WEIGHT LESS THAN 600 LBS.
3. THE HANDHOLE SHALL BE 6 1/4" x 4" MIN.
4. FOR GROUNDING, SEE TEL-01, "SLIP AND ANCHOR BASE POLES."

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
STANDARD DETAIL
CAST ALUMINUM BASES AND FLUTED ALUMINUM BREAKAWAY COUPLINGS FOR ALUMINUM LIGHTING POLES

PREPARED: 5/3/77
REVISIONS
10/24/77

STANDARD SHEET TEL 18A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	78	136

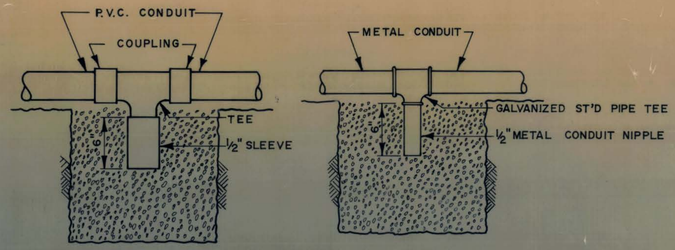


CONDUIT EXPANSION / DEFLECTION JOINT FITTING

NOT TO SCALE

NOTE

PROVIDE EXPANSION / DEFLECTION FITTING AT ALL EXPANSION JOINTS IN BRIDGE MEDIANS, PARAPETS, RETAINING WALLS, AND SIMILAR LOCATIONS. PROVIDE SIMILAR INSTALLATION IN EXPOSED CONDUIT RUNS AS REQUIRED AT EXPANSION JOINTS, ETC., AT THE ENTRANCE OF EXPOSED CONDUIT 2" AND OVER TO PULL BOXES, AND NEAR THE JOINT BETWEEN EXPOSED AND BURIED OR ENCASED CONDUIT. FITTING TO BE SIMILAR TO COMBINATION OF O.Z. TYPES EX AND DX FITTINGS AND SHALL BE SET FOR MOVEMENT IN EACH DIRECTION EQUAL TO PLAN BRIDGE MOVEMENT PLUS 1" IN EACH DIRECTION.



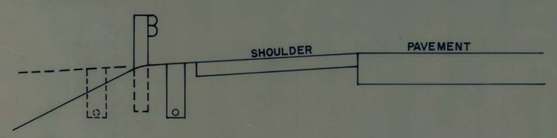
UNDERGROUND CONDUIT DRAINAGE DETAILS

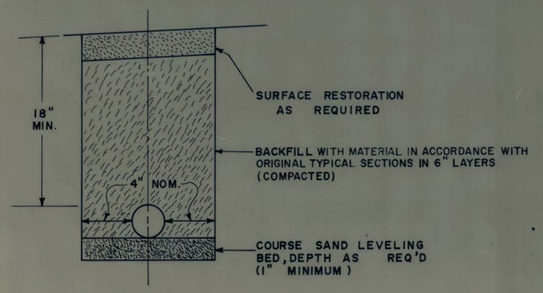
NOT TO SCALE

NOTE

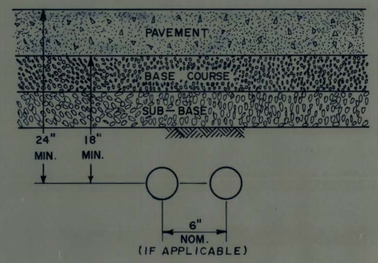
PROVIDE 2' × 2' × TRENCH WIDTH AGGREGATE POCKET AND DRAIN AT LOW POINT OF CONDUIT RUN IF LOW POINT IS NOT IN A JUNCTION BOX.

CONDUIT LOCATION IS SPECIFIED ON THE CONTRACT PLANS





TRENCH DETAILS



1. DIMENSIONS ARE MEASURED AT POINT OF CONDUIT ENTRANCE. EXIT DIMENSIONS MAY VARY +12" - 6" VERTICALLY, +12" - 3" HORIZONTALLY (BETWEEN CONDUITS) UNLESS OTHERWISE APPROVED.
2. CROSSING TO TERMINATE BOTH ENDS IN JUNCTION BOX UNLESS OTHERWISE NOTED.
3. CONDUIT TO BE JACKED OR BORED AND MAY NOT BE WASH-BORED.

CROSSING DETAIL

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL

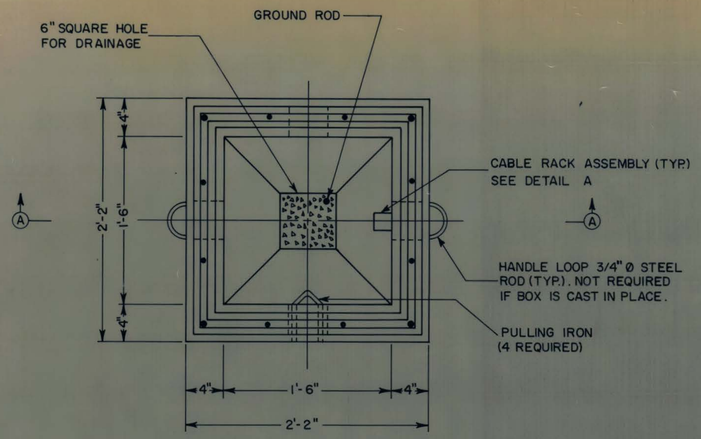
CONDUIT DETAILS

PREPARED 7/18/75

REVISIONS
6-1-76

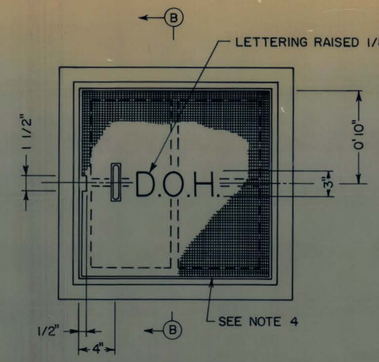
STANDARD SHEET TEL-31

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	79	136

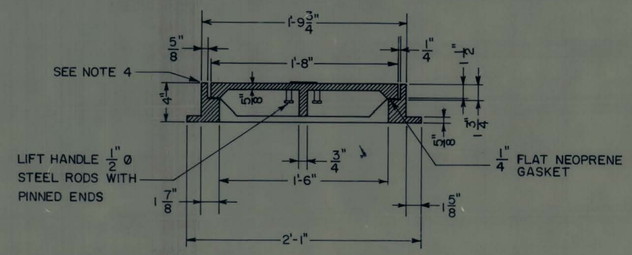


PLAN WITH COVER REMOVED

SCALE: $1\frac{1}{2}" = 1'-0"$

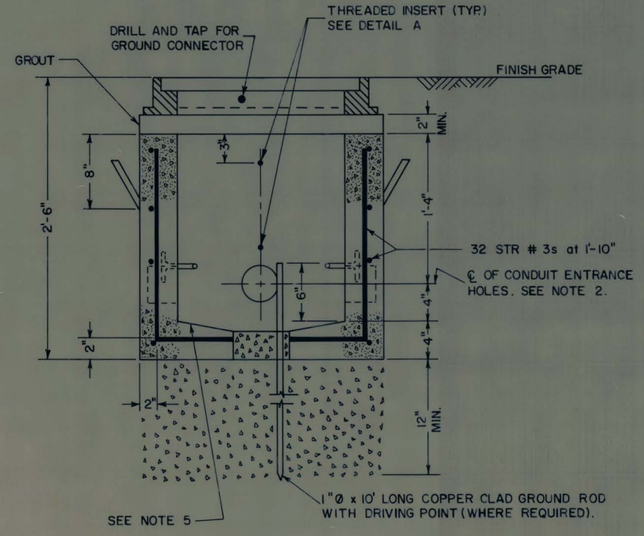


PLAN



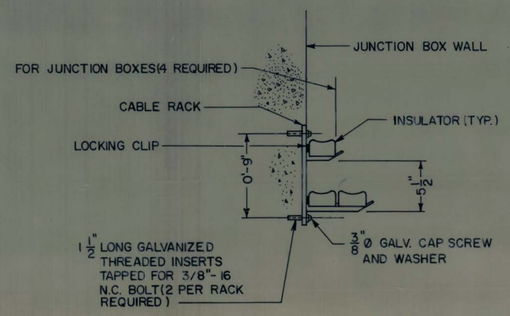
SECTION B-B

FRAME AND COVER



SECTION A-A

CONCRETE JUNCTION BOX



DETAIL A

CABLE RACK ASSEMBLY

1. ALL CONCRETE SHALL BE CLASS "B".
2. ALL CONDUIT ENTRANCE HOLES TO BE THREE INCH DIAMETER WITH ONE INCH KNOCKOUT WALL. FOUR HOLES PER JUNCTION BOX ARE REQUIRED UNLESS NOTED OTHERWISE.
3. CONDUCTORS SHALL BE SUPPORTED ON CABLE RACKS IN JUNCTION BOXES 18"x 18". JUNCTION BOXES (18"x 18") ARE TO HAVE END BELLS OR INSULATED BUSHINGS INSTALLED BEFORE ANY CABLE IS PULLED IN CONDUIT.
4. FRAME CASTING SHALL BE CAST IRON WITH A MINIMUM TENSILE STRENGTH OF 30,000 psi. COVER CASTING SHALL BE DUCTILE IRON CASTINGS WITH A MINIMUM TENSILE STRENGTH OF 60,000 psi AND A MINIMUM YIELD STRENGTH (2 % OFFSET METHOD) OF 40,000 psi. ALL STEEL COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION A-123 OR A-153.
5. BOTTOM OF JUNCTION BOXES SHALL BE SLOPED TO DRAIN HOLE.
6. FOR TYPE H, 10"x10" OR TYPE L, SEE TES 50.

△1 DECREASED ALL DIMENSIONS
△2 RACK SPACING
△3 CHANGED NOTE 4

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL JUNCTION BOX-TYPE H, 18" x 18"

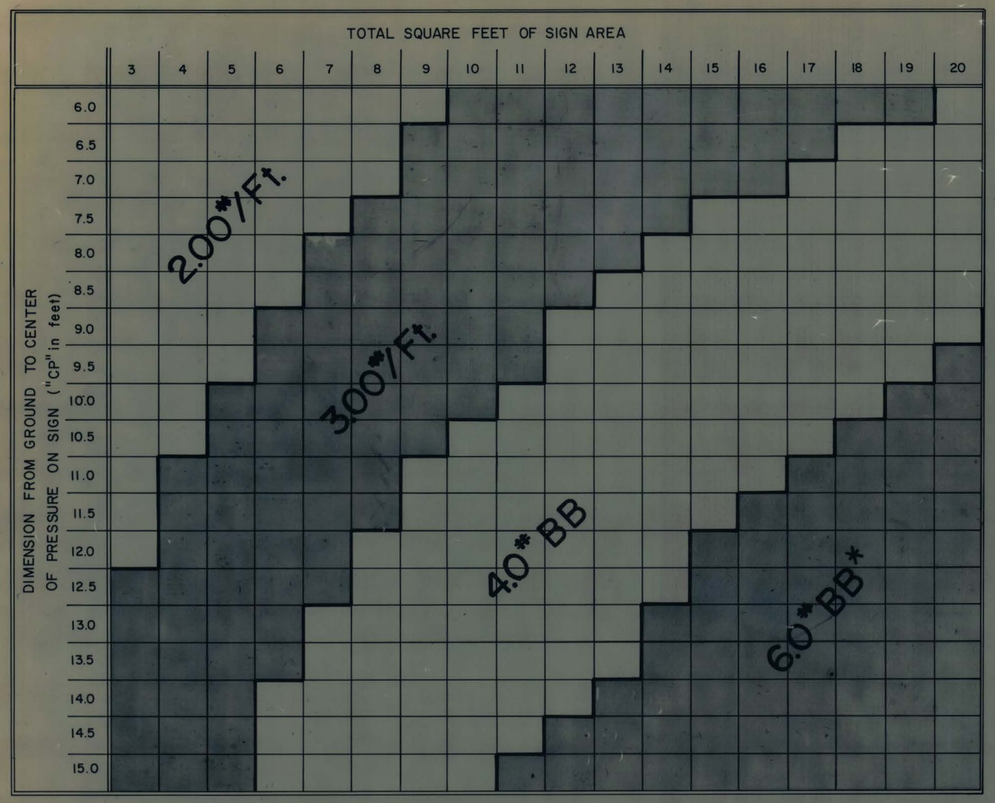
PREPARED-F.N. 7/18/75

REVISIONS
△1 7/22/76
△2 12/10/76
△3 8/11/77

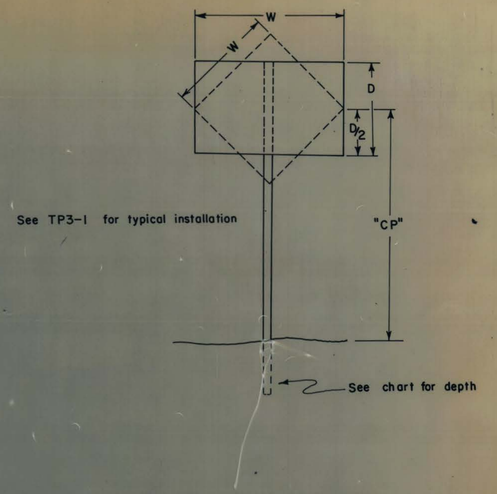
STANDARD SHEET TEL-43

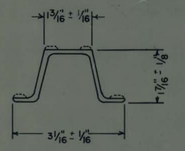
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328-77-943	I-77-2(63)9 C-4	1979	RALEIGH	80	136

SIGN POST SECTION REQUIRED (ONE SUPPORT)



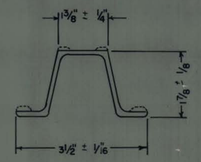
POST SECTION	DEPTH DRIVEN
2.00*/Ft.	3.0'
3.00*/Ft.	3.5'
4.00*BB/Ft.	3.5'
6.00*BB/Ft.	3.5'





SIGN POST 2.00

WT/FT. = 2.00*
SEC. MOD. X-X = .215 ± 5%
SEC. MOD. Y-Y = .277 ± 5%



SIGN POST 3.00

WT/FT. = 3.00*
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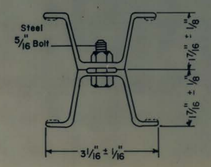
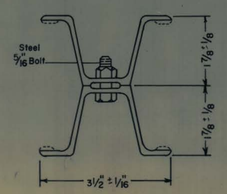
SEC. MOD. Y-Y = .508 ± 5%



SIGN POST 4.0 BB

WT/FT. = 4.0 BB
SEC. MOD. X-X = .684 ± 5%
SEC. MOD. Y-Y = .515 ± 5%



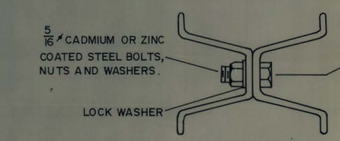
SIGN POST 6.0 BB

WT/FT. = 6.0 BB
SEC. MOD. X-X = 1.32 ± 10%
SEC. MOD. Y = 1.004 ± 5%

NOTES:

All supports shall be galvanized in accordance with A.S.T.M. spec. 123.
Depths driven are based on average soil conditions. Depending upon actual soil bearing in the field, the engineer may require that the depth driven be increased to 5 feet. When the post(s) are behind guardrail, the depth driven may be increased up to 5 feet.

* When not used behind guardrail or not used in low speed environments (below 40 mph), use breakaway supports.



NOTE: ALL STITCH BOLTS SHALL BE FIRST PLACED IN U-CHANNELS ACCORDING TO SPECIFICATIONS AFTER WHICH THEY SHALL BE TORQUED TO 30 INCH POUNDS.

STITCH BOLT INSTALLATION ILLUSTRATION

V REVISION OF NOTES
V REVISION OF NOTES
V WIND PRESSURE REDUCTION
V EMBEDMENT
V POST SECTION
V DEPTH, CONC., NOTES
V REV. OF SEC. MOD.

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

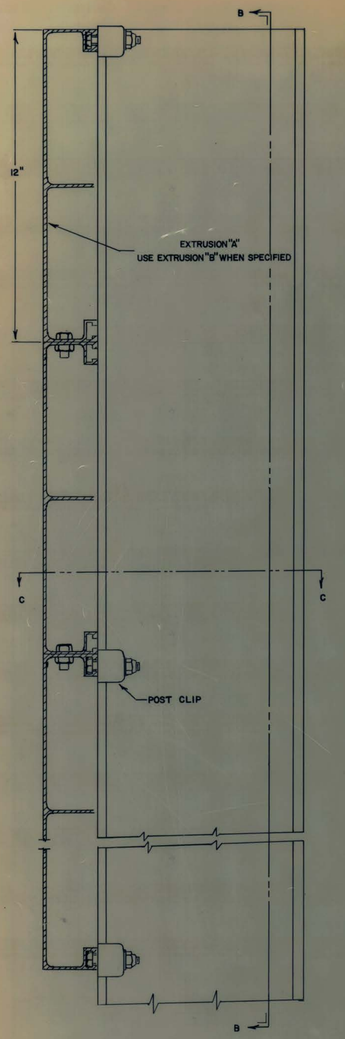
STANDARD DETAIL ROADSIDE SIGN SUPPORTS U-CHANNEL

PREPARED:

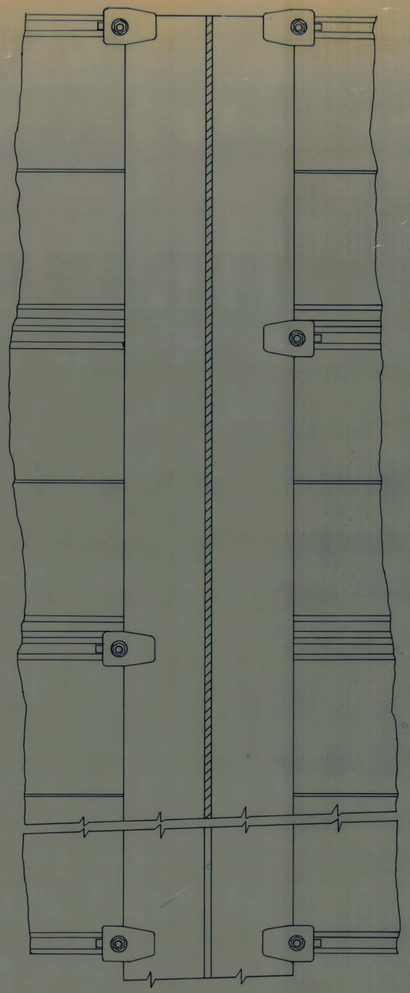
REVISIONS
V 4-23-69
V 5-21-69
V 11-25-70
V 4-1-71
V 11-19-73
V 11-9-76
V 10-24-78

STANDARD SHEET TEI-7A

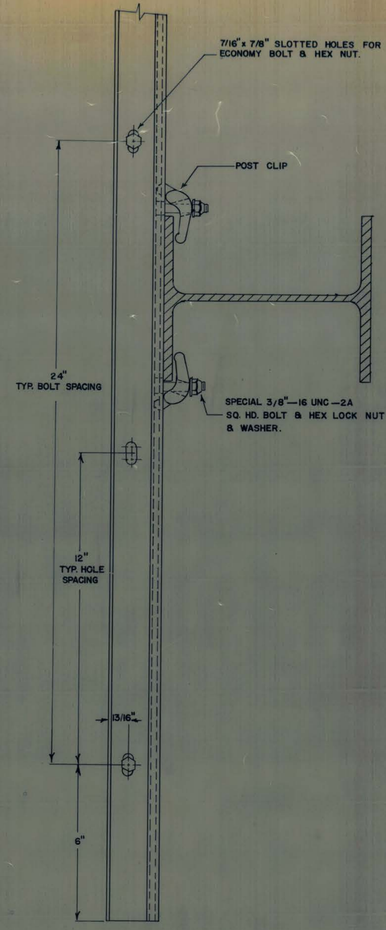
Public Roads Div.	State Dist. No.	State Proj. No.	Federal Proj. No.	Fiscal Year	County	Sheet No.	Total Sheets
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	86	136



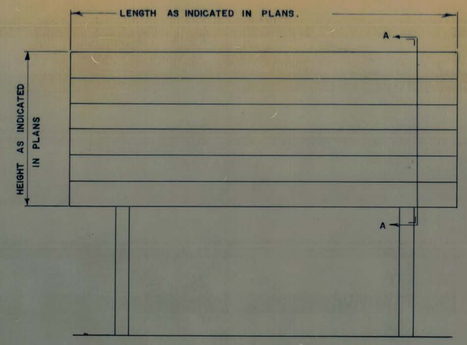
SECTION A-A



SECTION B-B

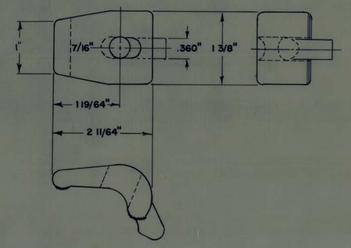


SECTION C-C

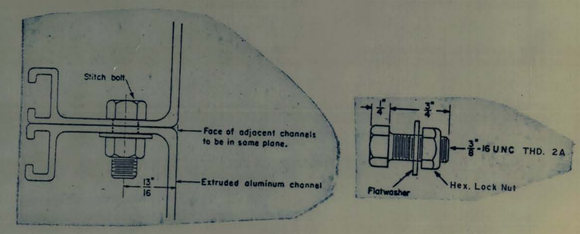


NOTES

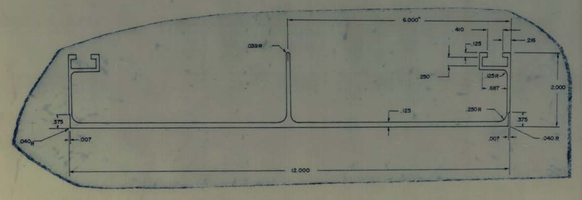
FOR SIGNS UP TO 24' LONG, CLIP ARRANGEMENT SHOWN IN SECTION B-B SHALL BE USED. FOR SIGNS OVER 24' LONG USE DOUBLE CLIPS AT ALL LOCATIONS INDICATED.



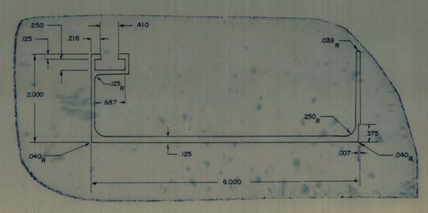
POST CLIP



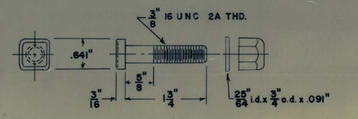
STITCH BOLT DETAIL



EXTRUSION "A"



EXTRUSION "B"



POST CLIP BOLT, NUT AND WASHER

⚠ Stitch Bolt Detail Added.

⚠ Extrusion Revised To Include Reflective Sheeting Overlap.

⚠ Hex. Lock Nut and Signature Block

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

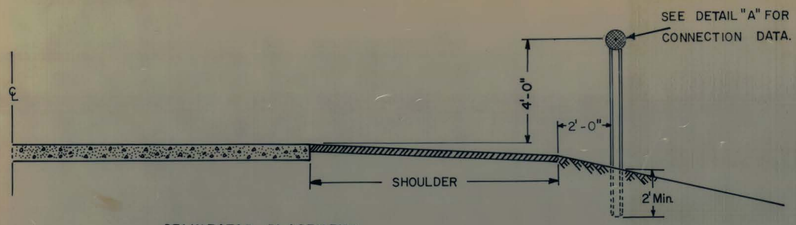
STANDARD DETAIL EXTRUDED SIGN PANEL ALUMINUM

PREPARED- W.G. 3-20-67

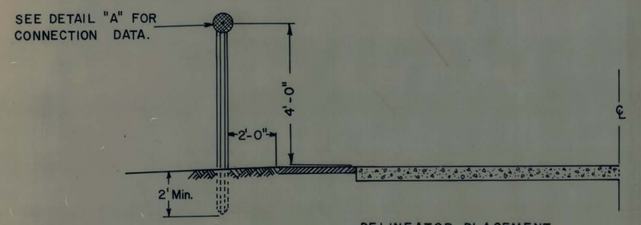
REVISIONS
⚠ 3-6-68
⚠ 5-22-68
⚠ 10-21-76

STANDARD SHEET TE7-1

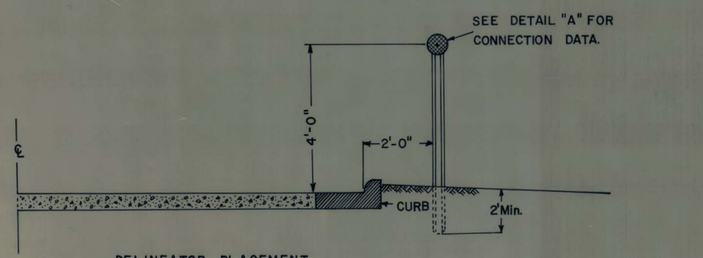
PUBLIC ROADS DIV.	STATE DIST. No.	STATE PROJ. No.	FEDERAL PROJ. No.	FISCAL YEAR	COUNTY	SHEET No.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	87	136



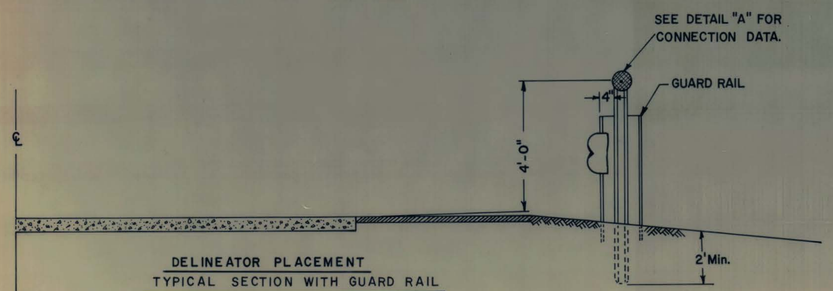
DELINEATOR PLACEMENT
TYPICAL SECTION



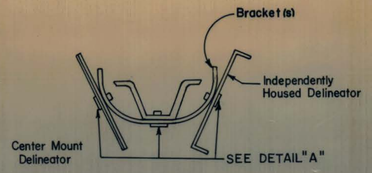
DELINEATOR PLACEMENT
TYPICAL SECTION - LEFT EDGE OF RAMP



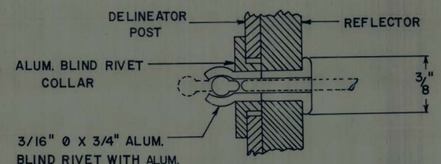
DELINEATOR PLACEMENT
TYPICAL SECTION WITH CURBING



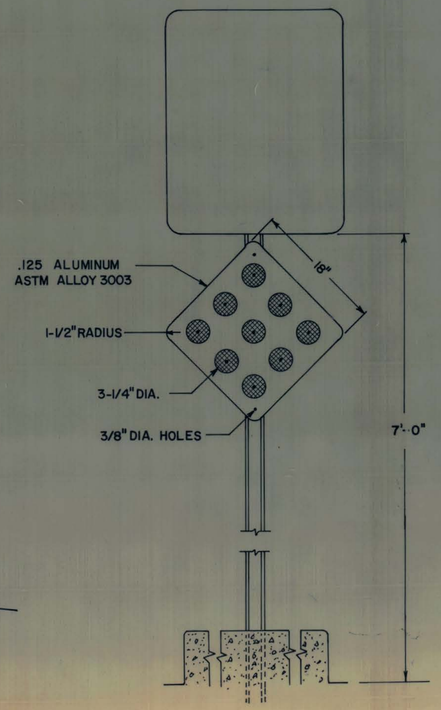
DELINEATOR PLACEMENT
TYPICAL SECTION WITH GUARD RAIL



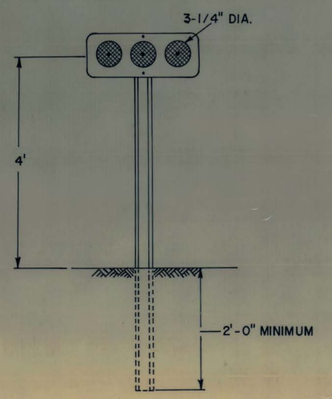
WINGED CHANNEL
BIDIRECTIONAL MOUNTING
DELINEATORS (WHEN NOTED ON PLANS FOR 2-LANE ROADWAYS)



DETAIL "A"
DELINEATOR ATTACHMENT



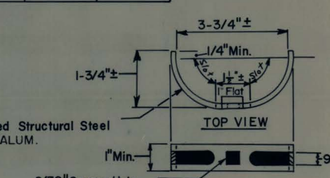
TYPICAL XR-9 INSTALLATION



SINGLE DELINEATOR INSTALLATION

SPACING FOR HIGHWAY DELINEATORS

DEGREE OF CURVE	RADIUS IN FEET	SPACING ON CURVE	SPACING IN ADVANCE & BEYOND CURVE		
			1st SPACE	2nd SPACE	3rd SPACE
0 to 1.5	>10,000 to 3,821	300	300	300	300
1.5-1.7	3,820-3,400	185	300	300	300
1.8-2.2	3,399-2,600	160	300	300	300
2.3-2.7	2,599-2,100	140	280	300	300
2.8-3.2	2,099-1,800	130	260	300	300
3.3-3.8	1,799-1,500	120	240	300	300
3.9-4.5	1,499-1,300	110	220	300	300
4.6-5.4	1,299-1,100	100	200	300	300
5.5-6.7	1,099-850	90	180	270	300
6.8-8.5	849-670	80	160	240	300
8.6-11.0	669-520	70	140	210	300
11.1-14.9	519-390	60	120	180	300
15.0-21.0	389-270	50	100	150	300
21.1-31.0	269-180	40	80	120	240
31.1-48.0	179-120	30	60	90	180
48.1-75.0	119-75	20	40	60	120
> 75	> 75	20	20	30	60

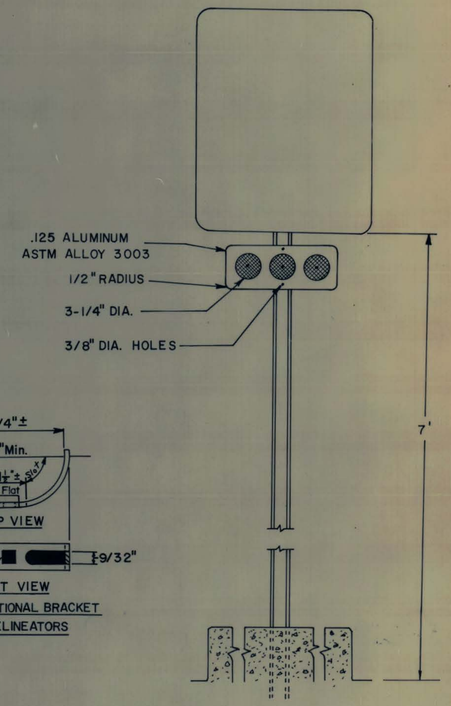


BIDIRECTIONAL BRACKET FOR DELINEATORS

NOTES

DELINEATOR SPACING SHALL BE MEASURED AT THE EDGE OF PAVEMENT NEAREST TO THE LOCATION OF DELINEATOR. SPACING SHALL BE DETERMINED FROM THE CURVE DATA SHOWN ON THE CURVE DATA SHEET OF THE PLANS. SPACING ON TANGENTS SHALL BE 300 FEET.

THE SPACING S ON THE CURVE IS FOUND FROM THE FORMULA $S = 3\sqrt{R} - 50$, WHERE R IS THE RADIUS OF THE CURVE IN FEET. THE SPACING TO THE FIRST DELINEATOR IN ADVANCE OF AND BEYOND THE CURVE IS 2 S, TO THE NEXT DELINEATOR $3S$, AND TO THE NEXT $6S$, BUT NOT TO EXCEED 300 FEET. MINIMUM SPACING IS 20 FEET.



TYPICAL XR-3 INSTALLATION

1 XR-9 from .064 to .125, Spacing formula added, median detail.
2 Delineator placement on ramp.
3 XR-3 Connection Detail.
4 Bidirectional mounts
5 XR-3, XR-9
6 Delineator Chart
7 Deleted Reduced Spacing Below 1.5°

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
STANDARD DETAIL
HIGHWAY DELINEATORS - GENERAL

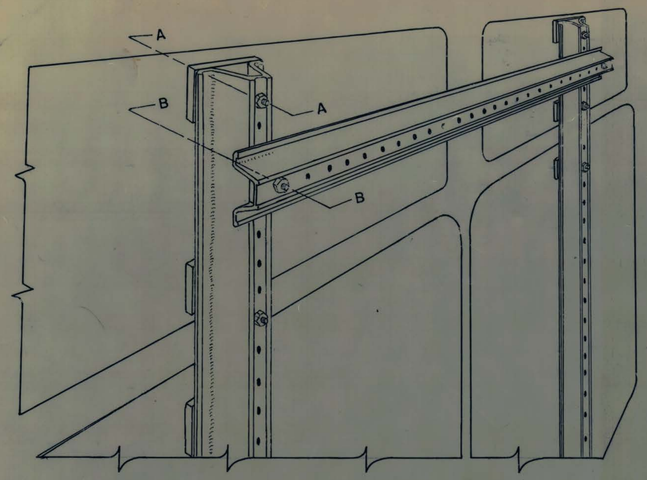
PREPARED - P.E.W. 3-67

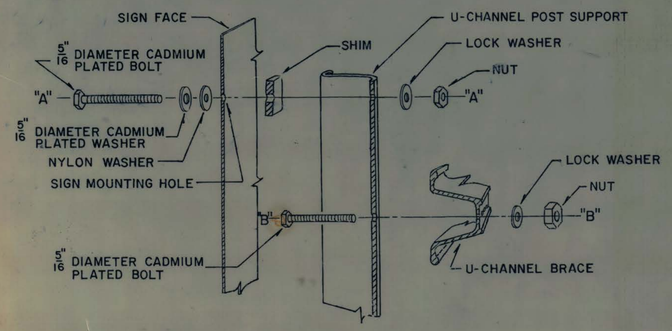
REVISIONS
1 4-22-68
2 6-6-68
3 9-9-69
4 11-25-69
5 4-1-71
6 11-15-76
7 10-6-77

STANDARD SHEET TE11-1

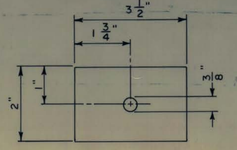
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	88	136

FRAMING (BRACING) FOR ROUTE MARKER ASSEMBLIES AND BACK-TO-BACK MOUNTINGS



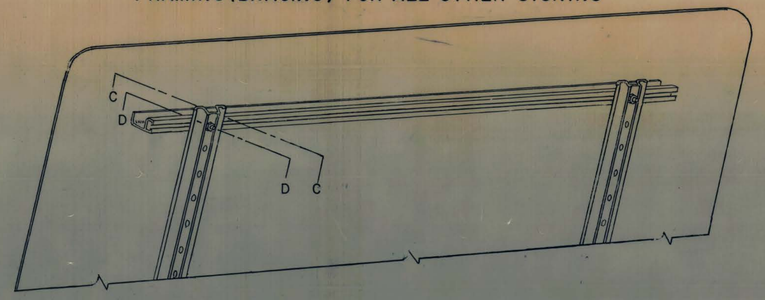


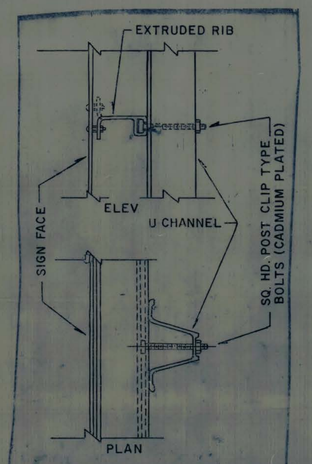
3 1/2" x 2" x 1/8" ALUMINUM ALLOY (6061-T6) SHIM.
SHIMS TO BE USED ON ALL SIGNS ERECTED ON "U" CHANNEL POSTS AT EACH SIGN-HOLDING BOLT.



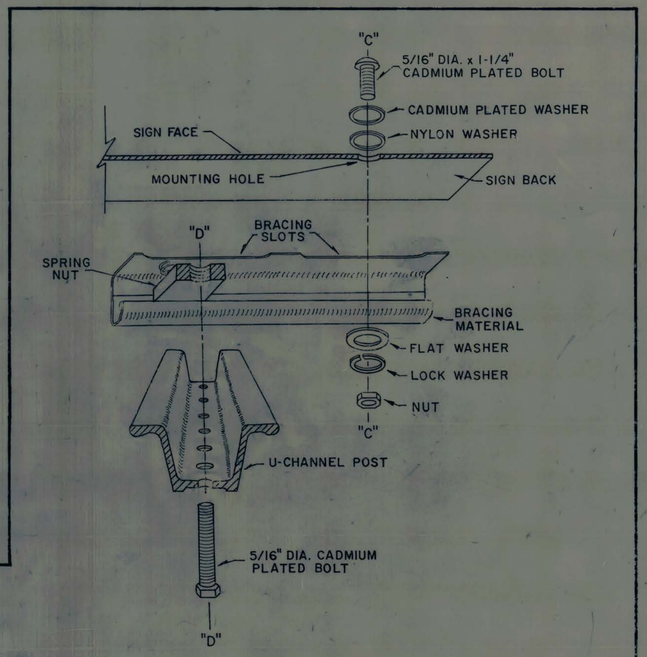
SHIM DETAIL

FRAMING (BRACING) FOR ALL OTHER SIGNING

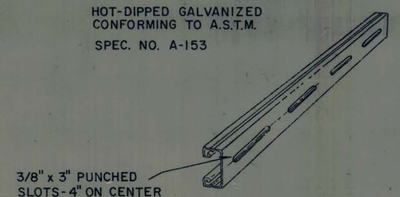




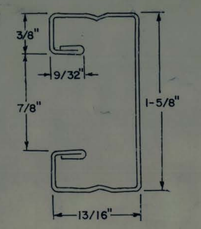
TYPICAL U-CHANNEL AND RIB ASSEMBLY

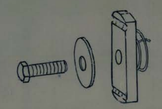


CHANNEL MATERIAL
16 GA. (.06 THICK) STRIP STEEL
HOT-DIPPED GALVANIZED CONFORMING TO A.S.T.M.
SPEC. NO. A-153



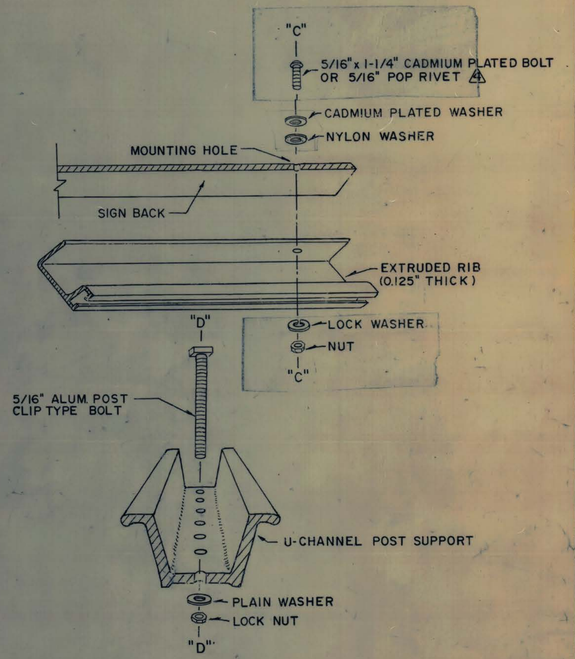
CHANNEL DETAIL

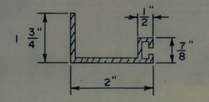




5/16" DIAMETER CADMIUM PLATED BOLT
5/16" I.D. x 1" O.D. x 1/16" THK. WASHER
5/16" SPRING NUT

ALTERNATE 1





EXTRUDED RIB
NOMINAL DIMENSIONS

ALTERNATE 2

NOTE: THE U-CHANNEL SUPPORT MAY ALSO BE ATTACHED TO THE EXTRUDED RIB BY USE OF POST CLIPS AND POST CLIP BOLTS AS DETAILED ON TE7-1.

ALTERNATE 1

- ⚠ ADDITION OF ALTERNATE SIGN BRACING
- ⚠ ADDITION OF EXTRUDED RIB
- ⚠ ADDITION OF POP RIVET, DELETION OF SPACING NUT
- ⚠ CHANGED BOLT, WASHER AND NUT FOR ALT. 2

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL
SIGN ASSEMBLY
BOLTING DETAILS

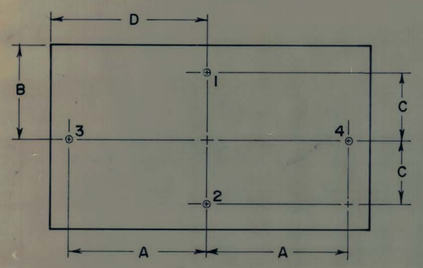
PREPARED- 10-1-69

REVISIONS
⚠ 12/9/69
⚠ 5/1/70
⚠ 12/13/73
⚠ 10/23/75
⚠ 6/1/76
⚠ 10/21/76

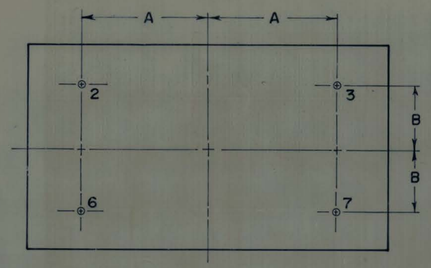
STANDARD SHEET TP-A

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	89	136

PUNCHING DETAILS FOR HORIZONTAL RECTANGULAR SIGNS

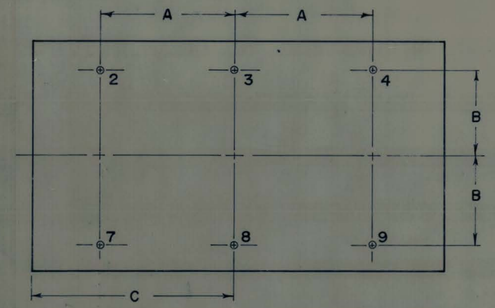


LESS THAN 42" WIDTH



42"-72" WIDTHS *

* Excluding:
(a) D16-1 Signs with widths of 42"-48".
(b) "M" Series Signs with 42" width.

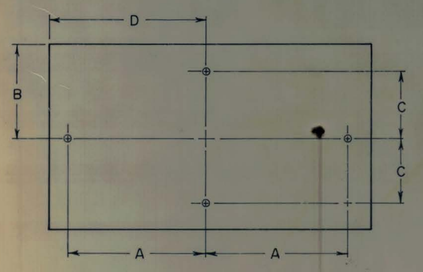


MORE THAN 72" WIDTH

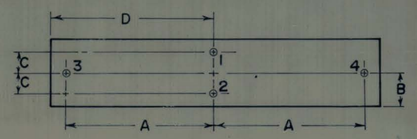
SIGN SHAPE	SIGN SIZE HEIGHT	SIGN SIZE WIDTH	DIMENSION A	DIMENSION B	DIMENSION C	DIMENSION D
* HORIZONTAL RECTANGLE	6" or over but under 24"	Less than 42"	WIDTH − 3" / 2	HEIGHT / 2	HEIGHT − 3" / 2	WIDTH / 2
	24" or over but under 36"		WIDTH − 3" / 2	HEIGHT / 2	HEIGHT − 3" / 2	WIDTH / 2
	6" or over but under 18"	42"-72"	WIDTH − 6" / 2	HEIGHT − 3" / 2	—	—
	18" or over but under 30"		WIDTH − 6" / 2	HEIGHT − 6" / 2	—	—
	30" or more		WIDTH − 12" / 2	HEIGHT − 12" / 2	—	—
	under 30"	More than 72"	WIDTH − 24" / 2	HEIGHT − 6" / 2	WIDTH / 2	—
	30" or more		WIDTH − 24" / 2	HEIGHT − 12" / 2	WIDTH / 2	—

* Excluding: (a) D16-1 Signs with widths of 42"-48".
(b) "M" Series Signs with 42" width.

D16-1	9"	42"-48"	WIDTH − 3" / 2	HEIGHT / 2	HEIGHT − 3" / 2	WIDTH / 2
"M" SERIES	36"	42"	WIDTH − 4" / 2	HEIGHT / 2	HEIGHT − 4" / 2	WIDTH / 2



"M" SERIES 42" WIDTHS ONLY



D16-1 42"-48" WIDTHS ONLY

NOTES

1. PUNCHING DETAILS
   - 1.1 THE SPACING OF THE PUNCHED HOLES WILL BE IN ACCORDANCE WITH THE ABOVE TABLE AND ACCOMPANYING DETAIL DRAWINGS.
   - 1.2 ALL HOLES WILL BE 3/8" DIAMETER, UNLESS OTHERWISE SPECIFIED.
   - 1.3 ALL HORIZONTAL RECTANGLES DESIGNATED AS D16-1 SIGNS AND HAVING WIDTHS OF 42" OR 48" SHALL BE PUNCHED IN ACCORDANCE WITH THE ABOVE TABLE AND ACCOMPANYING DETAIL DRAWING DESIGNATED "D16-1".
   - 1.4 ALL HORIZONTAL RECTANGLES DESIGNATED AS A "M" SERIES SIGN WITH A WIDTH OF 42", SHALL BE PUNCHED IN ACCORDANCE WITH THE ABOVE TABLE AND ACCOMPANYING DETAILED DRAWING.

⚠ CHANGED 9" TO 6"

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
STANDARD DETAIL
PUNCHING DETAILS FOR
HORIZONTAL RECTANGULAR SIGNS

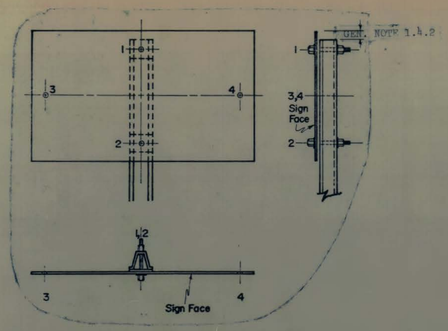
PREPARED- RN 10-1-69

REVISIONS
5/1/70
⚠ 11/3/76

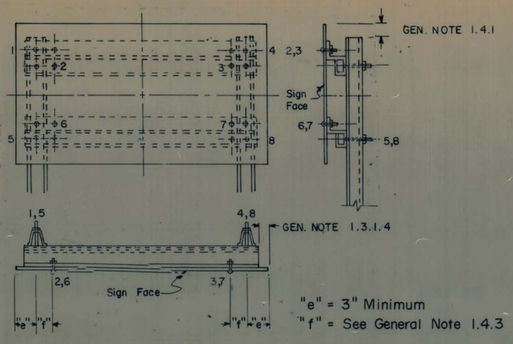
STANDARD SHEET TPI-3

MOUNTING DETAILS FOR SINGLE-MOUNTED HORIZONTAL RECTANGULAR SIGNS *

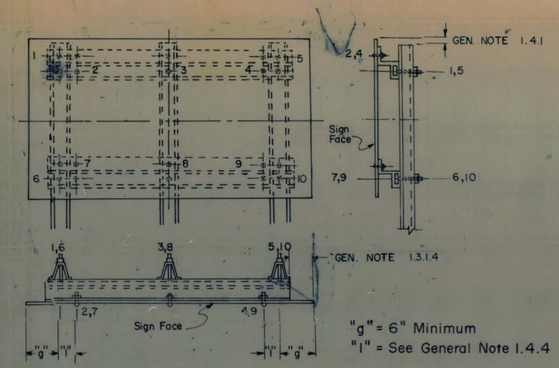
* Except D16-1 Signs (42"- 48" Widths Only)



LESS THAN 42" WIDTH



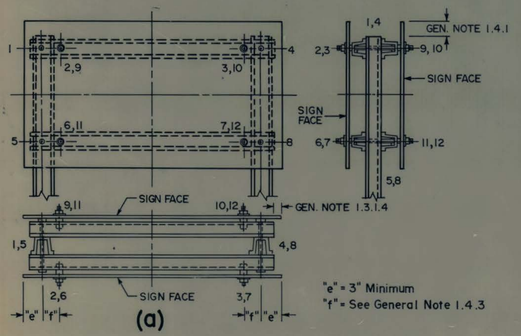
42" - 72" WIDTHS



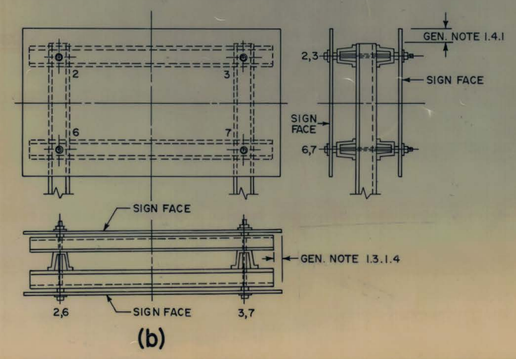
MORE THAN 72" WIDTH

MOUNTING DETAILS FOR BACK-TO-BACK MOUNTED HORIZONTAL RECTANGULAR SIGNS *

* Except D16-1 Signs (42"- 48" Widths Only)



(a)



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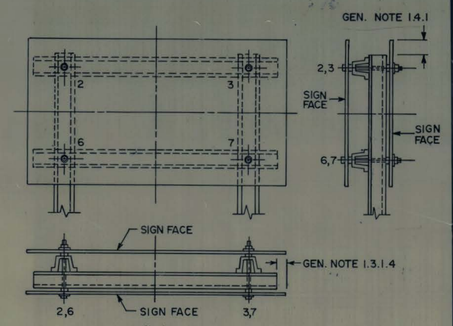
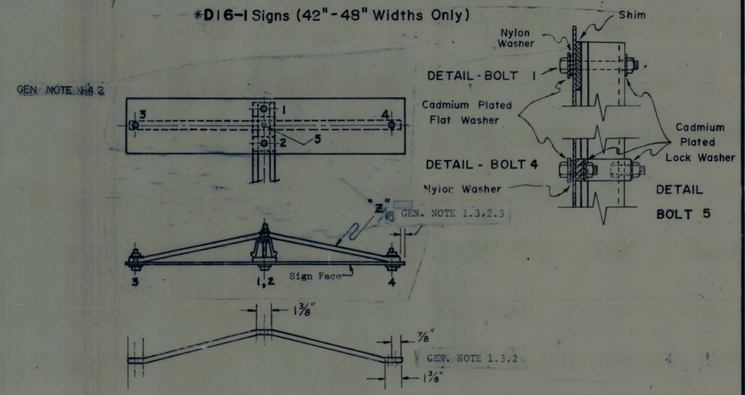


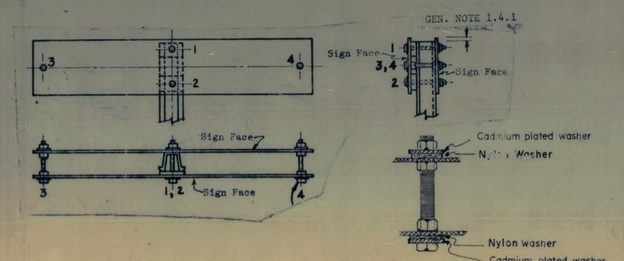
(c)

EXCEPTIONS TO STANDARD MOUNTING DETAILS *

*D16-1 Signs (42"-48" Widths Only)



SINGLE - MOUNTING



BACK-TO-BACK MOUNTING

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	90	136

GENERAL NOTES

1. MOUNTING DETAILS

1.1 HORIZONTAL RECTANGULAR SHAPED SIGNS WILL BE MOUNTED IN ACCORDANCE WITH THE ACCOMPANYING DETAIL DRAWINGS. THE ASSOCIATED BOLTS, NUTS, WASHERS AND SHIMS FOR SINGLE-MOUNTED SIGN ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAIL TP-A: SIGN ASSEMBLY BOLTING DETAILS.

1.2 SIGN ASSEMBLY

1.2.1 ALL MOUNTINGS SHOWN ARE FOR ASSEMBLIES CONSISTING OF SINGLE-MOUNTED OR BACK-TO-BACK MOUNTED SIGNS.

1.2.2 BACK-TO-BACK MOUNTINGS FOR ALL ASSEMBLIES (EXCEPT D16-1 SIGNS WITH 42"-48" WIDTHS) AS SHOWN IN DETAIL "A" IS RECOMMENDED. HOWEVER, DETAIL "B" AND/OR "C" MAY BE USED.

1.2.3 MOUNTING DETAILS FOR "M" SERIES SIGNS WITH 42" WIDTH ARE SHOWN ON STANDARD DETAIL SHEET TP4-1A, B, C.

1.2.4 ALL BOLTS, NUTS AND WASHERS USED TO MOUNT THE SIGN AND SIGN ASSEMBLIES WILL BE 5/16" DIAMETER.

1.3 BRACING

1.3.1 SINGLE-MOUNTED AND BACK-TO-BACK MOUNTED HORIZONTAL RECTANGULAR SIGNS, EXCEPT D16-1 SIGNS WITH 42" AND 48" WIDTHS.

1.3.1.1 BRACING ON SIGNS SHOWN WILL CONSIST OF EXTRUDED RIB AS DETAILED ON TP-A EXCEPT BACK-TO-BACK MOUNTINGS WILL CONSIST OF 2LB. CHANNEL POST.

1.3.1.2 ON ALL BRACED SIGNS THE WEB OF THE BRACING SHALL BE IN CONTACT WITH THE BACK OF THE SIGN.

1.3.1.3 ON ALL BRACED SIGNS THE FLANGE OF THE BRACING SHALL BE IN CONTACT WITH THE POST SUPPORT.

1.3.1.4 ON ALL BRACED SIGNS THE END OF THE OVERHANGING LENGTH OF THE BRACE SHALL BE AT LEAST 1-3/4" FROM THE CENTERLINE OF THE POST SUPPORT, BUT NO CLOSER THAN 1" TO THE EDGE OF THE SIGN. THE TWO OVERHANGING SECTIONS OF EACH BRACE SHALL BE EQUAL IN LENGTH.

1.3.2 D16-1 SIGNS WITH 42"-48" WIDTHS.

1.3.2.1 STRAP-BRACING FOR SINGLE-MOUNTED 42" WIDTH D16-1 SIGN ASSEMBLIES SHALL BE A GALVANIZED STEEL BRACE 1/4" X 1" X 40-1/2". HOLES IN THE STRAP-BRACING SHALL BE 3/8" DIAMETER AND CAN EITHER BE PUNCHED AS SHOWN OR BE PUNCHED AT 1" INTERVALS.

1.3.2.2 STRAP-BRACING FOR SINGLE-MOUNTED 48" WIDTH D16-1 SIGN ASSEMBLIES SHALL BE A GALVANIZED STEEL BRACE 1/4" X 1" X 46-1/2". HOLES IN STRAP-BRACING SHALL BE 3/8" DIAMETER AND CAN BE PUNCHED AS SHOWN OR BE PUNCHED AT 1" INTERVALS.

1.3.2.3 ON ALL SINGLE-MOUNTED D16-1 (42"-48" WIDTH) SIGN ASSEMBLIES THE ENDS OF THE STRAP-BRACING SHALL EXTEND 1" OR LESS FROM THE EDGE OF THE SIGN, BUT NOT BEYOND ANY EDGE OF THE SIGN.

1.4 POST SUPPORT

1.4.1 THE TOP OF THE POST SUPPORT SHALL NOT EXTEND BEYOND THE EDGE OF THE SIGN.

1.4.2 THE TOP OF THE POST SUPPORT SHALL EXTEND 2" OR LESS FROM THE EDGE OF THE SIGN, BUT NOT BEYOND ANY EDGE OF THE SIGN.

1.4.3 ON ALL BRACED SIGNS, THE CENTERLINE OF THE POST SHALL BE WITHIN 3" (ON EITHER SIDE) OF THE CENTERLINE OF THE SIGN HOLE.

1.4.4 ON ALL BRACED SIGNS, THE CENTERLINE OF THE POST SHALL BE WITHIN 6" (ON EITHER SIDE) OF THE CENTERLINE OF THE SIGN HOLE.

⚠ CHANGED D6-1 TO D16-1

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL

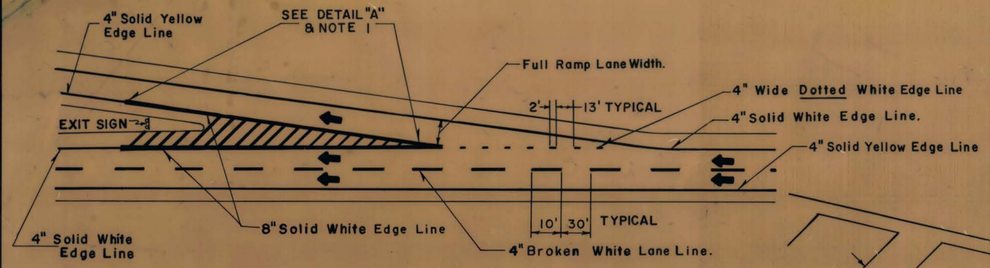
MOUNTING DETAILS FOR HORIZONTAL RECTANGULAR SIGNS

PREPARED RN 10-1-69

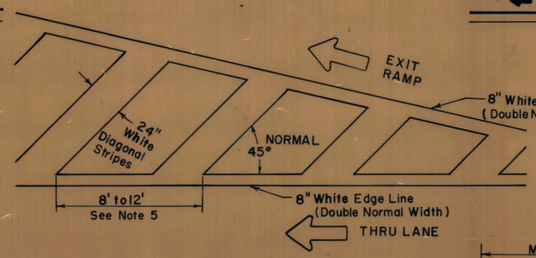
REVISIONS
5/1/70
6/1/76
⚠ 11/3/76

STANDARD SHEET TPI-5

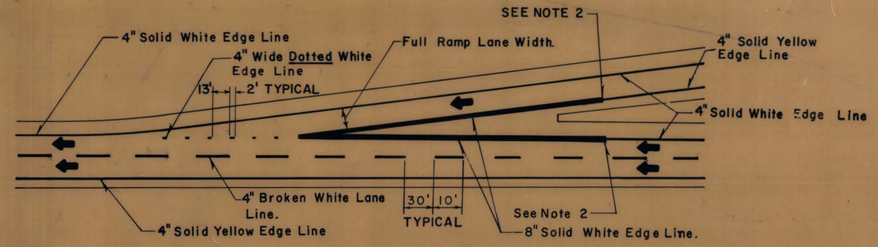
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJ. NO.	FEDERAL PROJ. NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA	10	328 77 9.43	I-77-2(63)9	1979	RALEIGH	91	136



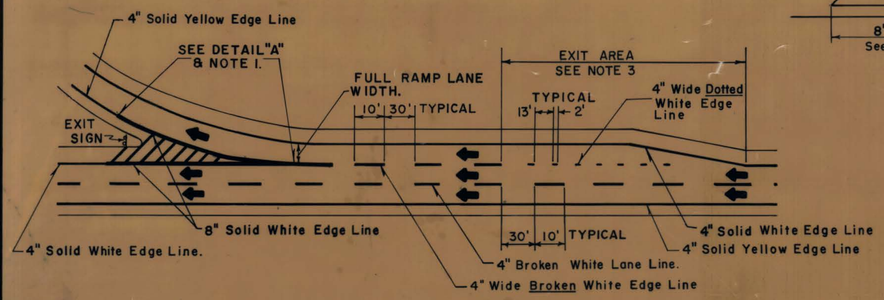
EXIT RAMP: STRAIGHT TAPERED DECELERATION LANE



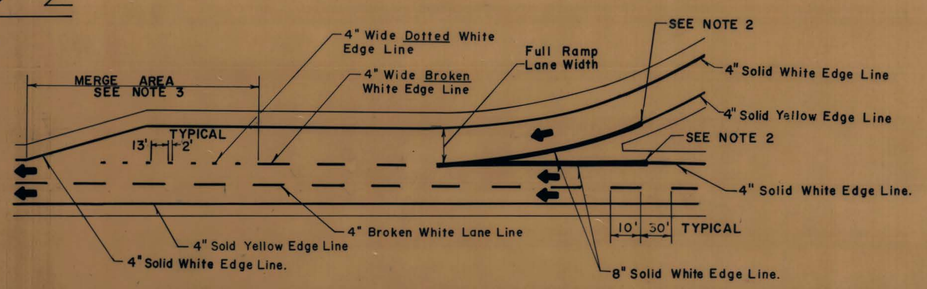
DETAIL "A"



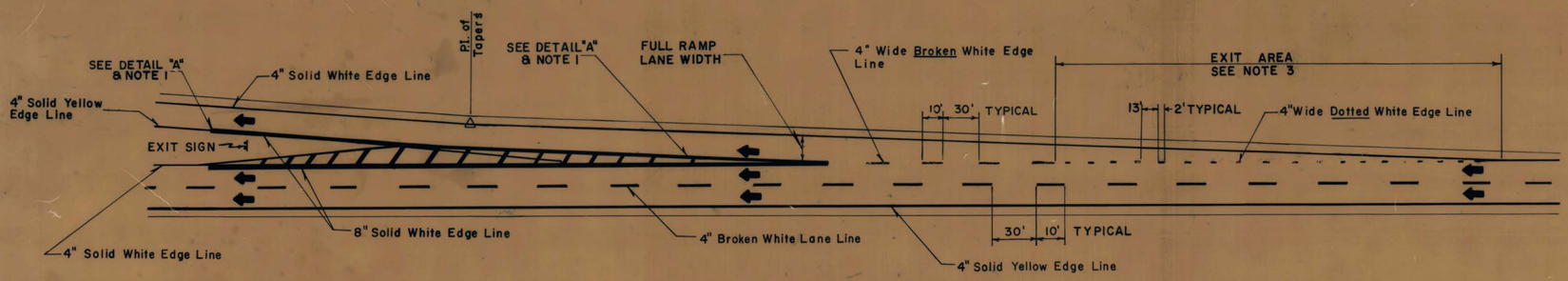
ENTRANCE RAMP: SHORT TAPERED ACCELERATION LANE



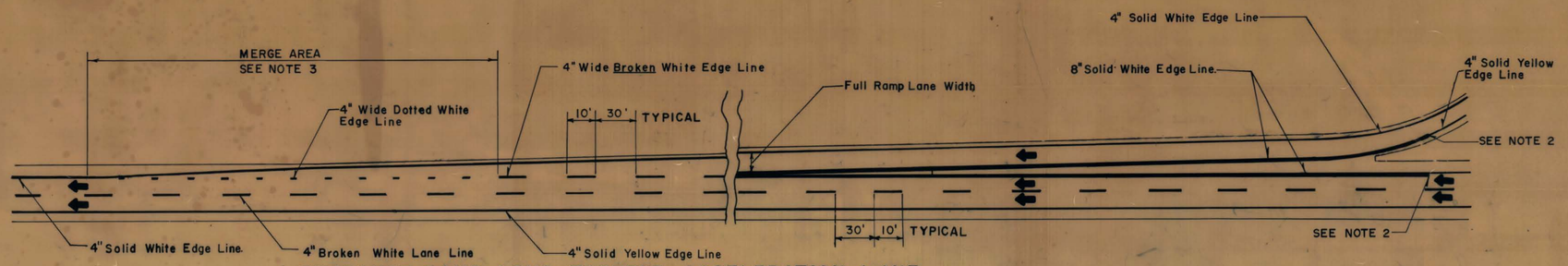
EXIT RAMP: PARALLEL DECELERATION LANE



ENTRANCE RAMP: PARALLEL ACCELERATION LANE



EXIT RAMP: VARIABLE TAPER DECELERATION LANE



ENTRANCE RAMP: LONG TAPERED ACCELERATION LANE

GENERAL NOTES:

1. THE 8" EDGE LINE SHALL BE EXTENDED TO A POINT APPROXIMATELY 25' BEYOND THE EXIT SIGN ON BOTH SIDES OF THE GORE.
2. THE 8" EDGE LINE ON BOTH SIDES OF THE GORE SHALL BE PLACED BEGINNING AT A POINT APPROXIMATELY 25' BEFORE THE POINT WHERE THE RAMP AND MAINLINE SHOULDER AREAS JOIN AND EXTEND UNTIL THE 8" LINES MERGE INTO ONE 8" LINE.
3. EXIT AREAS AND MERGE AREAS SHALL HAVE 300' OF DOTTED WHITE EDGE LINE UNLESS OTHERWISE SPECIFIED.
4. IF TYPICAL MARKINGS AS SHOWN ON THIS SHEET DO NOT APPLY, MARKINGS WILL BE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
5. THIS DIMENSION SHALL BE 12 FEET UNLESS OTHERWISE SPECIFIED. IN NO CASE SHALL THIS DIMENSION BE LESS THAN 8 FEET OR GREATER THAN 12 FEET.

⚠1 EDGE LINES
⚠2 RAMP EDGE LINES
⚠3 MODIFIED SPACING & DOTTED LINES

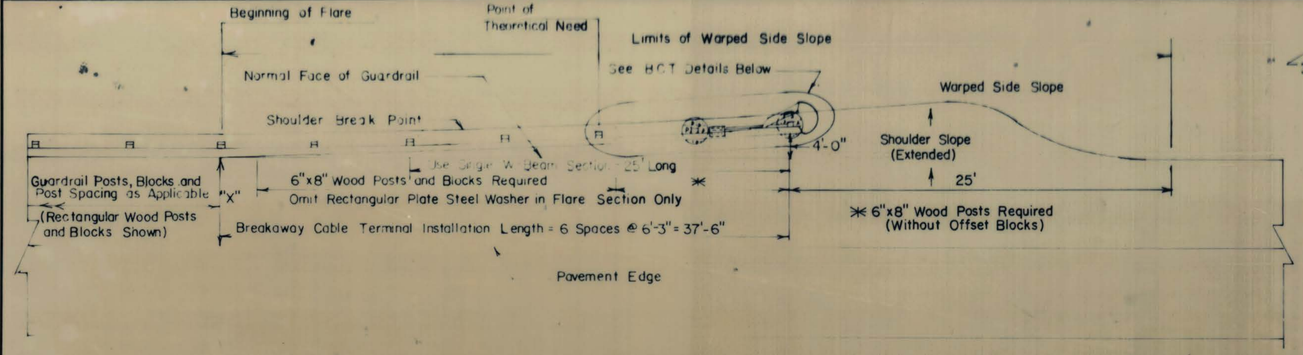
WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL TYPICAL MARKINGS OF INTERCHANGE RAMPS

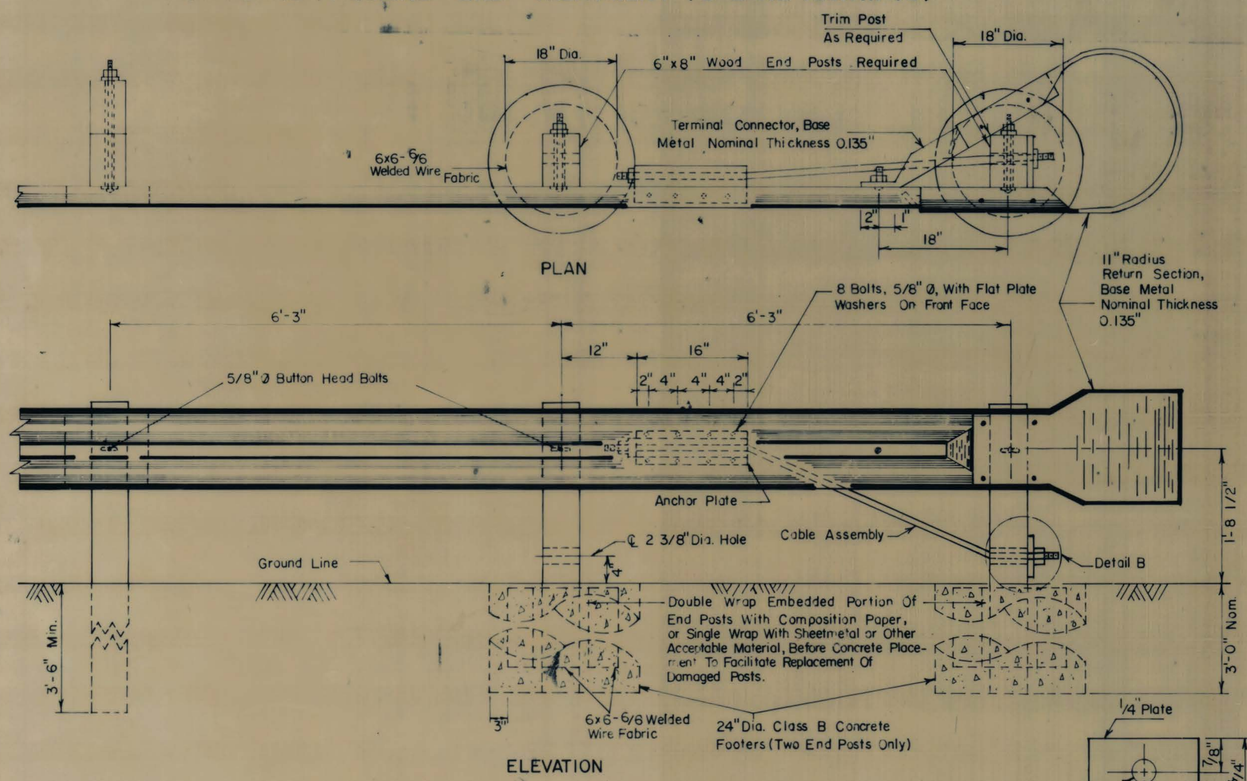
PREPARED - JULY 1971

REVISIONS
⚠1 MAY 1973
⚠2 OCTOBER 1974
⚠3 11/23/77

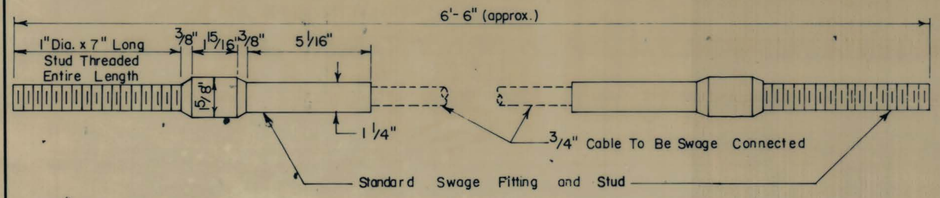
STANDARD SHEET TEM 1



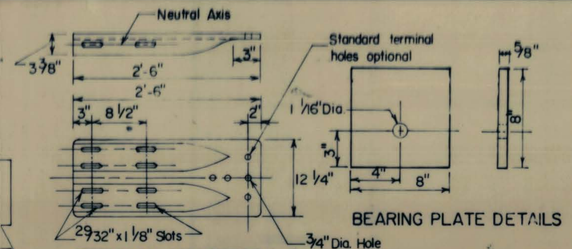
STANDARD APPROACH END TREATMENT (MULTI-LANE DIVIDED AND 2-LANE HIGHWAYS)
STANDARD TRAILING END TREATMENT (2-LANE HIGHWAYS)



BREAKAWAY CABLE TERMINAL (BCT)

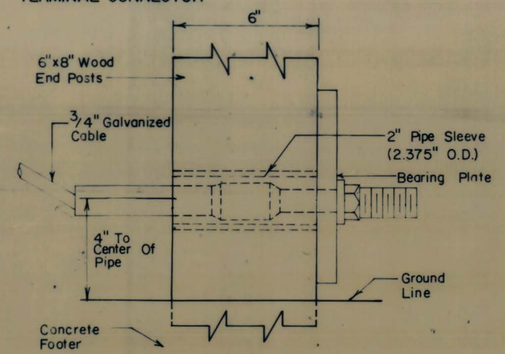


CABLE ASSEMBLY

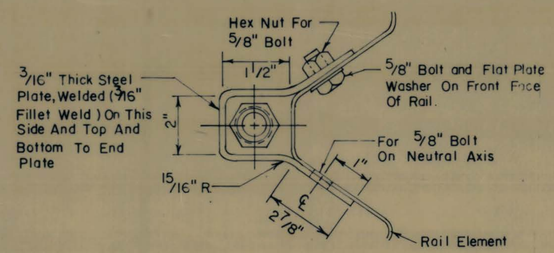


TERMINAL CONNECTOR

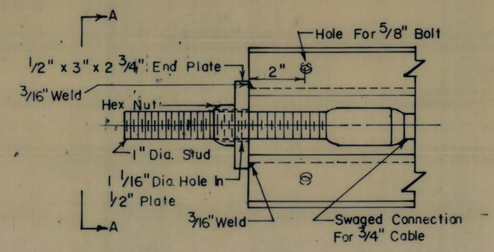
BEARING PLATE DETAILS



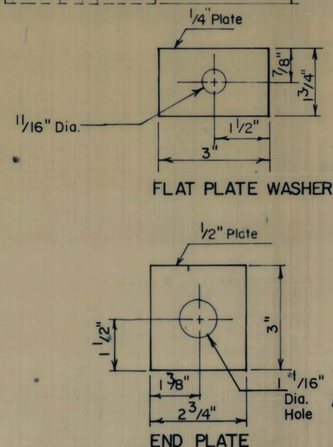
DETAIL B



VIEW A-A
(End Plate Removed, Rail Shown)



FRONT VIEW
(Rail Removed)



ANCHOR PLATE DETAILS

NOTES

GENERAL:

For high fill-to-low fill guardrail terminals (trailing ends, two-lane highways, and all approach ends) where anchored ends are specified, the details and requirements herein shall be applicable.

For high fill-to-low fill guardrail terminals (trailing ends, multi-lane divided highways), the details shall conform to the requirements of Standard G. R. 2-C.

Warped side slope limits shall be established in the field to fit field conditions.

Prior to placing guardrail, a final check of existing conditions will be made by the Engineer, and any adjustment necessary to insure the proper functioning of the guardrail for the purpose for which it is intended will be made accordingly.

BREAKAWAY CABLE TERMINAL (BCT):

Guardrail return sections and terminal connectors shall meet the requirements of 712.4 of the Specifications.

Anchor cables shall meet the requirements of 712.1 of the Specifications except that the cables shall be 3/4" preformed, 6x9 (strands x wires per strand), wire strand core or independent wire rope core (IWRC), galvanized, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 42,800 pounds.

Bolts and nuts shall meet the requirements of ASTM Specification A307 and shall be galvanized in accordance with AASHTO Specification M232.

Washer, plates, and studs shall meet the requirements of AASHTO Specification M183 and be galvanized in accordance with AASHTO Specification M111.

Welded wire fabric shall meet the requirements of 602 of the Specifications.

Pipe sleeve shall be "standard weight" galvanized pipe meeting the requirements of 709.17 of the Specifications.

At the completion of the installation, the 3/4" cable shall be securely fixed in place, without appreciable slack, but not tightened to a taut, stressed condition.

The cost of furnishing and installing the Breakaway Cable Terminal, including return section, terminal connector, Class "B" concrete, cables, studs, plates, all "terminal" hardware, pipe sleeve, welded wire fabric, composition paper, sheetmetal, and all necessary excavation, shall be included in the unit price bid for Item 607-29, "Breakaway Cable Terminal", per each. Normal guardrail components, i.e., posts, blocks, rail elements, hardware, etc, along with the special length wood guardrail end posts, shall be paid for as guardrail per linear foot.

POINT OF THEORETICAL NEED FOR BCT EMBANKMENT GUARDRAIL:

The point of need shall be considered that point where, to one side of the point, it would be safer for the vehicle to contact and be directed by the guardrail instead of going over the slope and, to the other side of the point, it would be safer for the vehicle to go over the slope. An exit angle from the roadway of approximately 15° should be utilized for determining the point of theoretical need. Where feasible, consideration should be given to flattening or further warping of the slope in order to "move back" the point of need and thereby reduce the length of needed guardrail.

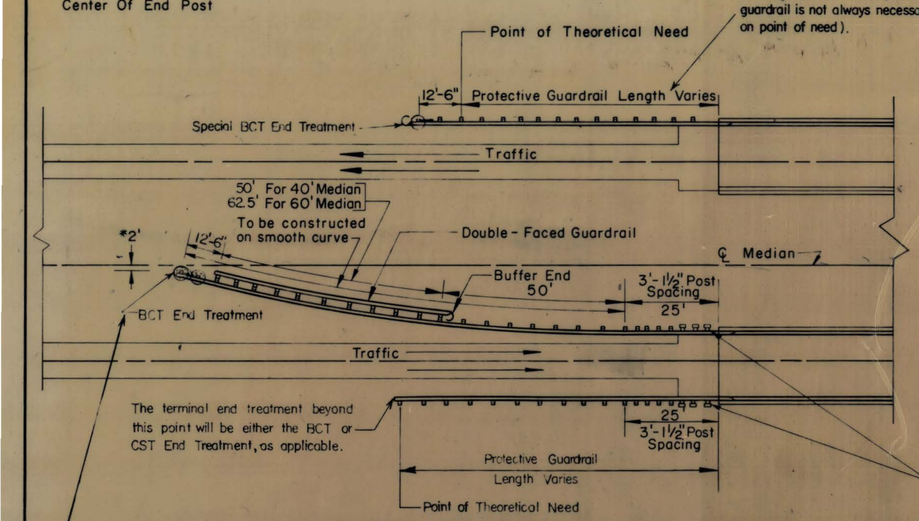
WEST VIRGINIA DEPARTMENT OF HIGHWAYS

STANDARD DETAIL
END TREATMENT — EMBANKMENT GUARDRAIL (HIGH-FILL TO LOW-FILL TERMINAL)

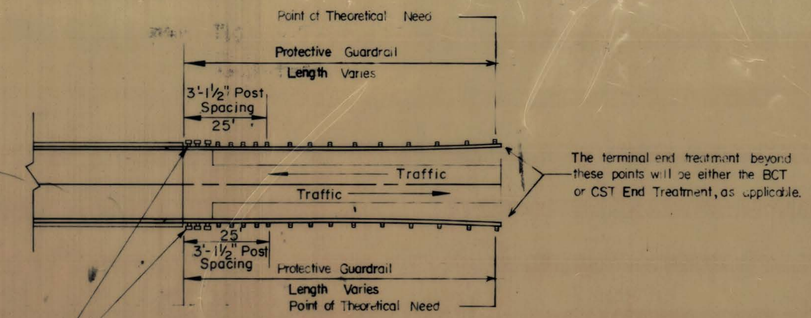
PREPARED 7-25-78
REVISIONS

STANDARD SHEET G.R. 2-B

*From Center Of Median To Center Of End Post

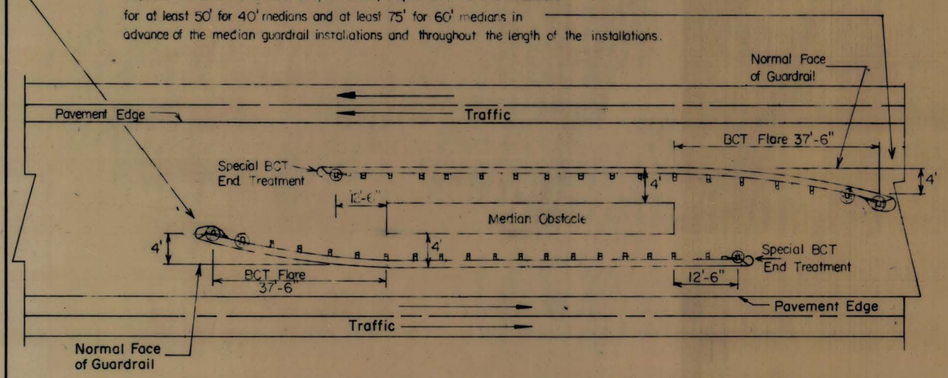


GUARDRAIL AT BRIDGES
4-LANE HIGHWAY
(40' & 60' MEDIANS)

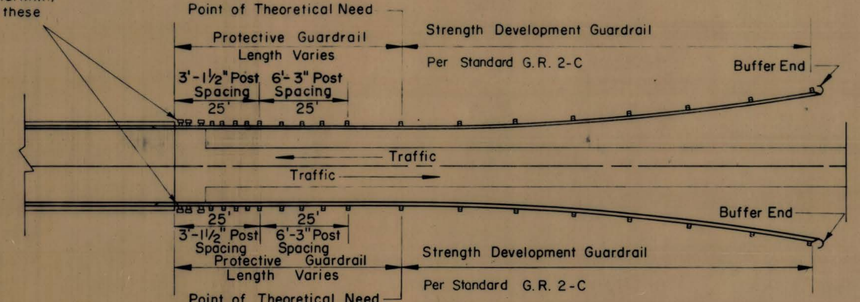


GUARDRAIL AT BRIDGES
2-LANE HIGHWAY
(6'-3" POST SPACING)

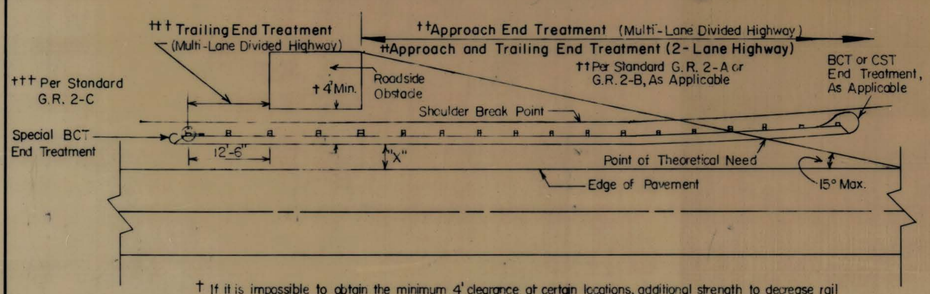
First three posts at bridges shall be either square (10"x10") or circular (10" Dia. min.) wood posts at these locations.



GUARDRAIL FOR MEDIAN OBSTACLE
(40' & 60' MEDIANS)

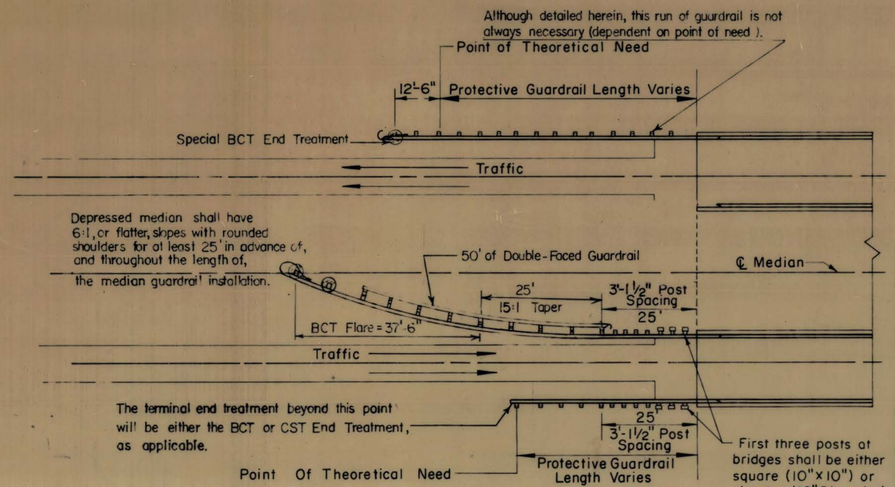


GUARDRAIL AT BRIDGES
2-LANE HIGHWAY
(12'-6" POST SPACING)



† If it is impossible to obtain the minimum 4' clearance at certain locations, additional strength to decrease rail deflection will be necessary and shall be accomplished by driving additional posts (reducing post spacing), by replacing standard size posts with bigger, stronger posts, or by other means approved by the Engineer.

GUARDRAIL FOR ROADSIDE OBSTACLE
(For Roadway Side Slopes Steeper Than 6:1)



GUARDRAIL AT BRIDGES
4-LANE HIGHWAY
(25' MEDIANS)

NOTES

Guardrail post spacing shall be 3'-1½" for the first 25'-0" prior to bridge connection on approach end left and right when 6'-3" post spacing is required in guardrail run.

Guardrail post spacing shall be 3'-1½" for the first 25'-0" and 6'-3" for the second 25'-0" prior to bridge connection on left and right where 12'-6" post spacing is required in a guardrail run.

The details for "Guardrail For Roadside Obstacle" herein shall be applicable, when the roadway side slopes are steeper than 6:1. For side slopes 6:1 or flatter, the guardrail for roadside obstacles shall be installed in accordance with details shown on the Plans.

Either wood or steel blocks may be used with the oversize (10") wood posts at bridges, depending on the block type, if any, being employed on the Project.

Regarding the median guardrail installations detailed herein, and at other locations where BCT guardrail is detailed or specified to be placed on a side slope, the requirement that the breakpoint between the shoulder and the 6:1, or flatter, side slope be well rounded is necessary for proper functioning of the guardrail.

Details for guardrail installations to protect obstacles in medians greater than sixty feet in width will be shown in the Contract Plans.

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

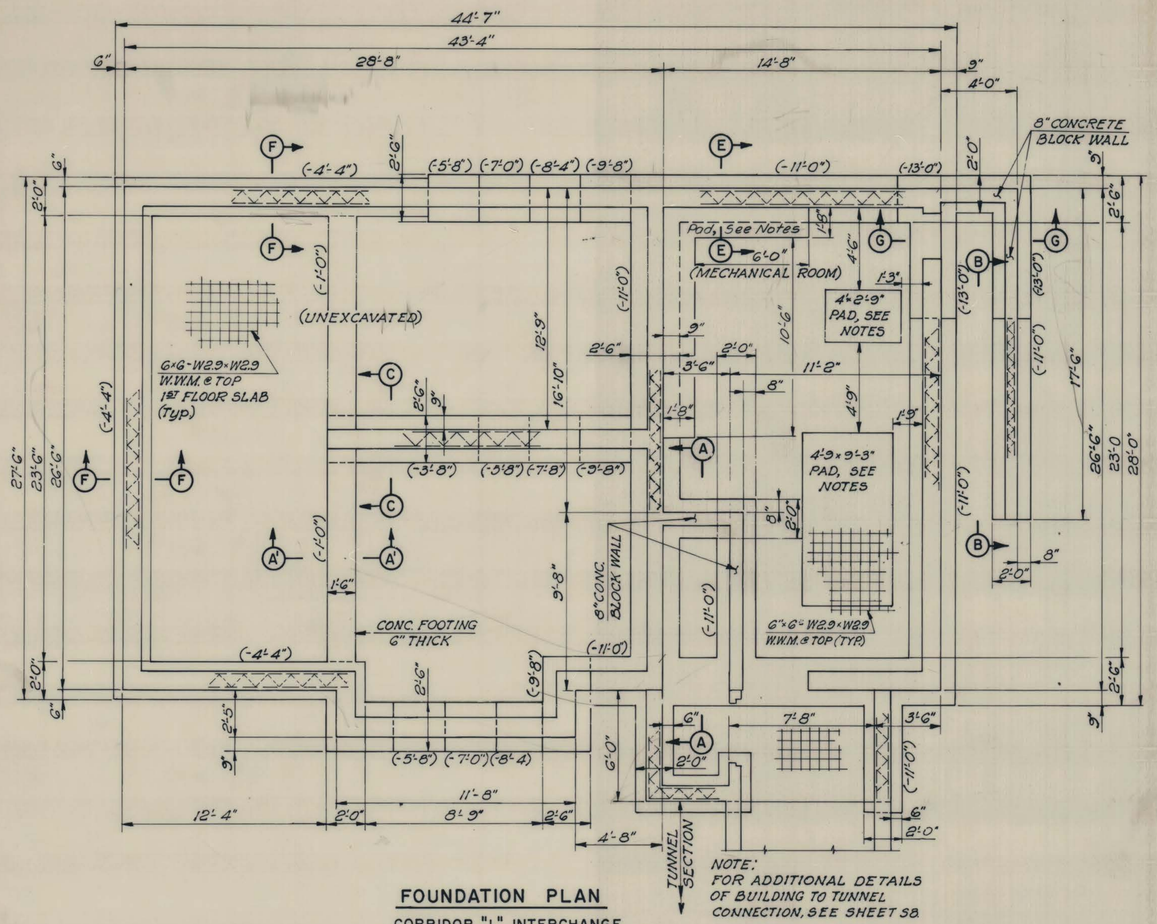
STANDARD DETAIL
TYPICAL GUARDRAIL TREATMENT

PREPARED-5-21-71
REVISIONS
10-20-72
7-25-78

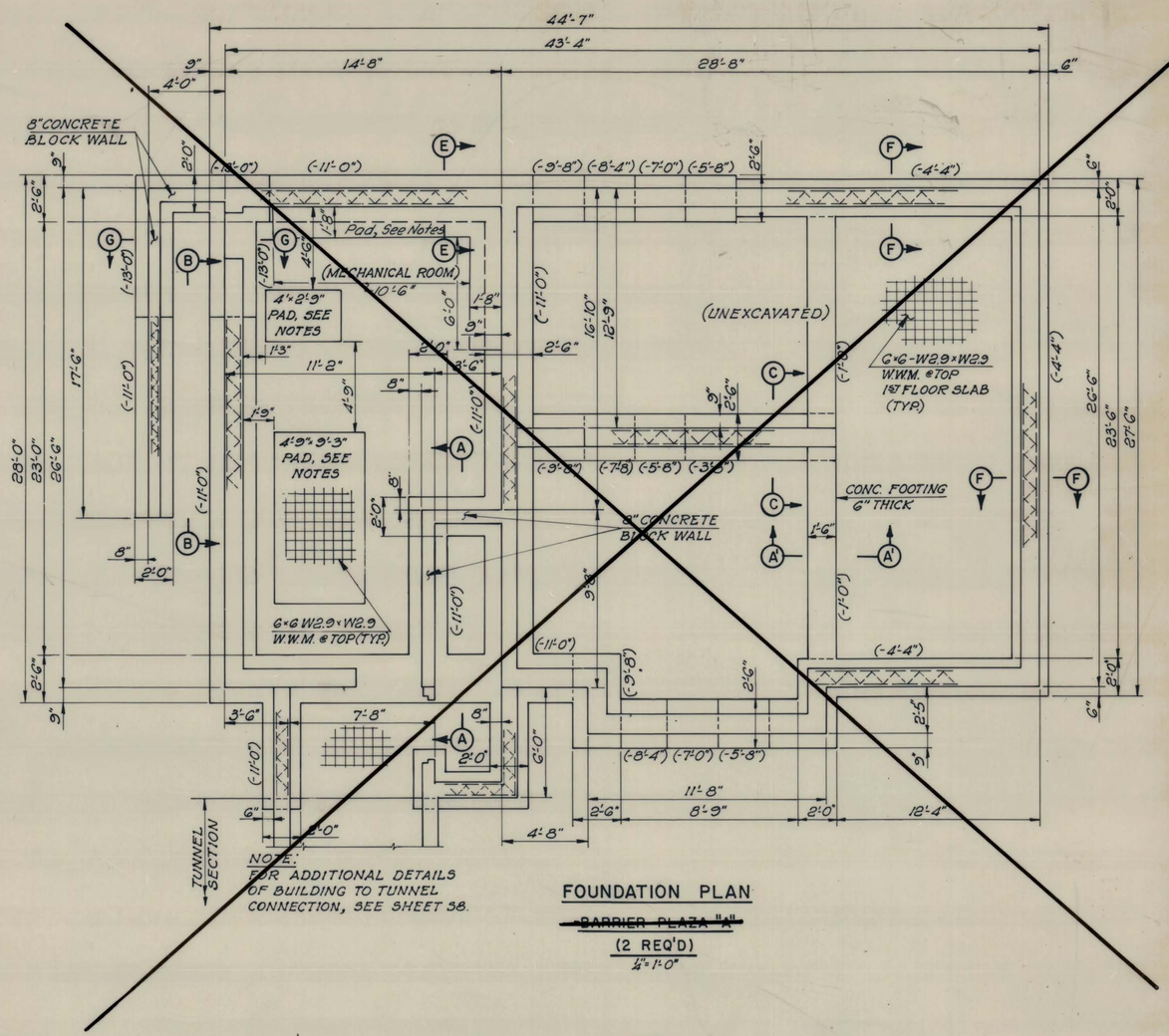
STANDARD SHEET G.R. 5

K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	RALEIGH	92	136



FOUNDATION PLAN
CORRIDOR "L" INTERCHANGE
1/4"=1'-0"



FOUNDATION PLAN
~~BARRIER PLAZA "A"~~
(2 REQ'D)
1/4"=1'-0"

NOTES:
FOR DETAILS OF SECTIONS A-A & B-B, SEE SHEET 37.
FOR DETAILS OF SECTIONS C-C THRU A'-A' SEE SHEET 53.
(-4'-4") INDICATES THE DISTANCE FROM TOP OF FIRST FLOOR SLAB TO BOTTOM OF FOOTING.
TOP OF FIRST FLOOR ELEVATION:
CORRIDOR "L" EL. 2320.25
~~BARRIER PLAZA "A" N.B. EL. 8303.86~~
~~BARRIER PLAZA "A" S.B. EL. 8310.74~~

PADS FOR EQUIPMENT ARE 6" HIGH, WITH #4 REINFORCING BARS @ 12" EACH WAY

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1/4"= 1'-0" Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

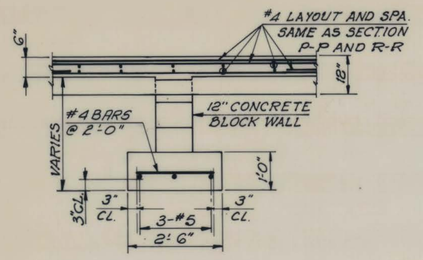
CORRIDOR "L" ~~& BARRIER PLAZA "A"~~
UTILITY BUILDINGS
FOUNDATION PLANS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

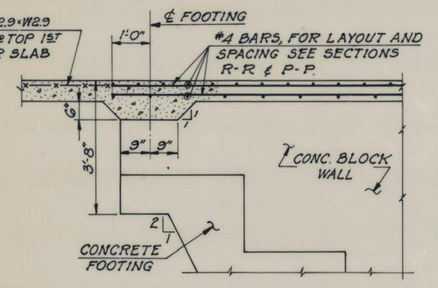
SHEET NO. S1

K&E 19 1255 9-77 TEM 2229•

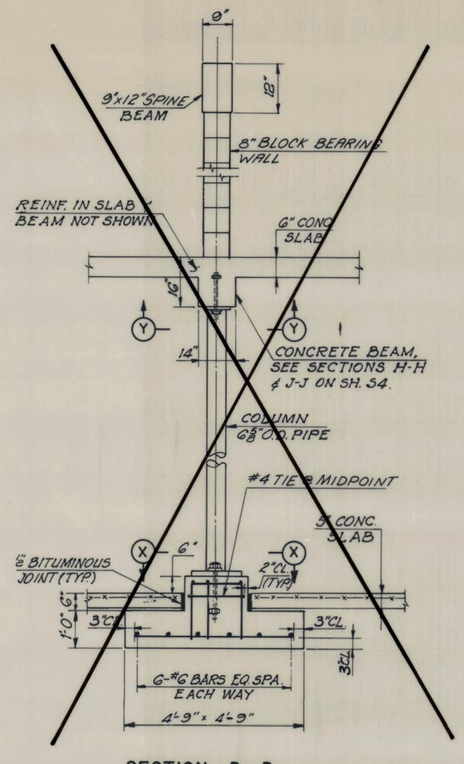
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	93	136



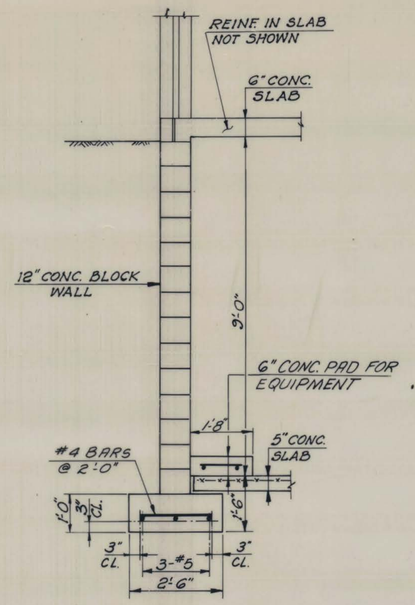
SECTION C-C
1/2"=1'-0"



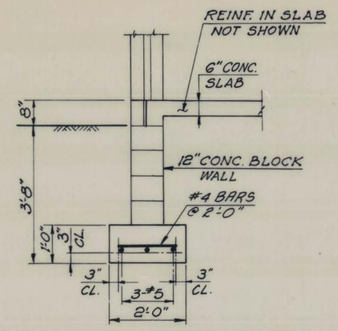
SECTION A'-A'
1/2"=1'-0"



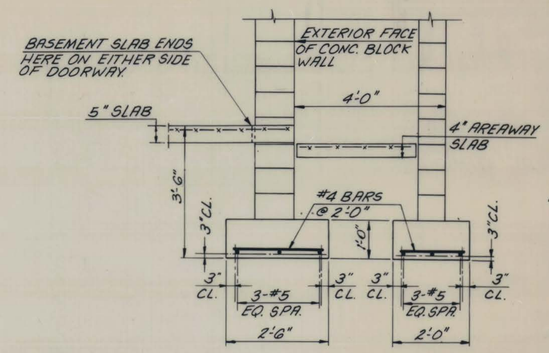
SECTION D-D
1/2"=1'-0"



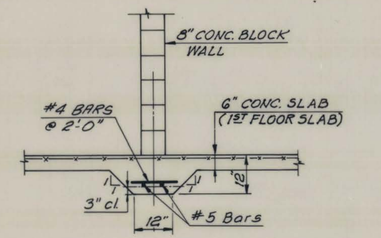
SECTION E-E
1/2"=1'-0"



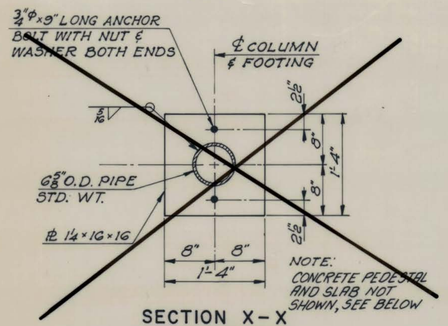
SECTION F-F
1/2"=1'-0"



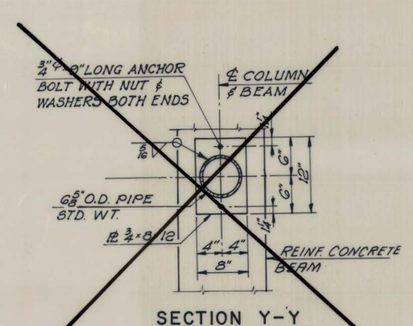
SECTION G-G
1/2"=1'-0"



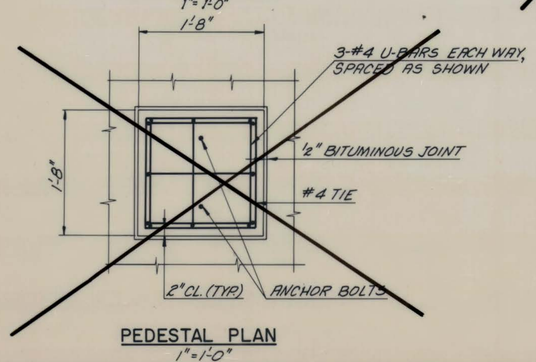
TYP. SECTION THRU PARTITION WALL
1/2"=1'-0"



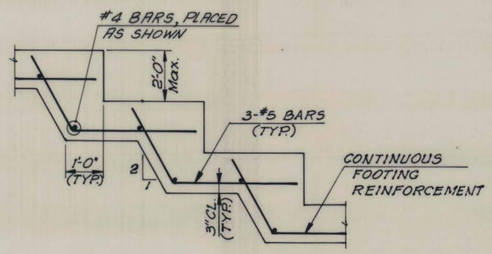
SECTION X-X
1"=1'-0"



SECTION Y-Y
1"=1'-0"



PEDESTAL PLAN
1"=1'-0"



FOOTING STEP DETAIL
NOT TO SCALE

NOTES:
FOR LOCATIONS OF SECTIONS, SEE SHEET NOS. 51 ~~to 60~~

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

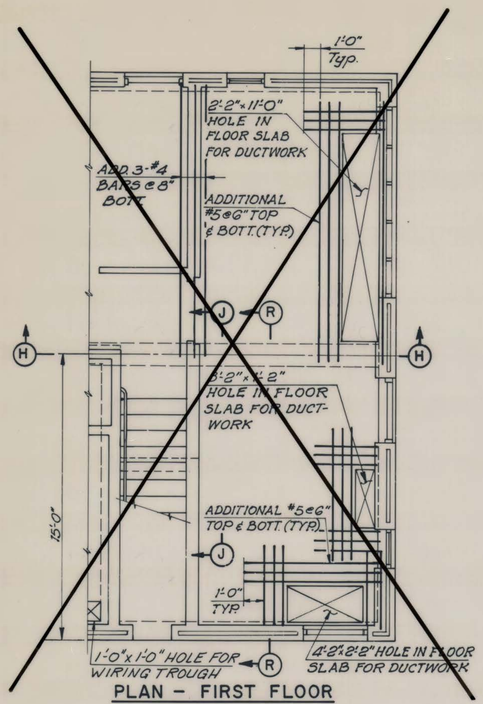
~~BARRIER PLAZA A, B, C &~~ CORRIDOR L
UTILITY BUILDINGS
FOUNDATION DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. S3

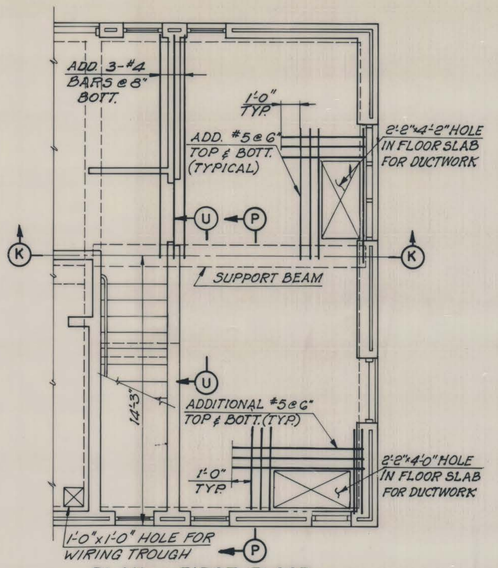
K&E 19 1255 9-77 TEM 2229#

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	94	136



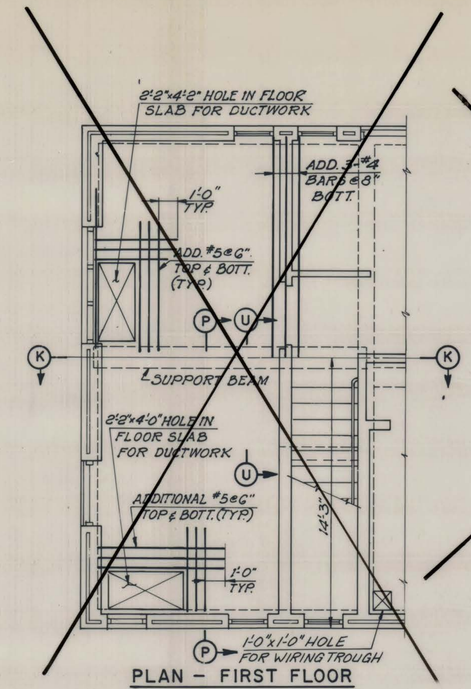
PLAN – FIRST FLOOR

BARRIER PLAZA B & C



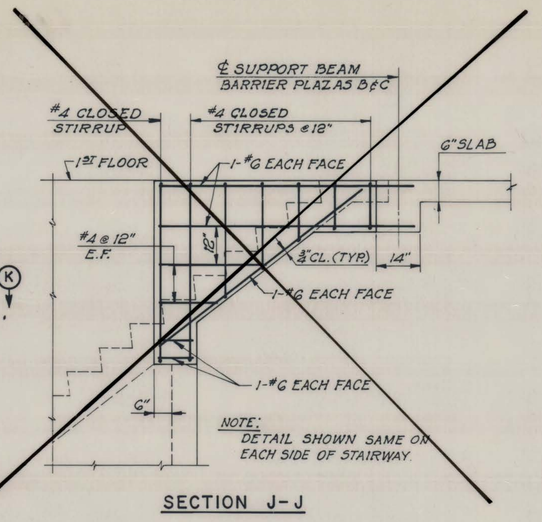
PLAN – FIRST FLOOR

CORRIDOR "L" INTERCHANGE

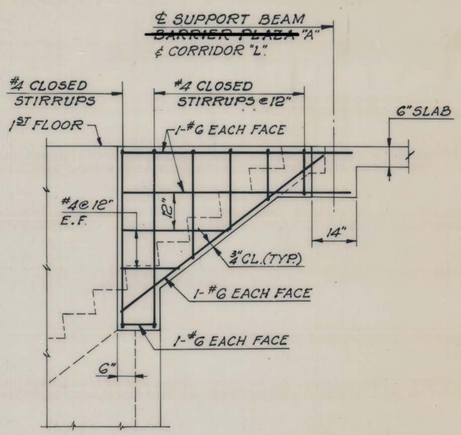


PLAN – FIRST FLOOR

BARRIER PLAZA "A"



SECTION J-J



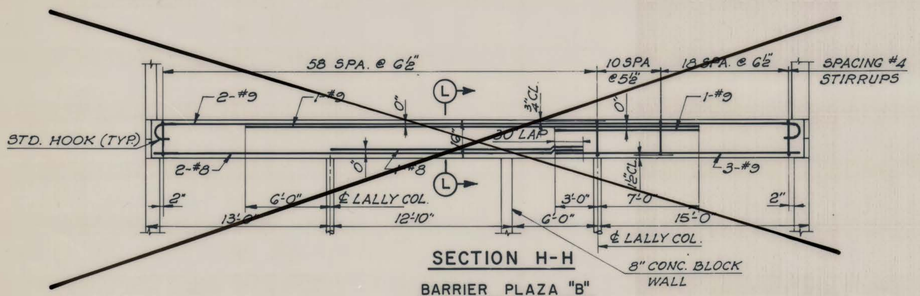
SECTION U-U

CURTAIN WALL DETAILS

1/2"=1'-0"

ADDITIONAL REINFORCEMENT IN FIRST FLOOR SLABS

1/4"=1'-0"

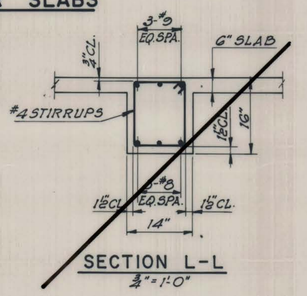


SECTION H-H

BARRIER PLAZA "B"

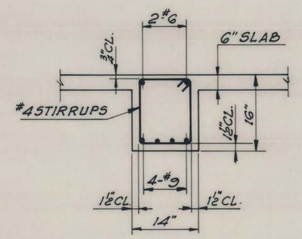
3/8"=1'-0" HORIZ.

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



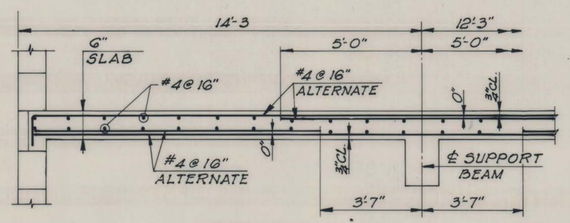
SECTION L-L

3/4"=1'-0"



SECTION N-N

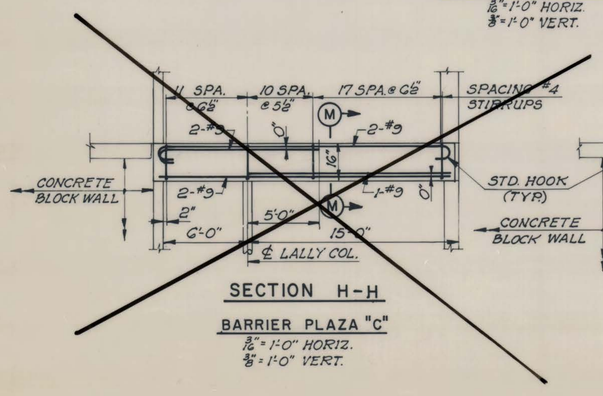
3/4"=1'-0"



SECTION P-P

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

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

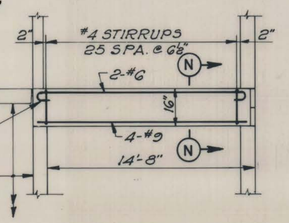


SECTION H-H

BARRIER PLAZA "C"

3/16"=1'-0" HORIZ.

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



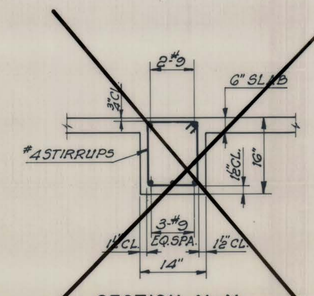
SECTION K-K

CORRIDOR "L" INTERCHANGE

~~BARRIER PLAZA "A"~~

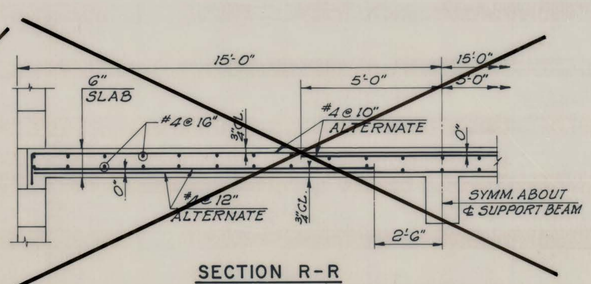
3/16"=1'-0" HORIZ.

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



SECTION M-M

3/4"=1'-0"



SECTION R-R

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

3/4"=1'-0" VERT.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert.

DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

INTERSTATE 77

RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

~~BARRIER PLAZAS A,B,C &~~ CORRIDOR L

UTILITY BUILDINGS

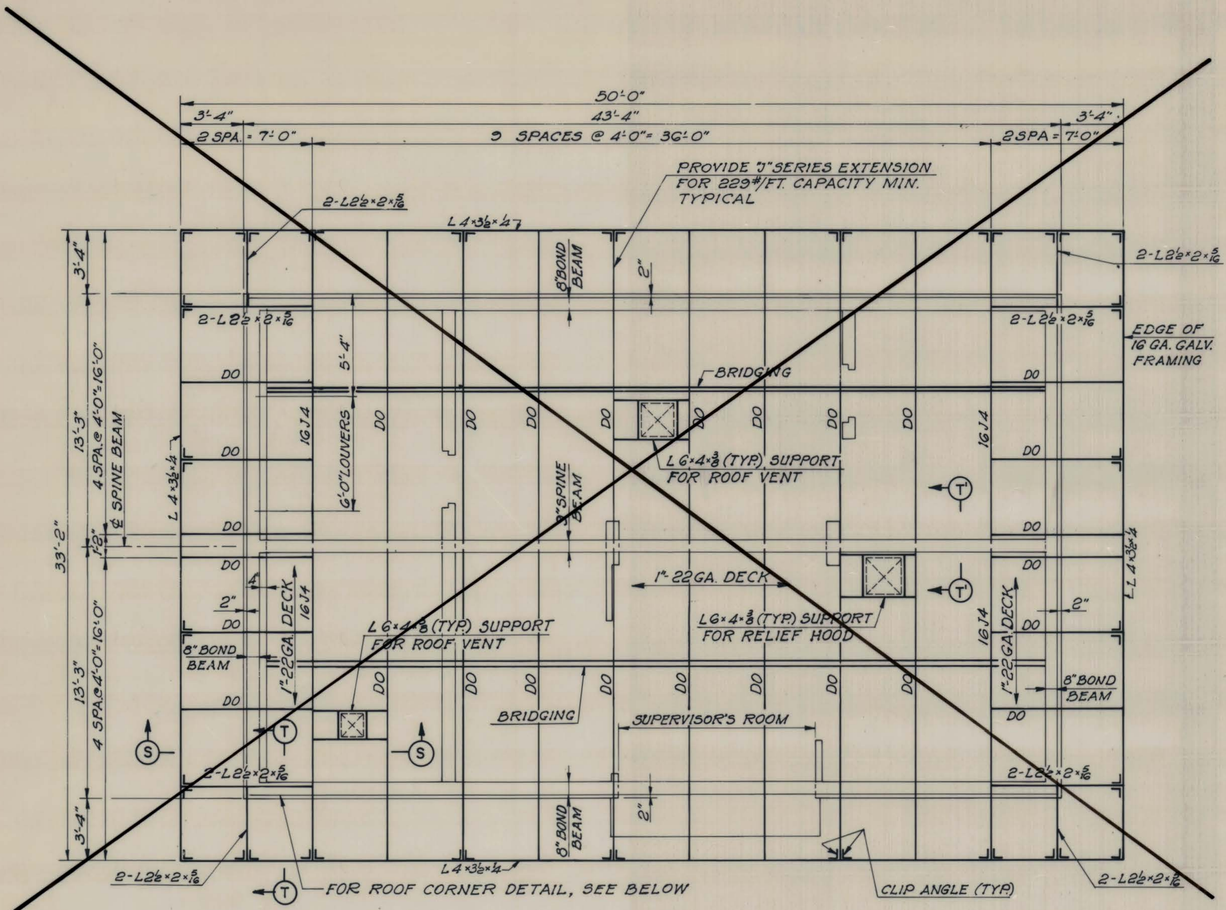
FLOOR AND CURTAIN WALL DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

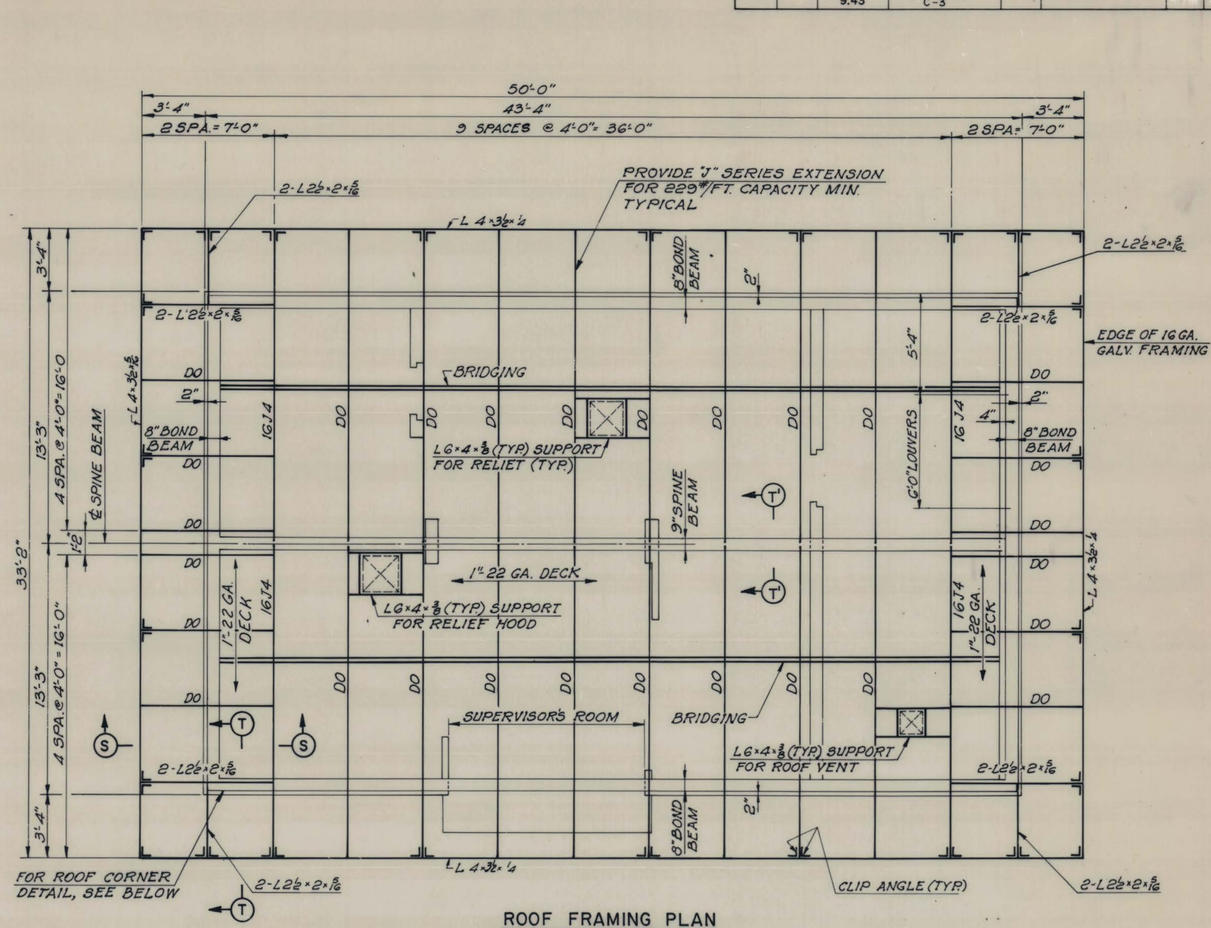
SHEET NO. S4

K&E 19 1255 5-77 TEM 22294

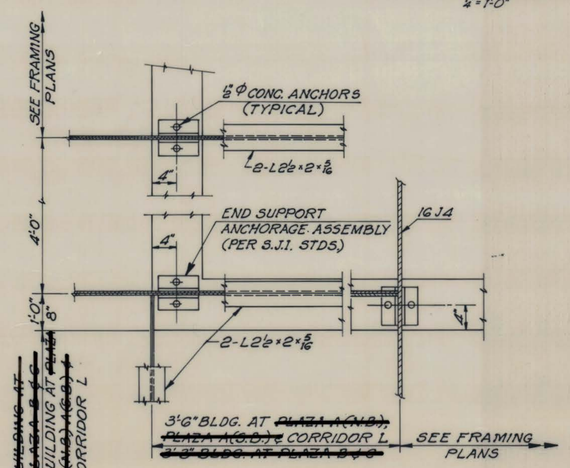
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	RALEIGH	95	136



ROOF FRAMING PLAN
BARRIER PLAZA "A" (2 REQ'D)
4"=1'-0"



ROOF FRAMING PLAN
CORRIDOR "L" INTERCHANGE
4"=1'-0"



ROOF CORNER DETAIL
1"=1'-0"

NOTES:

FOR SECTIONS S-S AND T-T AND T'-T', SEE SHEET S6.

FOR ADDITIONAL DETAILS OF SUPERVISORS ROOM AND LOUVERS, SEE ARCHITECTURAL AND MECHANICAL DRAWINGS.

PROVIDE ONE ROW OF ½"℄ PLAIN BAR BRIDGING TOP AND BOTTOM FOR 16J4 OPEN WEB STEEL JOISTS.

FOR LOCATIONS OF OPENINGS IN ROOF AND STRUCTURAL MEMBER SPACING, SEE MECHANICAL DRAWINGS AND SPECIFICATIONS.

FOR TYPICAL ROOF OPENING DETAIL SEE SHEET S6.

S.J.I. DENOTES STEEL JOIST INSTITUTE.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1/4 = 1'-0" Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

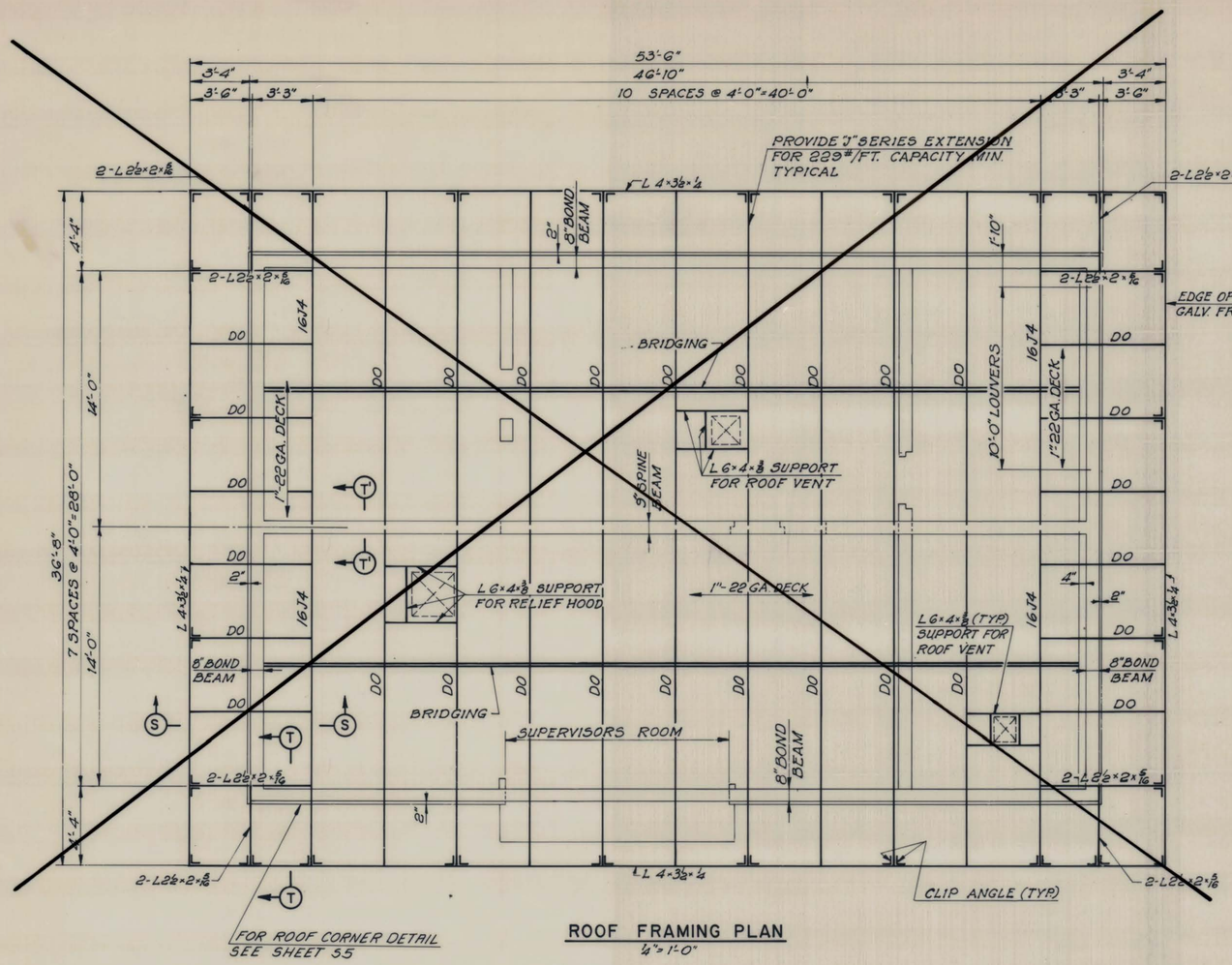
~~BARRIER PLAZA "A" &~~ CORRIDOR "L"
UTILITY BUILDINGS
ROOF FRAMING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

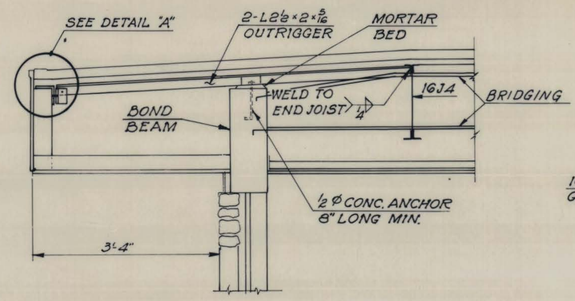
SHEET NO. S5

K&E 19 1255 9-77 TEM 2229+

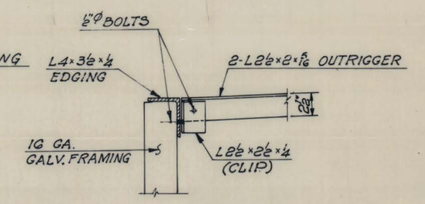
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	77	328 77 9.43	I-77-2(63)9 C-3	79	~~FAYETTE~~ ~~KANAWHA~~	96	136



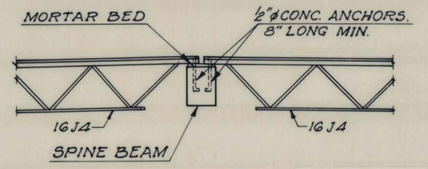
ROOF FRAMING PLAN
¼" = 1'-0"



SECTION S-S
¾" = 1'-0"

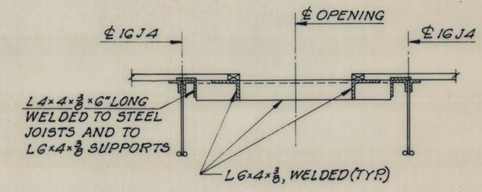


DETAIL "A"
1½" = 1'-0"



SECTION T'-T'
1½" = 1'-0"

NOTE: ROOFING NOT SHOWN.



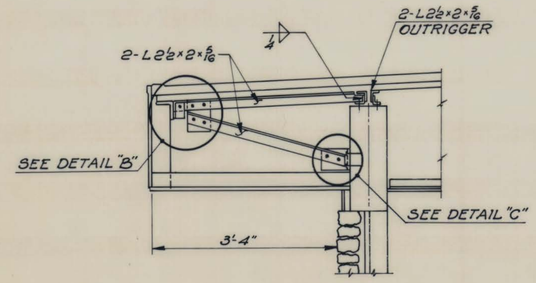
TYPICAL ROOF OPENING DETAIL
¾" = 1'-0"

NOTES:

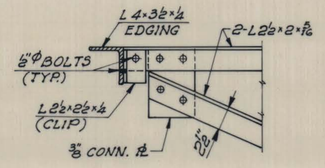
FOR ADDITIONAL DETAILS OF SUPERVISORS ROOM AND LOUVERS SEE ARCHITECTURAL AND MECHANICAL DRAWINGS.

PROVIDE ONE ROW OF ⅝" Ø PLAIN BAR BRIDGING TOP AND BOTT. FOR 16J4 OPEN WEB STEEL JOINTS.

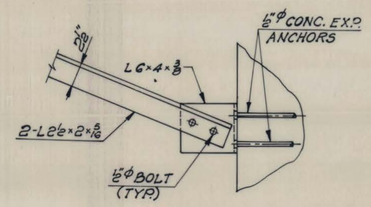
FOR LOCATIONS OF OPENINGS IN ROOF AND STRUCTURAL MEMBER SPACING, SEE MECHANICAL DRAWINGS AND SPECIFICATIONS.



SECTION T-T



DETAIL "B"
1½" = 1'-0"



DETAIL "C"
1½" = 1'-0"

CORRIDOR "L" INTERCHANGE

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. DATE: JULY, 1978

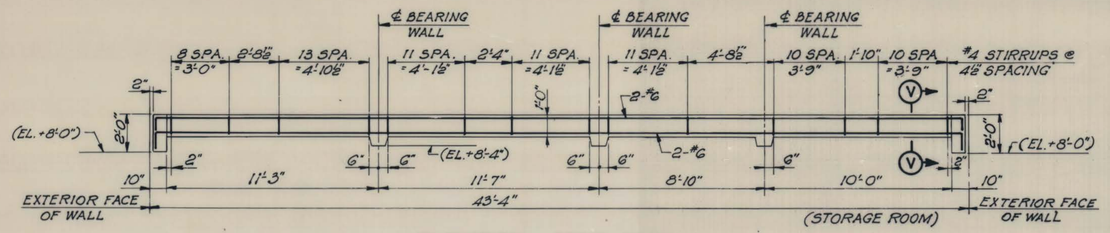
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA COUNTIES~~
~~BARRIER PLAZAS B & C~~
UTILITY BUILDINGS
ROOF FRAMING AND DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. S6

K&E 19 1255 9-77 TEM 22294

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	97	136

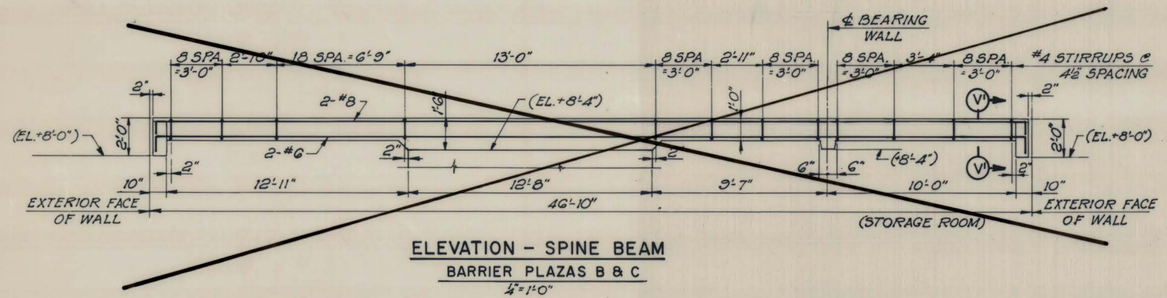


ELEVATION – SPINE BEAM

CORRIDOR L – SHOWN

~~BARRIER PLAZA A OPPOSITE HAND~~

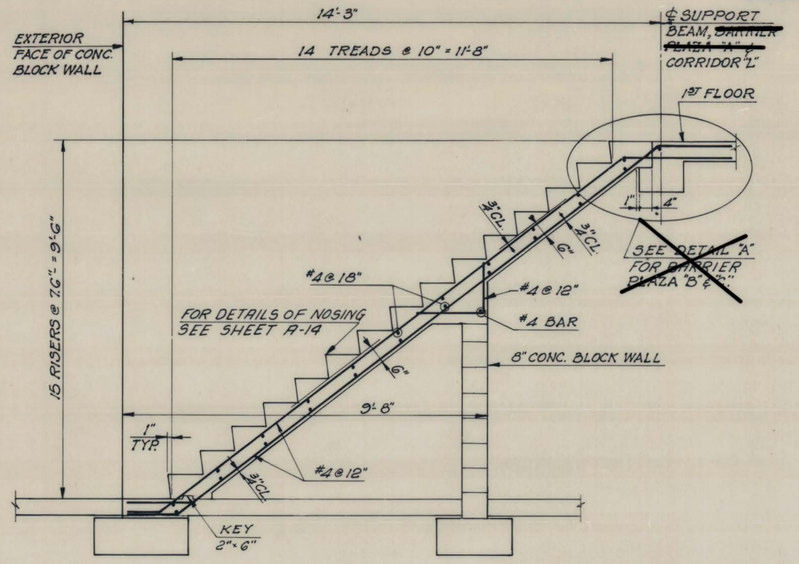
¼"=1'-0"



ELEVATION – SPINE BEAM

BARRIER PLAZAS B & C

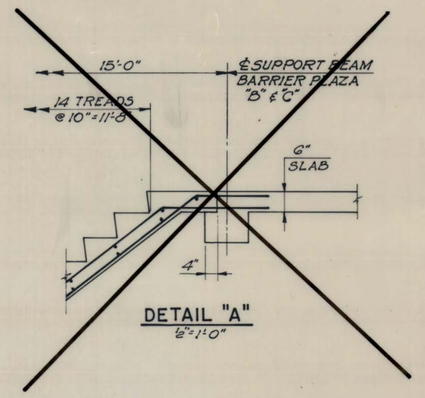
¼"=1'-0"



SECTION · A-A

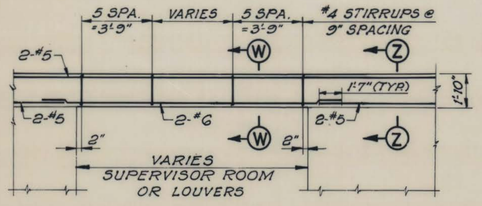
INTERIOR STAIRWAY

½"=1'-0"



DETAIL "A"

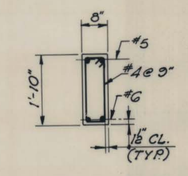
½"=1'-0"



ELEVATION – BOND BEAM

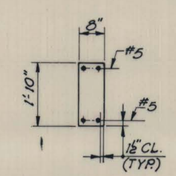
OVER SUPERVISOR'S ROOM OR LOUVERS

½"=1'-0"



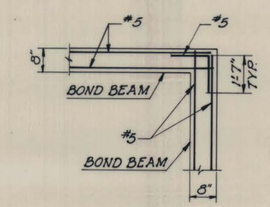
SECTION W-W

½"=1'-0"



SECTION Z-Z

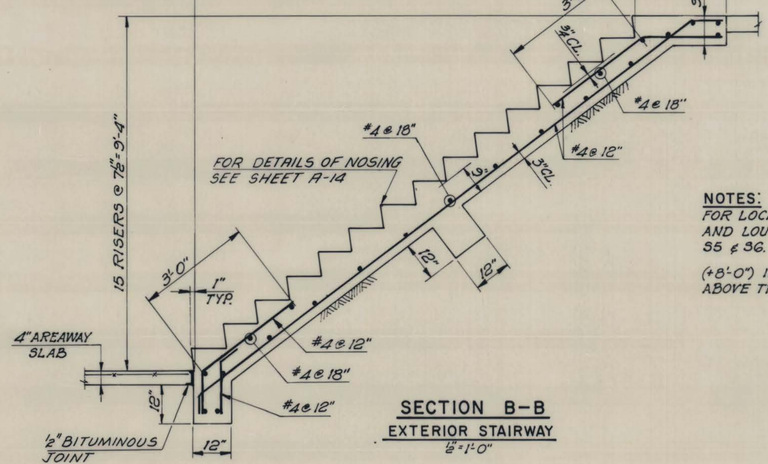
½"=1'-0"



PLAN

TYPICAL CORNER DETAIL

½"=1'-0"



SECTION B-B

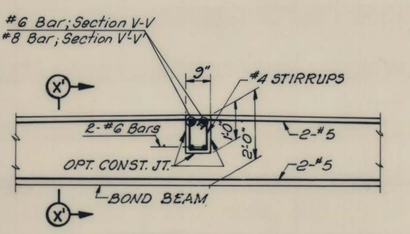
EXTERIOR STAIRWAY

½"=1'-0"

NOTES:

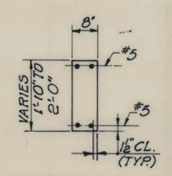
FOR LOCATIONS OF SUPERVISORS ROOM AND LOUVER LOCATIONS, SEE SHEETS 35 & 36.

(+8'-0") INDICATES THE DISTANCE OF MEMBER ABOVE THE TOP OF FIRST FLOOR SLAB.



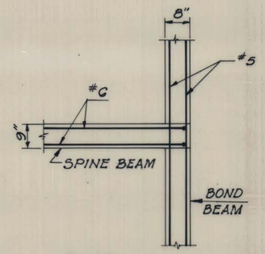
SECTION V-V
SECTION V'-V'

2"=1'-0"



SECTION X'-X'

½"=1'-0"



PLAN

TYPICAL BEAM CONNECTION DETAIL

½"=1'-0"

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. | DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

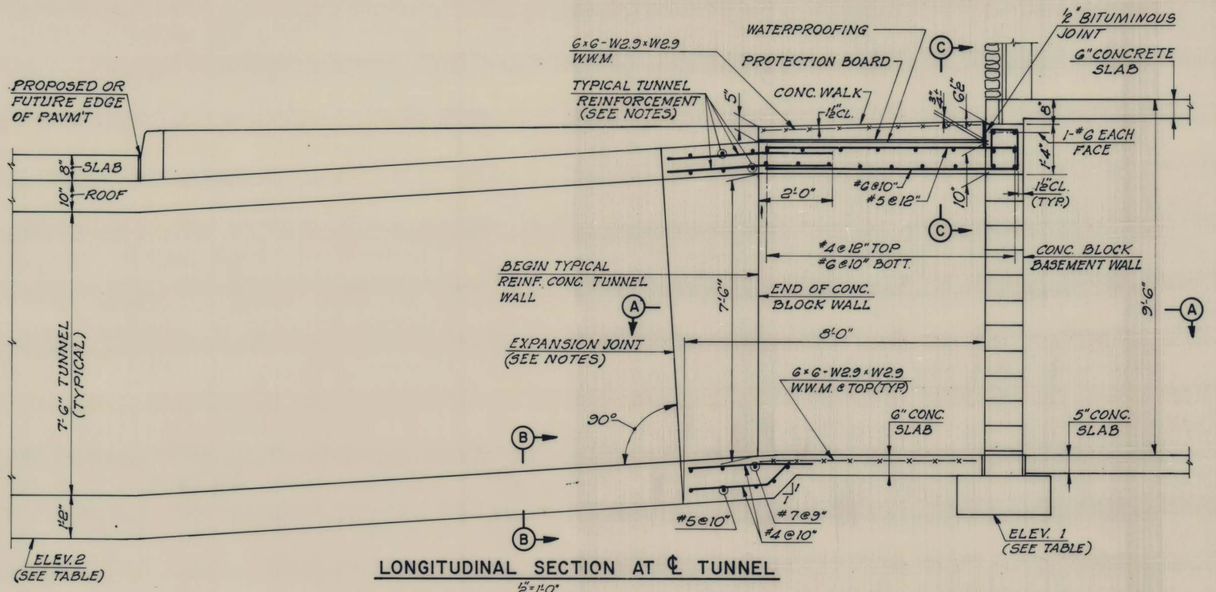
~~BARRIER PLAZAS A,B,C &~~ CORRIDOR L
UTILITY BUILDINGS
BEAM AND STAIRWAY DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. S7

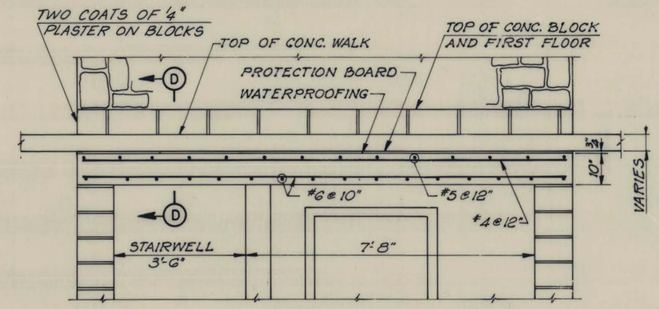
K&E 19 1255 9-77 TEM 2229#

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	RALEIGH ~~FAYETTE KANAWHA~~	98	136



LONGITUDINAL SECTION AT ℄ TUNNEL

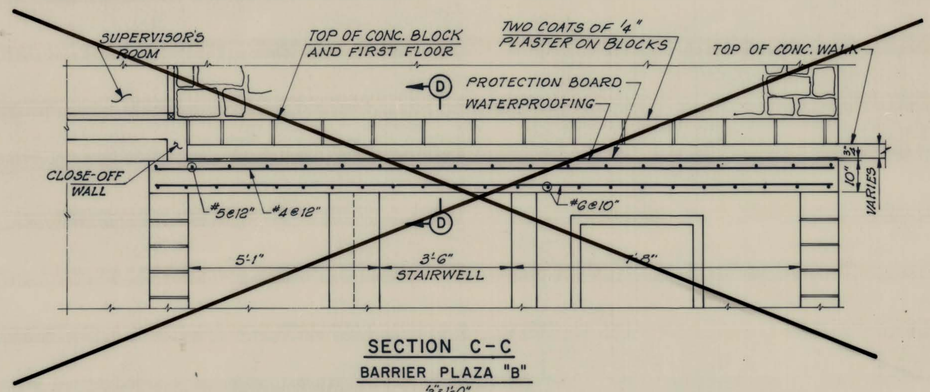
½"=1'-0"



SECTION C-C

~~BARRIER PLAZAS A, C, & L~~ CORRIDOR L

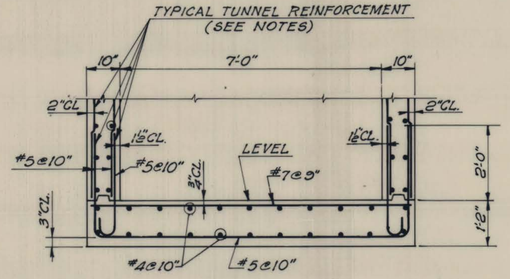
½"=1'-0"



SECTION C-C

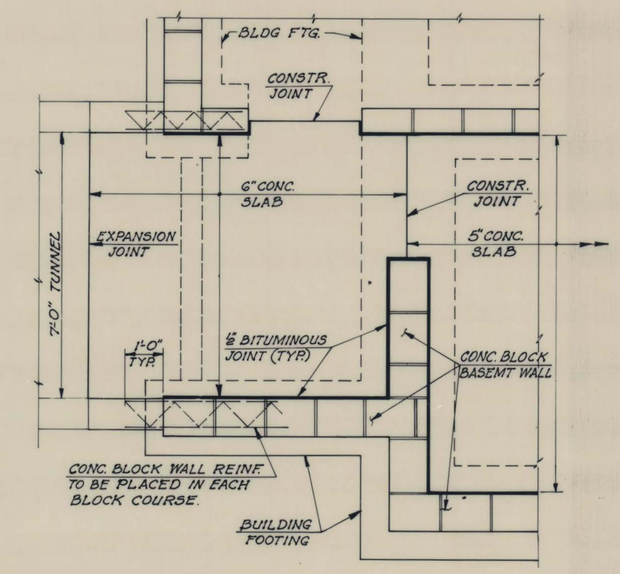
BARRIER PLAZA "B"

½"=1'-0"



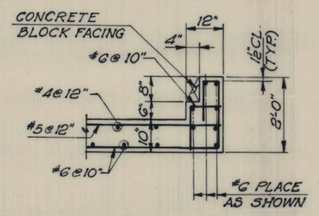
SECTION B-B

½"=1'-0"



SECTION A-A

½"=1'-0"



SECTION D-D

(THROUGH STAIRWELLS ONLY)

½"=1'-0"

TABLE OF ELEVATIONS

LOCATION	ELEV. 1	ELEV. 2
~~BARRIER PLAZA "A" N.B.~~	~~2032.36~~	~~2031.62~~
~~BARRIER PLAZA "A" S.B.~~	~~2021.74~~	~~2020.04~~
~~BARRIER PLAZA "B"~~	~~1616.03~~	~~1615.29~~
~~BARRIER PLAZA "C"~~	~~803.23~~	~~802.11~~
CORRIDOR "L"	2309.25	2307.66

NOTES:

FOR TUNNEL REINFORCEMENT, SEE SHEET NO. P10.

FOR DETAILS OF EXPANSION JOINT SEE SHEET NO. P18.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. ½"=1'-0" Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS

INTERSTATE 77

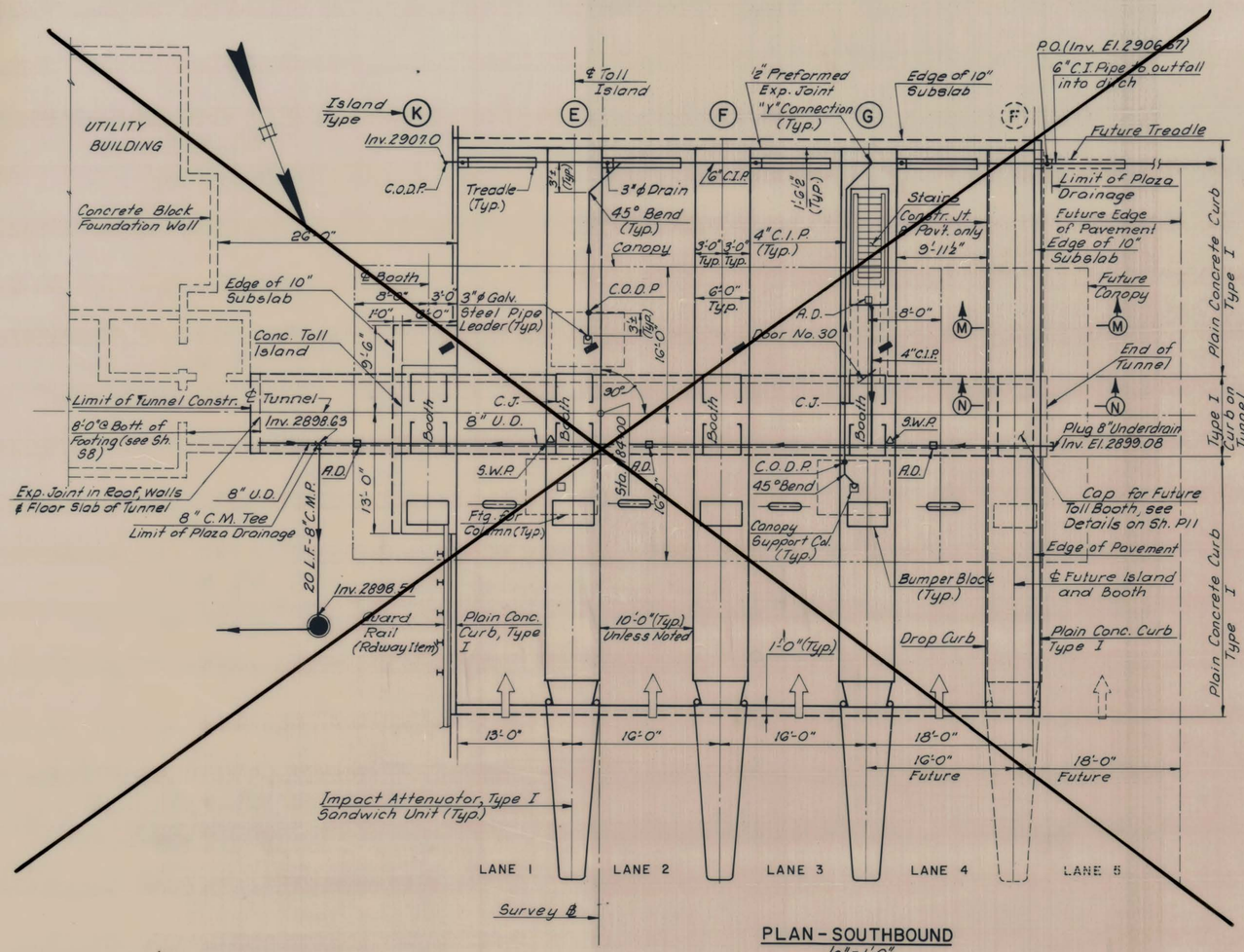
RALEIGH, ~~FAYETTE, & KANAWHA~~ COUNTIES

BARRIER PLAZAS A,B,C, & CORRIDOR L
UTILITY BUILDINGS
BUILDING TO TUNNEL CONNECTION DETAILS

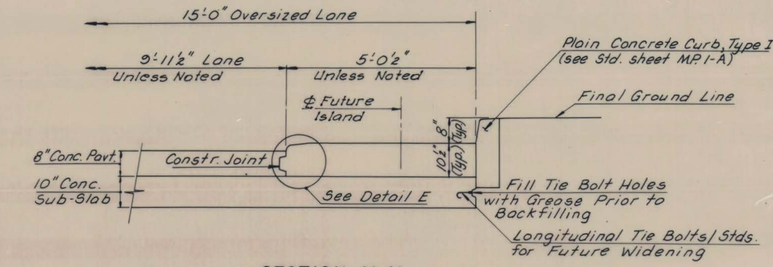
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. S8

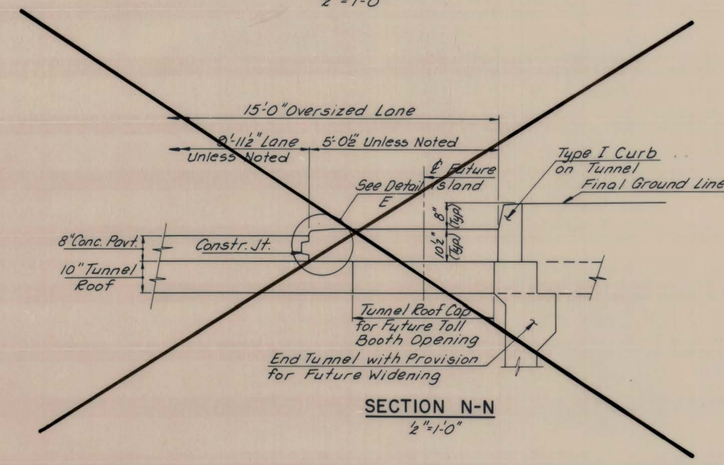
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	RALEIGH	99	136



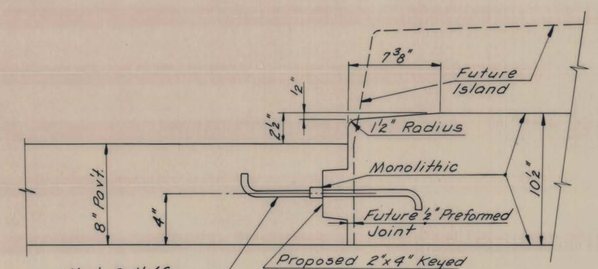
PLAN - SOUTHBOUND
⅛"=1'-0"



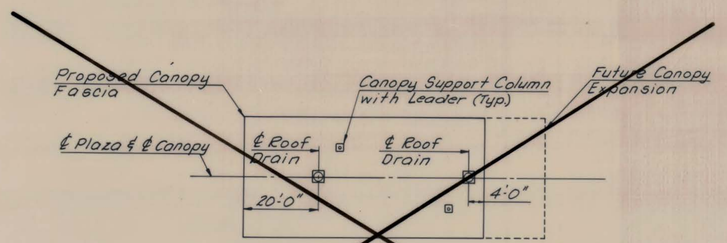
SECTION M-M
½"=1'-0"



SECTION N-N
½"=1'-0"



DETAIL E
2"=1'-0"



NOTES:

Canopy roof drain locations are typical for N.B. & S.B. Plazas.

Canopy Leaders = 3" ϕ galvanized steel pipe.

CANOPY ROOF DRAIN LOCATION PLAN
No Scale

CONSTRUCTION NOTE:

All Toll Plaza Concrete shall be cast-in-place construction. No prefabricated or precast concrete construction will be allowed.

NOTES:

Invert Elevation of Tunnel = El. 2901.41.

For location of Invert Elev. see "Section thru Tunnel between Islands" on Sheet No. P10.

C.O.D.P. denotes Cleanout with deck plate.

A.D. denotes Area Drain.

C.J. denotes Contraction Joint in Tunnel, Walls and Floor Slab.

E.J. denotes Expansion Joint in Tunnel, Walls and Floor Slab.

P.O. denotes Plugged Outlet.

△ S.W.P. denotes 1¼" I.D. sleeve for ¾" ϕ water pipe, see Sheets No. P8 & P11.

U.D. denotes Underdrain

▭ denotes Loop Detector, for details see "Loop Detector Installation Details" Sheet No. P15.

For details of Island Types A thru K see Sheets No. P8 and P9.

For details of 3" ϕ Leader and 4" C.I.P. see Sheet No. P13.

For details of Guard Rail Connection to Bumper Block see Sheet No. P9.

◆ Denotes Toll Indicator to be installed by Toll Equipment Contractor.

CORRIDOR "L" INTERCHANGE

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. | DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

~~BARRIER PLAZA A SOUTHBOUND~~
TOLL PLAZA PLOT PLAN & DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P1

K&E 19 1255 9-77 TEM 2229+

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
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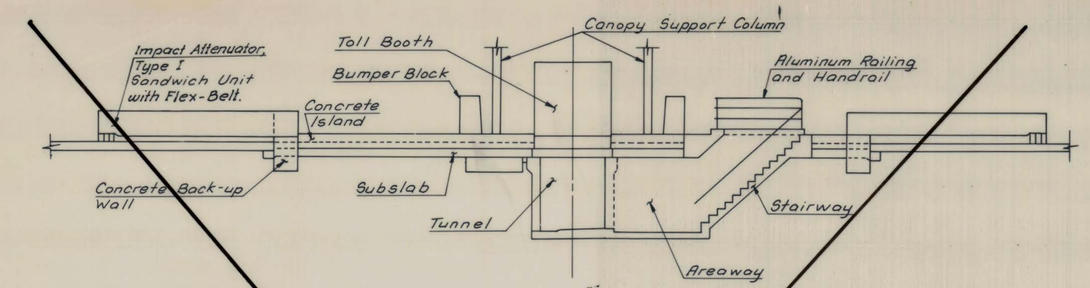
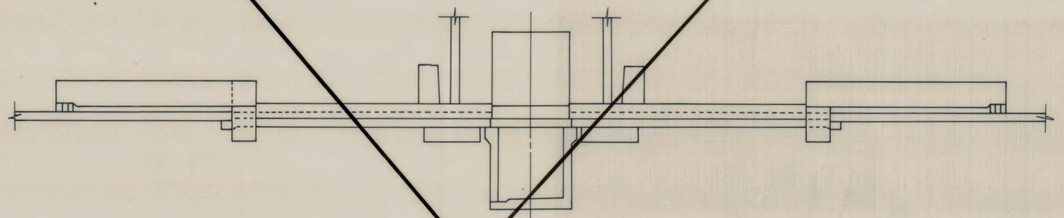
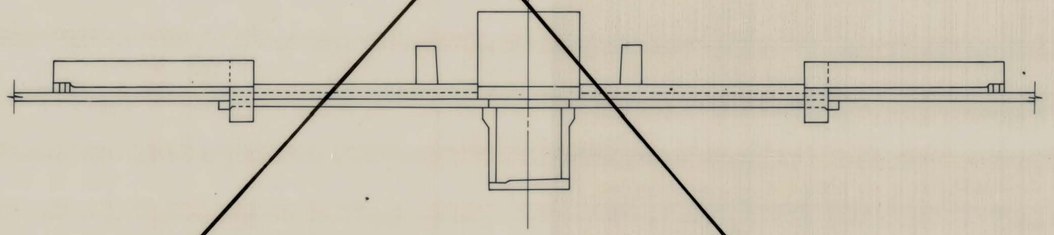


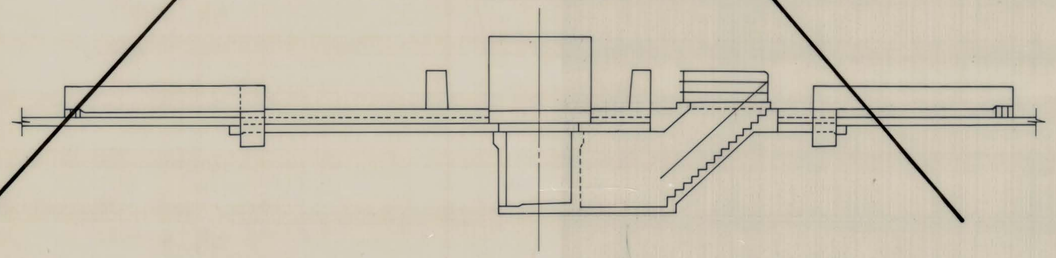
ISLAND TYPE A



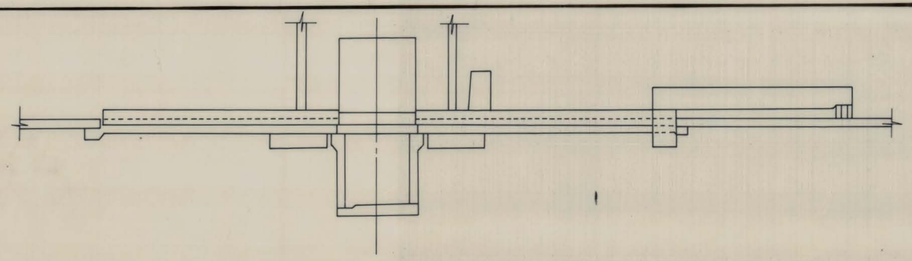
ISLAND TYPE B



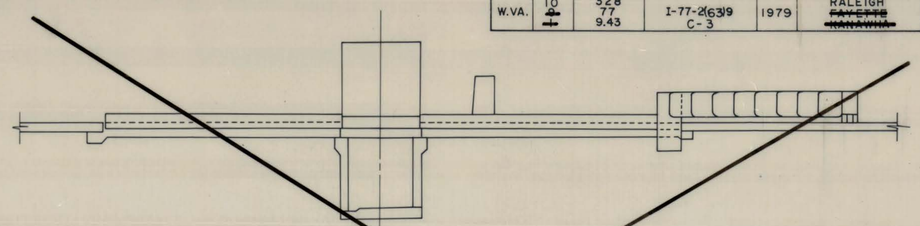
ISLAND TYPE C



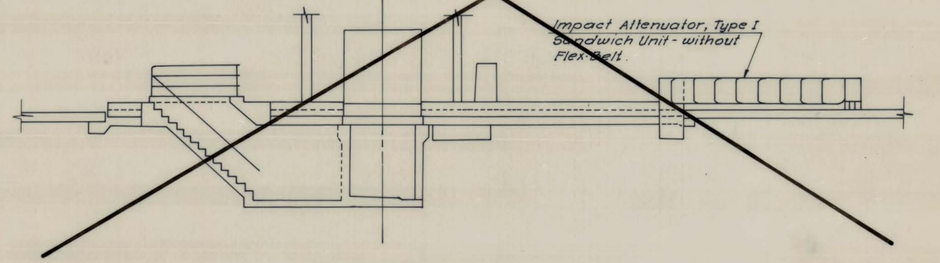
ISLAND TYPE D



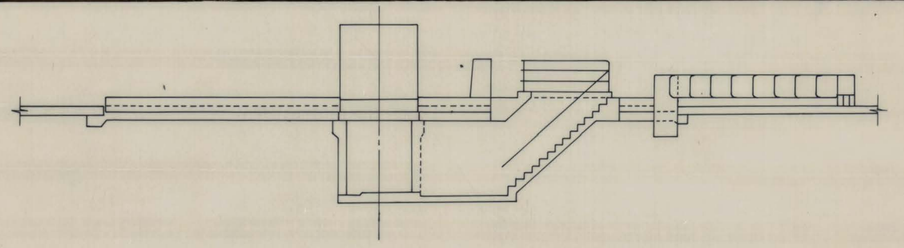
ISLAND TYPE E



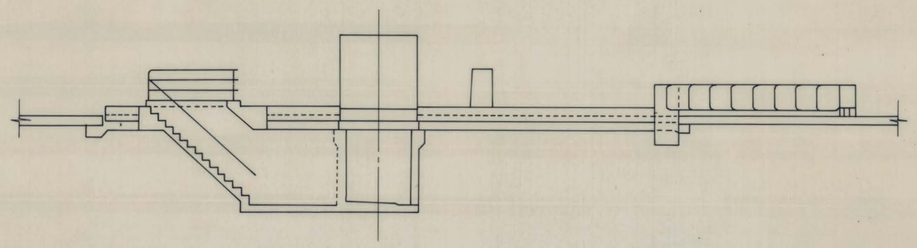
ISLAND TYPE F



ISLAND TYPE G



ISLAND TYPE H



ISLAND TYPE I

NOTES:

For Locations of Island Types A to I see Toll Plaza Plot Plans.

For all Islands shown on this sheet the traffic is in the direction shown here: ◄ TRAFFIC

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

~~BARRIER PLAZAS A,B,C & G~~ CORRIDOR L
TOLL ISLAND ELEVATIONS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P6

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
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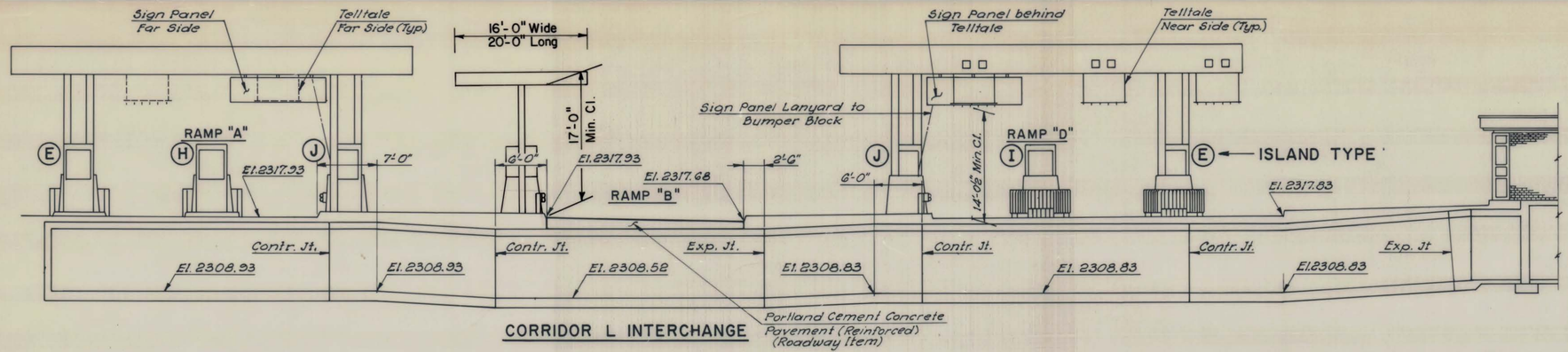
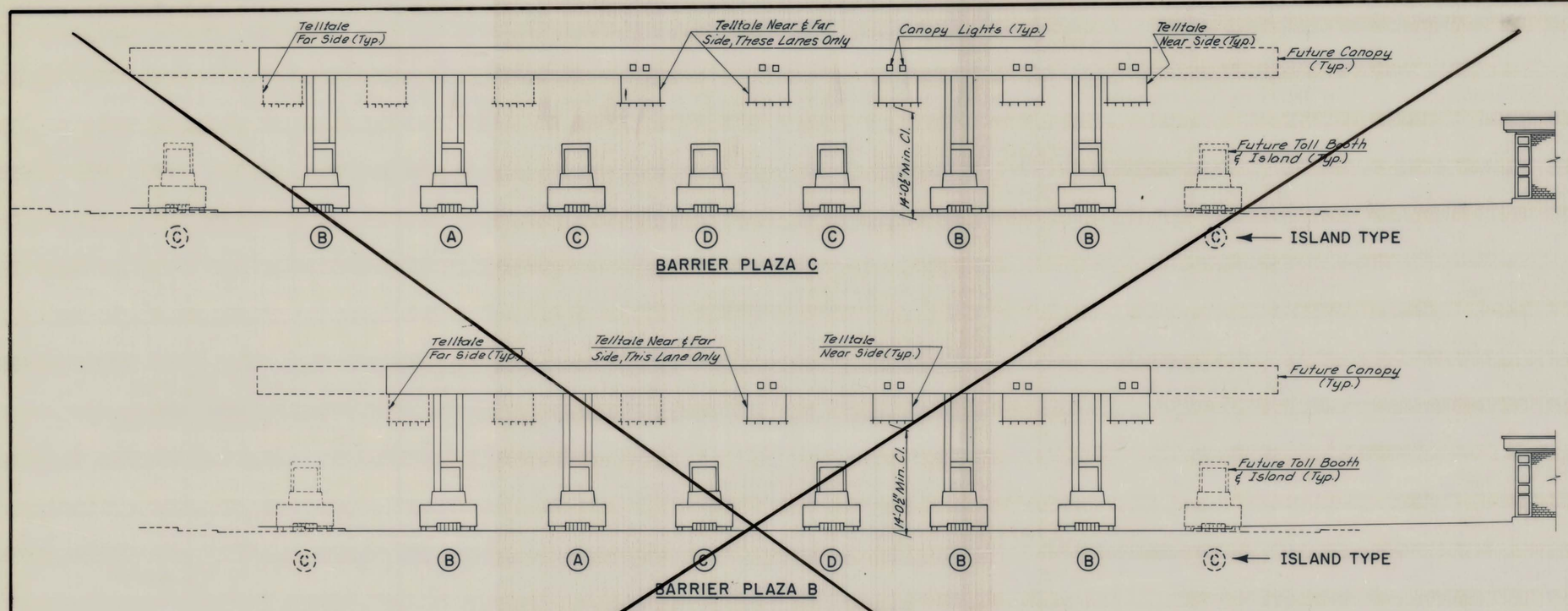
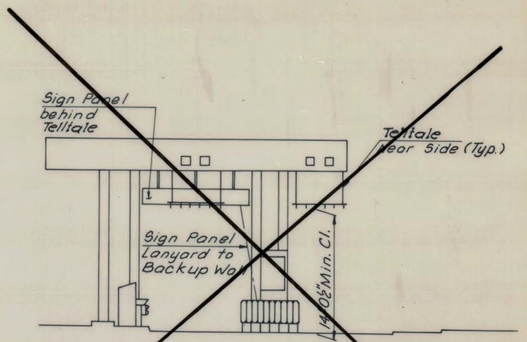


CORRIDOR L INTERCHANGE





TWO LANE RAMP PLAZA

MARMET INTERCHANGE

NOTES:

For details of Island Types see sheets P6, P8 and P9.

~~For details of Two Lane Ramp Plazas see sheet P18.~~

Tunnels not shown at Barrier Plazas A, B and C.
For Details of Temporary Islands & Canopy, See Sheet P20 and "Special Provisions for Temporary Toll Facilities at Ramps B and C."

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1/8"= 1'-0" Vert. 1/8"=1'-0" | DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

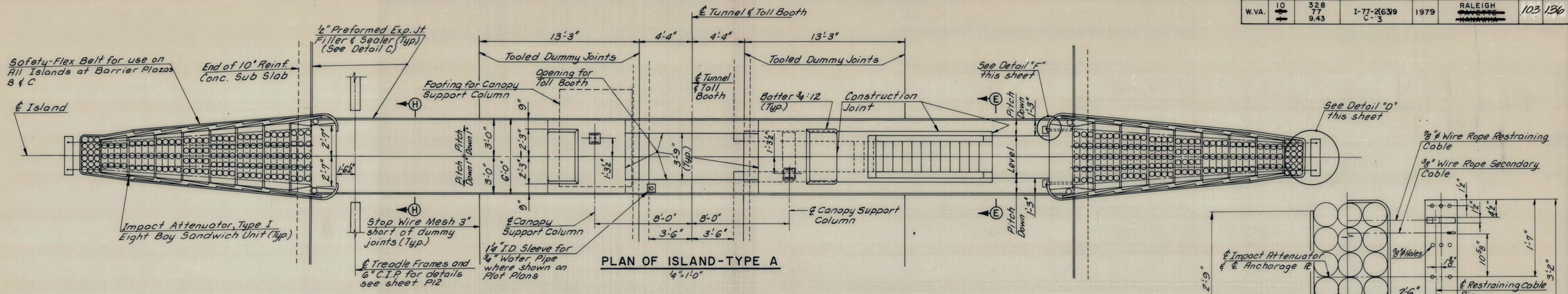
~~BARRIER PLAZAS A,B,C &~~ CORRIDOR L
~~AND TWO LANE RAMP PLAZAS~~
TOLL PLAZA ELEVATIONS

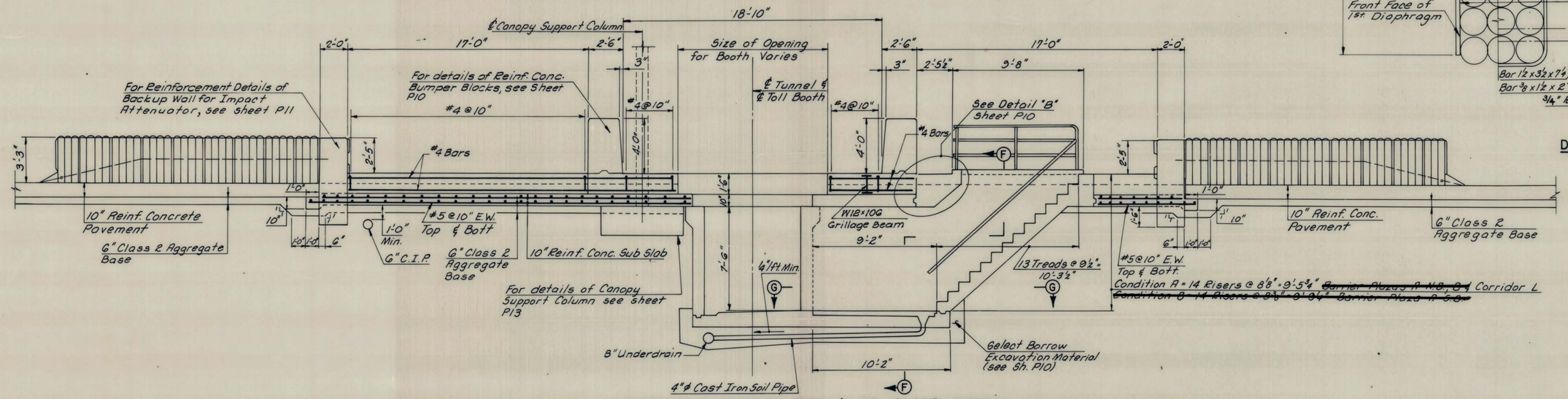
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

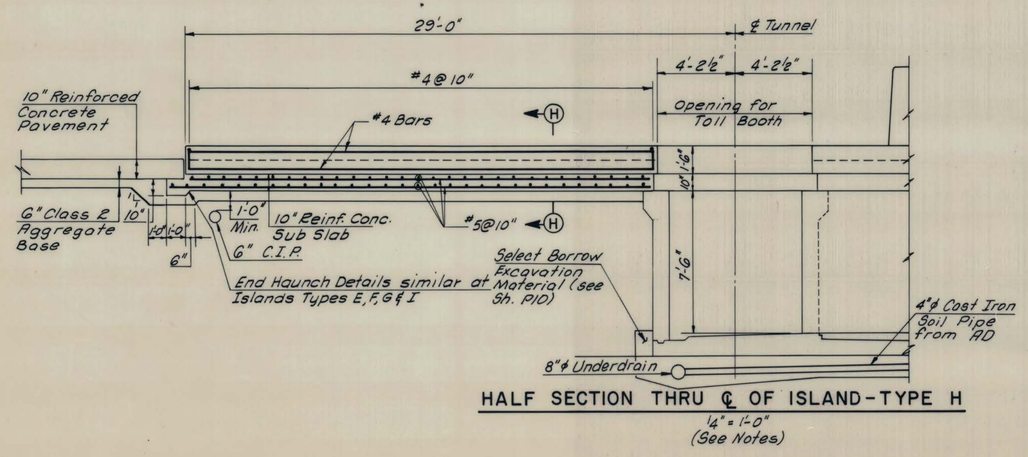
SHEET NO. P7

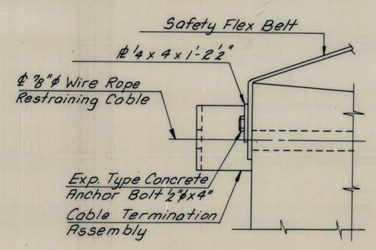
K&E 19 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10 / 77	328 / 9.43	I-77-2(63)9 C-3	1979	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	103	136









NOTES:

1. Toll Islands Type B, C & D are similar to Toll Island Type 'A' except as shown on "Toll Plaza Plot Plans" and "Toll Island Elevations" Sheets.
2. Toll Islands Type E, F, G & I are similar to Toll Island 'H' except as shown on "Toll Plaza Plot Plans" and "Toll Island Elevations" Sheets.
3. For Sections E-E, F-F, G-G and H-H see Sheet P10.
4. For locations of Treadles, see Toll Plaza Plot Plans.
5. For additional details on stairways and steps, see sheet P10.
6. All reinforcing bar edge clearances shall be 2" unless noted otherwise.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1/4"= 1'-0" Vert. | DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

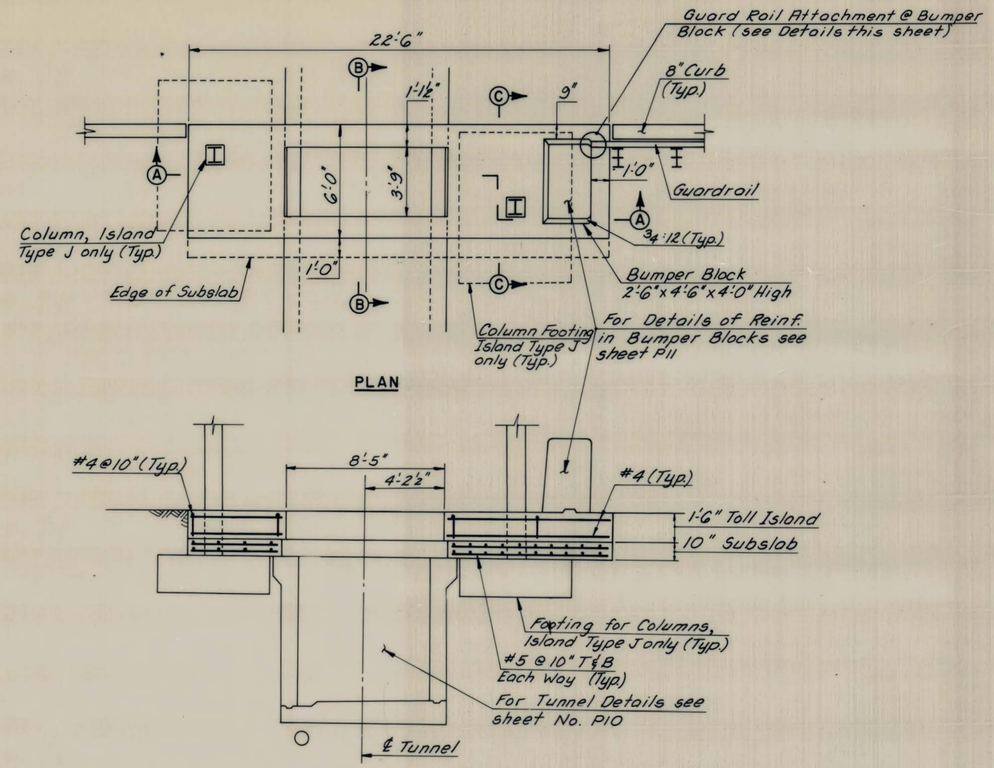
~~BARRIER PLAZAS A, B, C & D~~ CORRIDOR L
ISLAND LAYOUT TYPES A TO I

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P8

K&E 19 1255 9-77 TEM 2229+

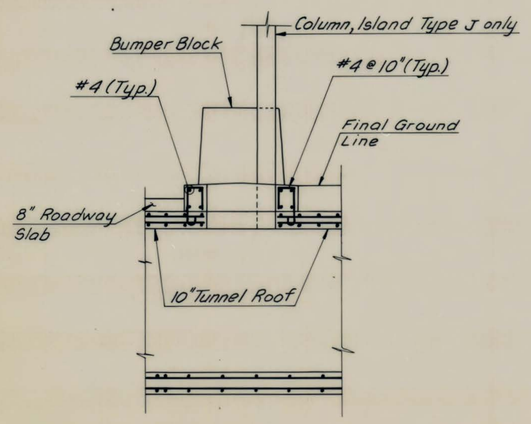
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOT. SHEE
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	1979	RALEIGH	104	136



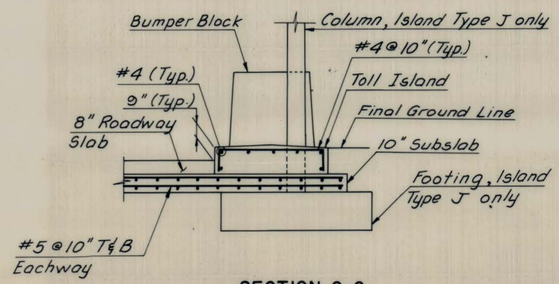
PLAN

SECTION A-A

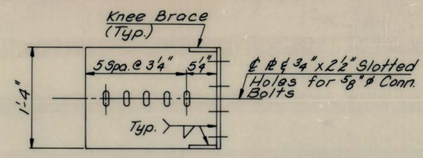
ISLAND TYPE J
(ISLAND TYPE K SIMILAR)
4"=1'-0"



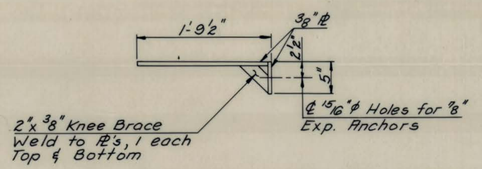
SECTION B-B
4"=1'-0"



SECTION C-C
4"=1'-0"



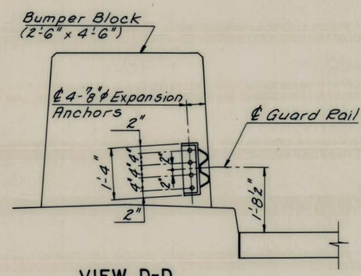
ELEVATION



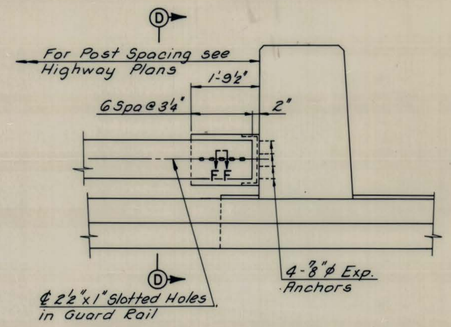
PLAN

ATTACHMENT ASSEMBLY DETAILS
1"=1'-0"

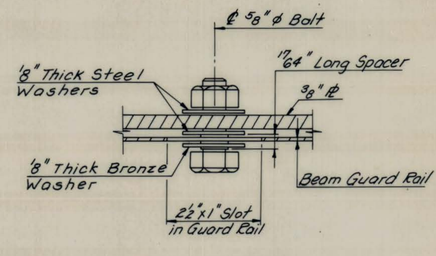
NOTE:
Entire Plate Assembly to be Hot-Dipped Galvanized.



VIEW D-D
2"=1'-0"



GUARD RAIL ATTACHMENT AT BUMPER BLOCK
½"=1'-0"



SECTION F-F
Half Scale

NOTE
Bolts, Spacers and Steel Washers to be Hot-Dipped Galvonized.

NOTES:

Columns and Column Footings occur at Island Type 'J' only.

For locations of Island Types J & K see Barrier Plaza A and Corridor 'L' Plaza Plot Plans.

For details of Column base plates, footing sizes, footing reinforcement and column construction see sheet No. P13.

For details of Tunnel Construction see Sheets No. P8 & P10.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS NOTED Vert. | DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY
~~BARRIER PLAZA A & B~~ CORRIDOR L
ISLAND TYPES J & K
LAYOUT AND DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P9

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
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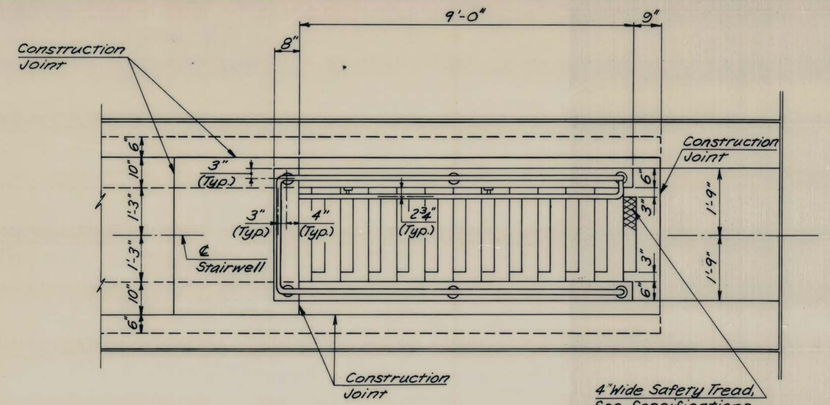
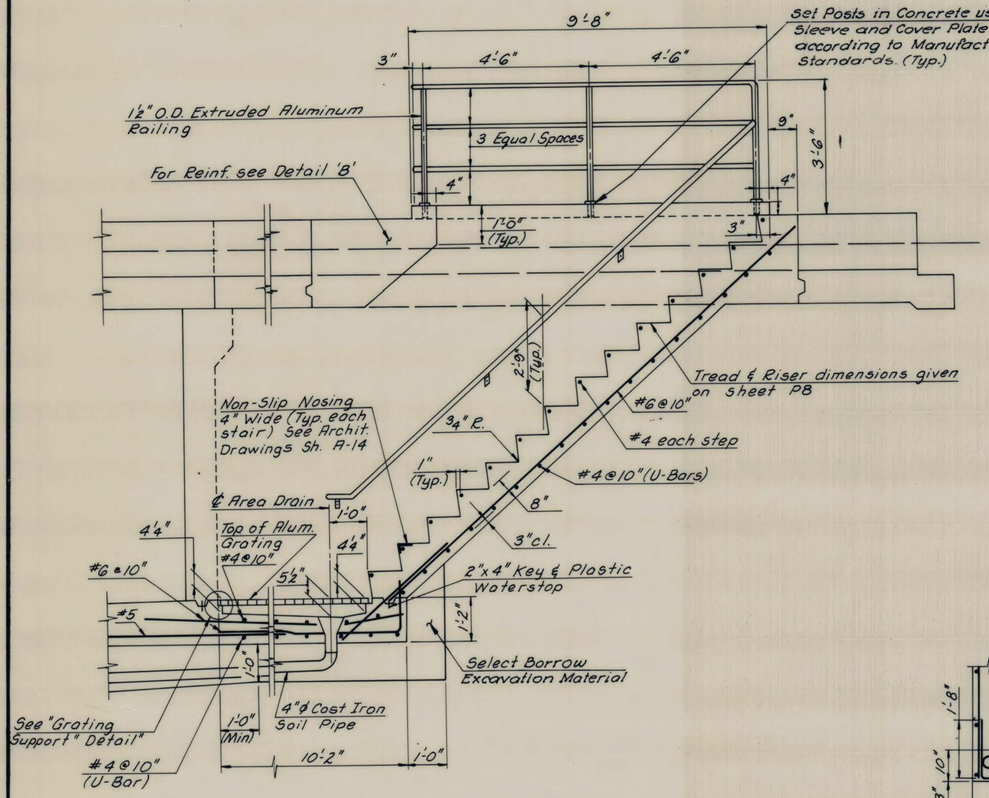
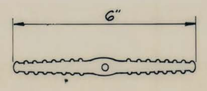


PLAN

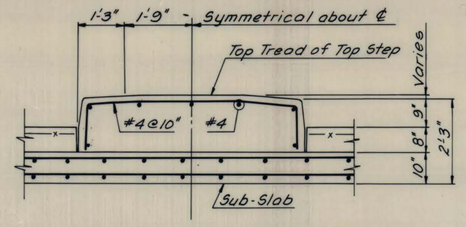


ELEVATION

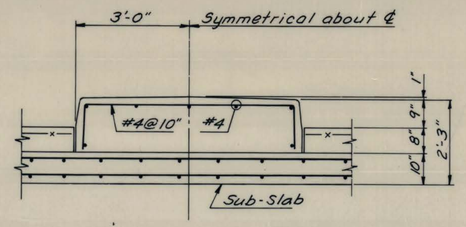
STAIRWAY AND STEP DETAILS
½"=1'-0"



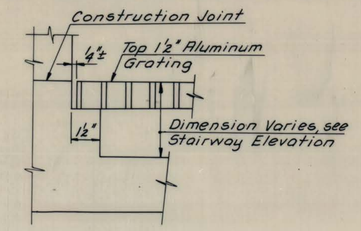
DETAIL OF PLASTIC WATERSTOP
Not to Scale



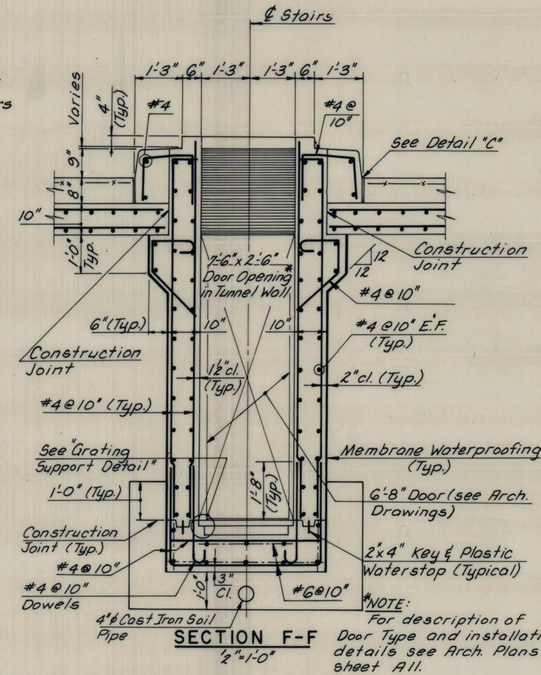
SECTION E-E
½"=1'-0"



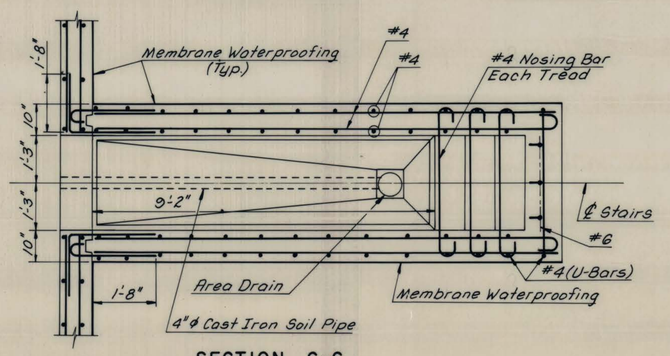
SECTION H-H
½"=1'-0"



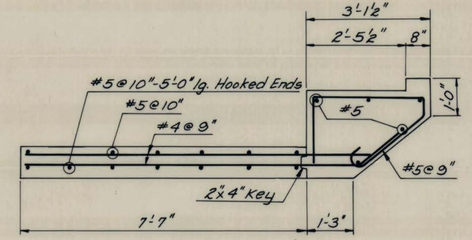
GRATING SUPPORT DETAIL
¼"=1'-0"



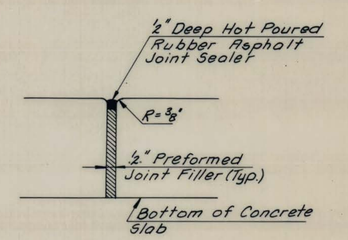
SECTION F-F
½"=1'-0"



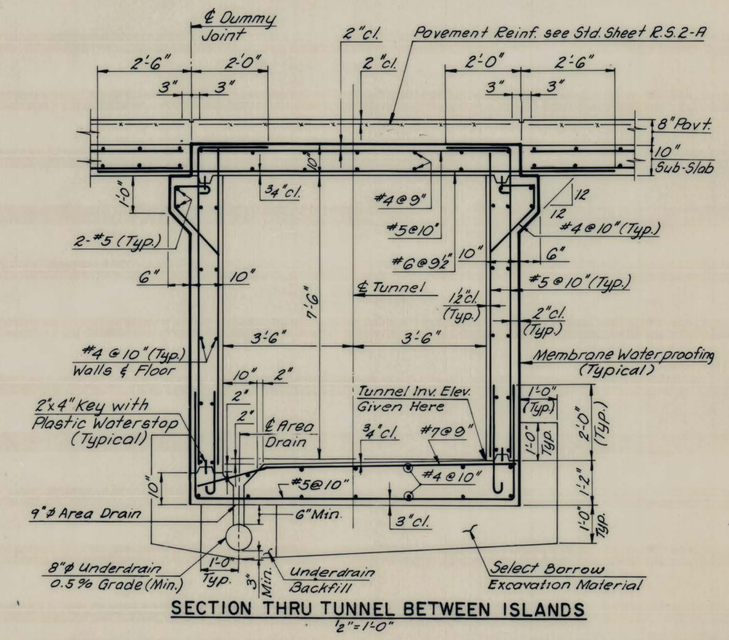
SECTION G-G
½"=1'-0"



DETAIL "B"
½"=1'-0"



DETAIL "C"
3"=1'-0"



SECTION THRU TUNNEL BETWEEN ISLANDS
½"=1'-0"

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS NOTED Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

~~BARRIER PLAZAS A, B, C &~~ CORRIDOR L
TUNNEL AND TOLL ISLAND DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P10

K&E 10 1255 5-77 TEM 22294

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
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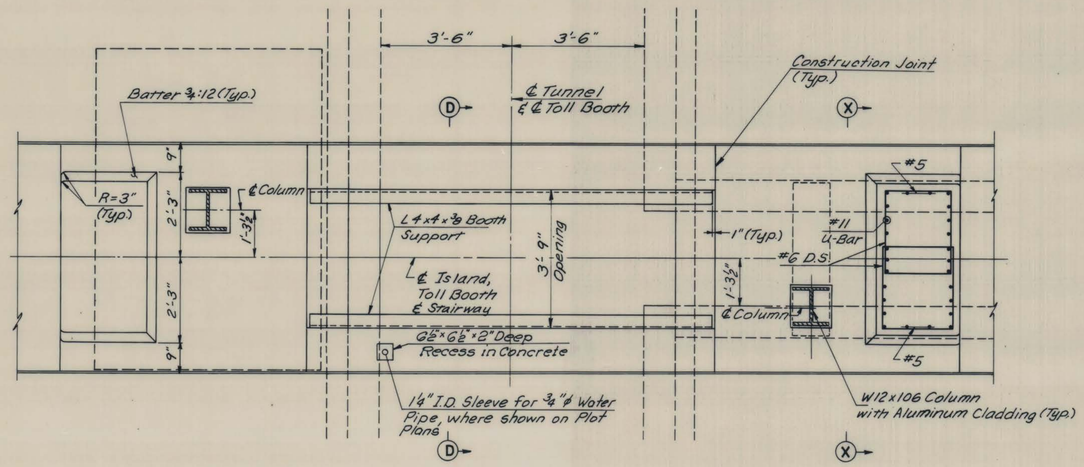
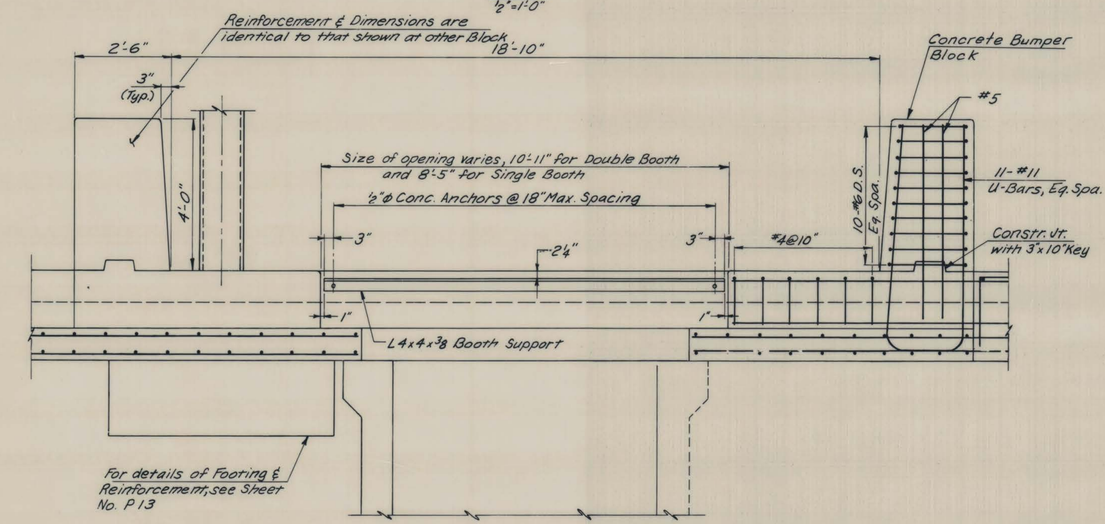
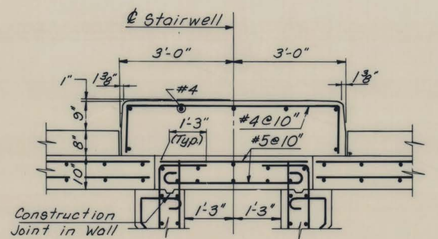


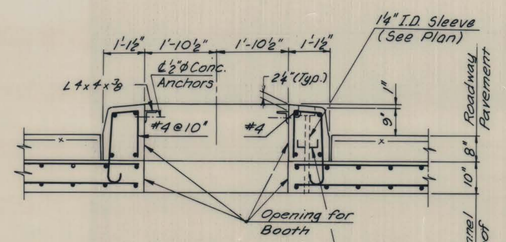
PLAN
½"=1'-0"



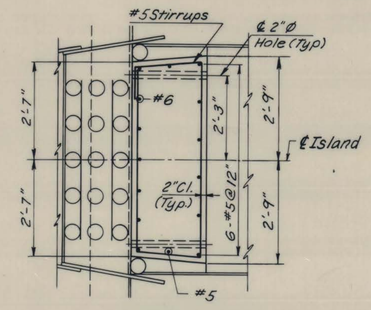
LONGITUDINAL SECTION THRU ℄ OF ISLAND
½"=1'-0"



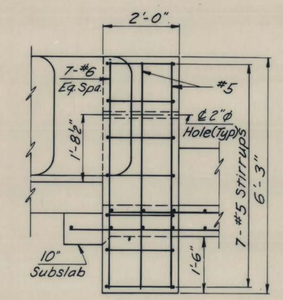
SECTION X-X
½"=1'-0"



SECTION D-D
½"=1'-0"

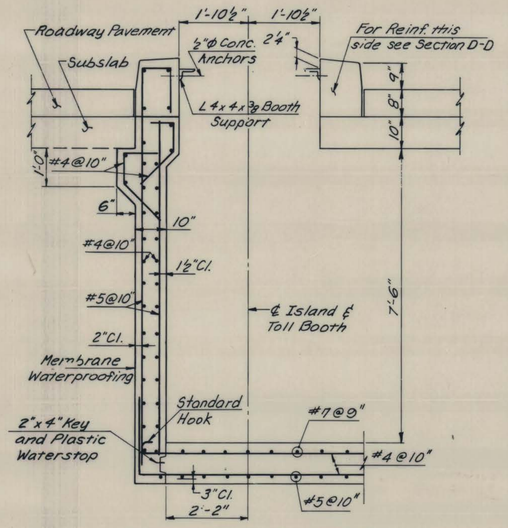


PLAN

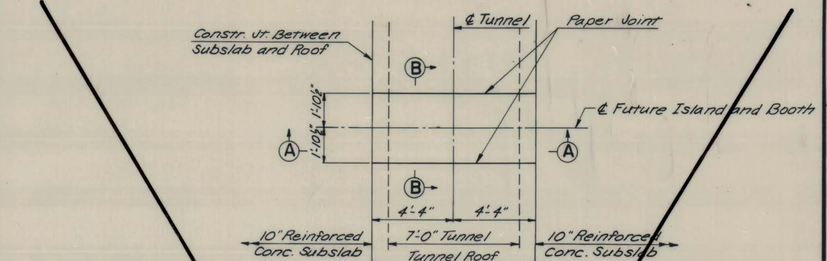


ELEVATION

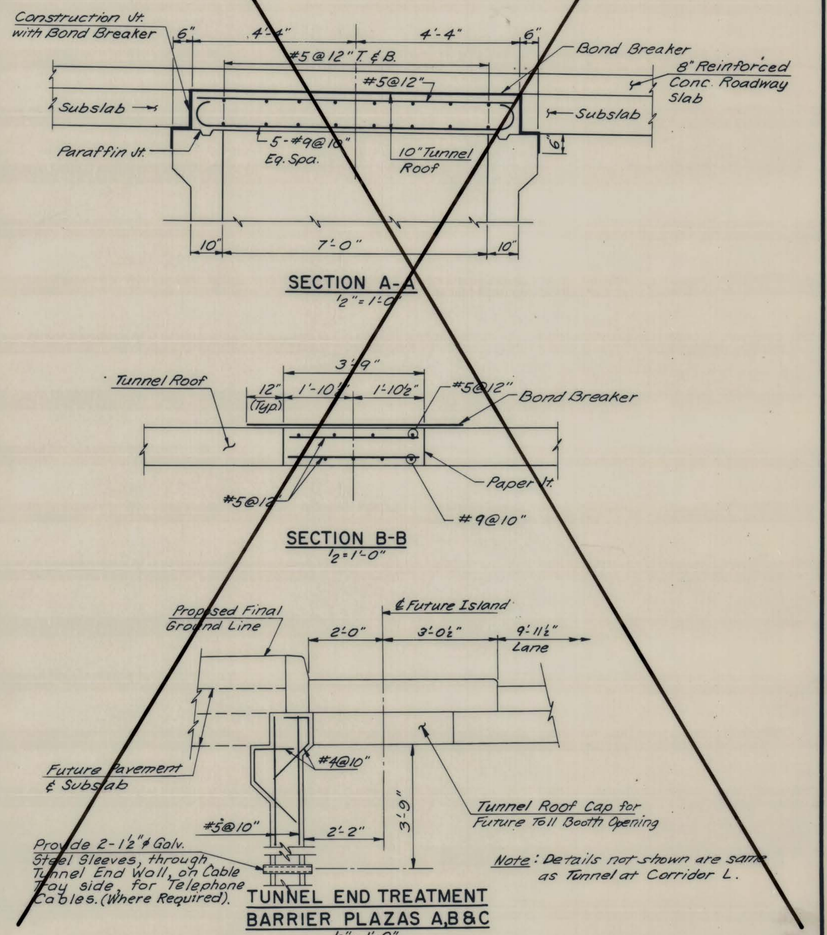
CONCRETE BACKUP WALL DETAILS
½"=1'-0"



TUNNEL END TREATMENT CORRIDOR L
½"=1'-0"



PLAN OF ROOF CAP FOR FUTURE TOLL BOOTH
¼"=1'-0"



SECTION A-A
½"=1'-0"

SECTION B-B
½"=1'-0"

TUNNEL END TREATMENT BARRIER PLAZAS A,B&C
½"=1'-0"

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. | DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

~~BARRIER PLAZA A,B,& C~~ CORRIDOR L
MISCELLANEOUS CONCRETE DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P11

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
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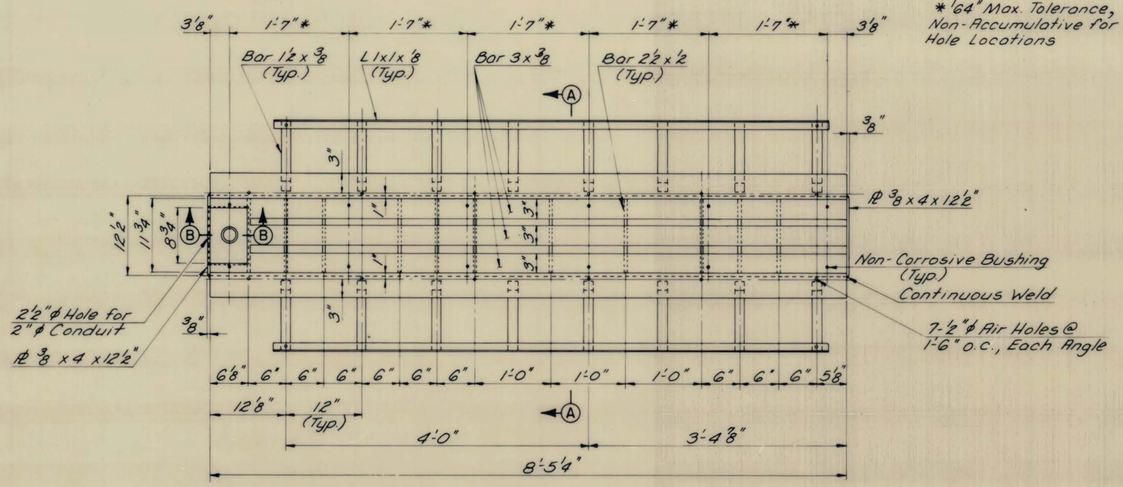
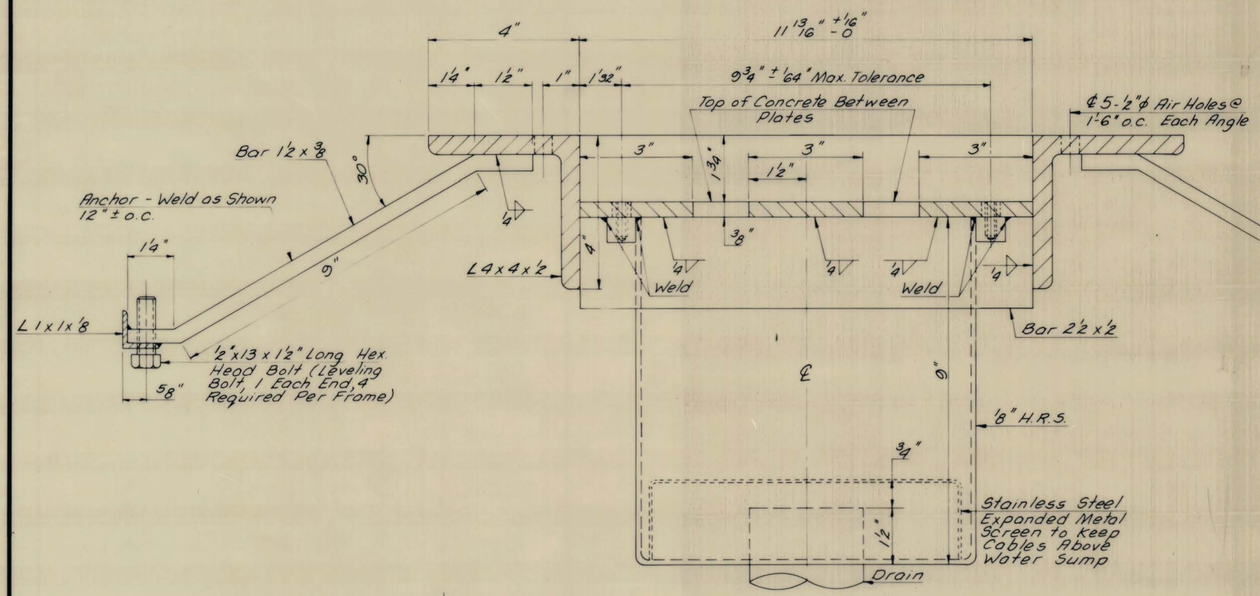
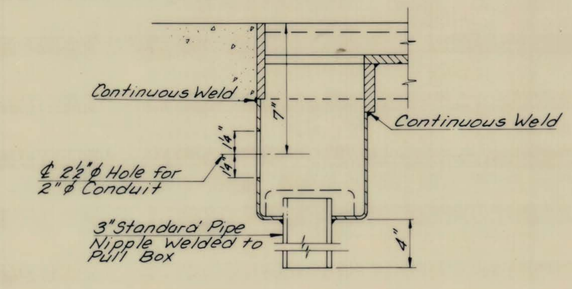


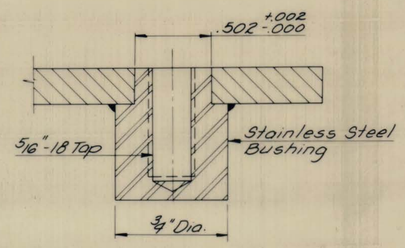
PLAN VIEW
1"=1'-0"



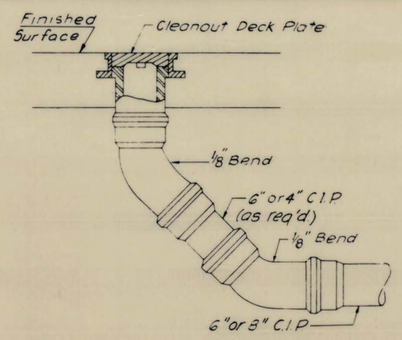
SECTION A-A
Half Size



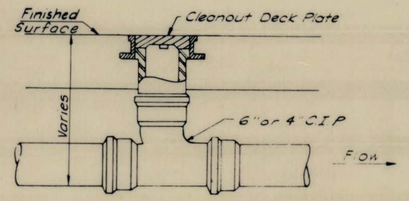
SECTION B-B
3"=1'-0"



SECTION THRU
NON-CORROSIVE BUSHING
2"=1"



CONFIGURATION AT PIPE ENDS



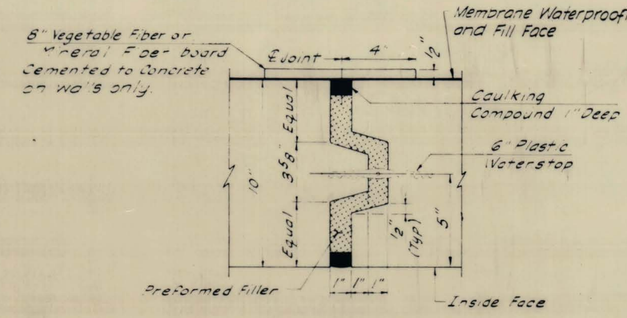
CONFIGURATION ON CONTINUOUS RUNS OF PIPE

Note: In grassed areas provide 18" outside diameter x 8" thick concrete collar around Deck Plate frame.

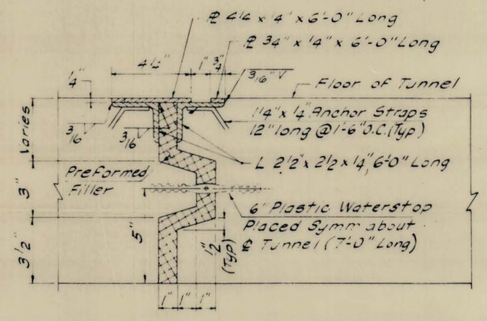
CLEANOUT WITH DECK PLATE
DETAIL
No Scale

NOTES:

1. All Treadle Frame Steel = ASTM A-588 unless noted, Galvanized in accordance with ASTM A-123.
2. All welds = E70XX Electrodes.
3. Leveling Bolts shall be applied where indicated on Plan of Treadle Frame.
4. Treadle Frame shall be supplied by Toll Equipment Contract and installed in this contract, Unless otherwise specified



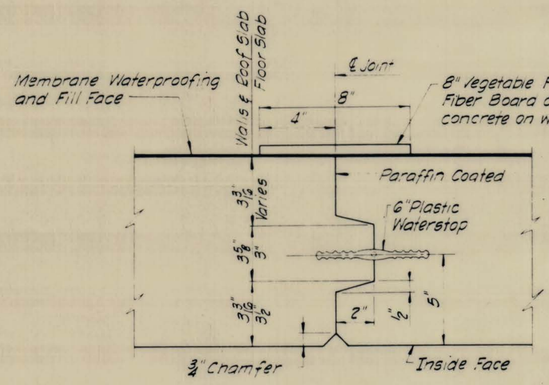
WALL AND ROOF SLAB



FLOOR SLAB

TUNNEL EXP. JT. DETAILS
Scale: ½"=1"

NOTE
Entire metal joint system to be H.D. galvanized after fabrication.
Metal joint system terminates at tunnel gutter.



TUNNEL CONTRACTION JOINT DETAILS
Scale: ½"=1"

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, FAYETTE & KANAWHA COUNTIES

~~BARRIER PLAZA A, B, C & D~~ CORRIDOR L
TREADLE FRAME AND JOINT DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P 12

K&E 10 1255 9-77 TEM 2229•

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
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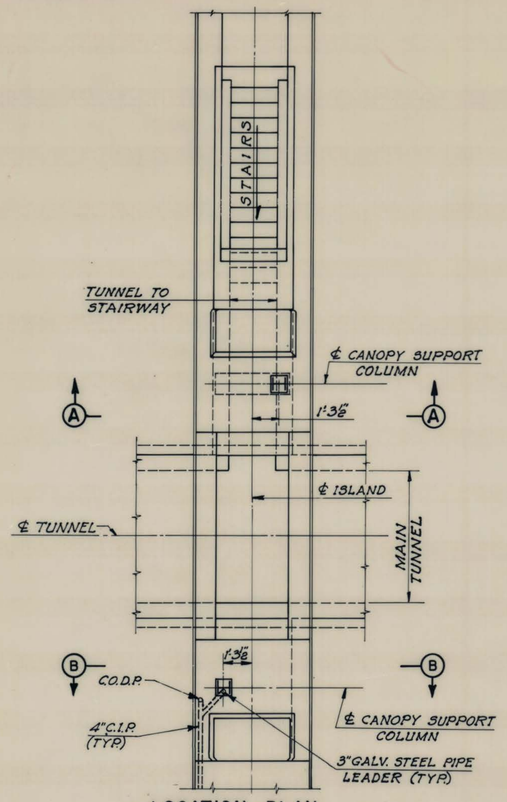
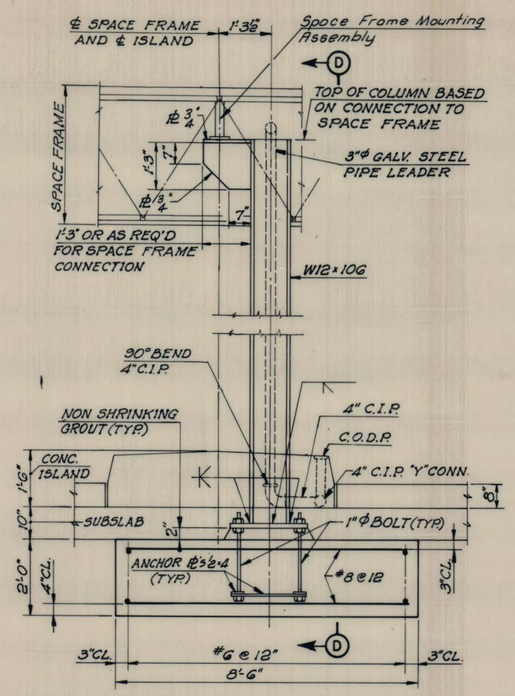
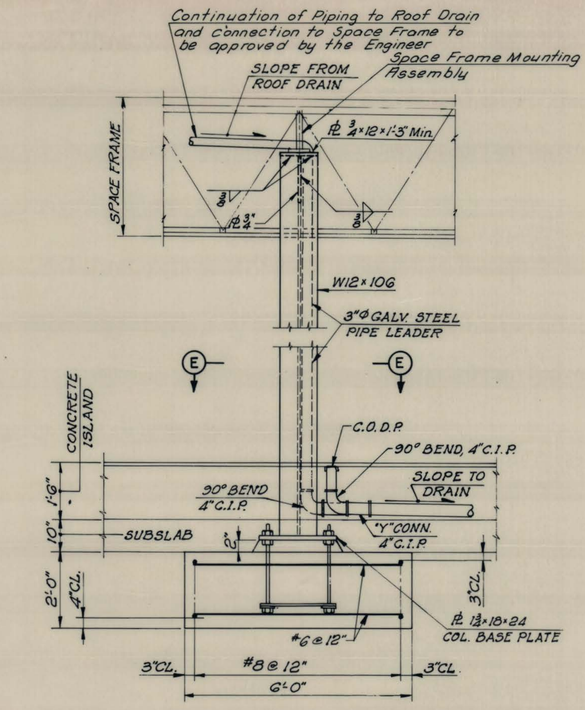


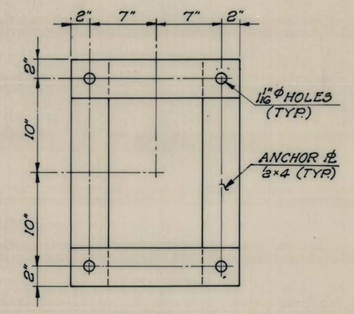
LOCATION PLAN
1/4" = 1'-0"



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



SECTION D-D
1" = 1'-0"



PLAN
ANCHOR PLATES
1½" = 1'-0"

NOTES:

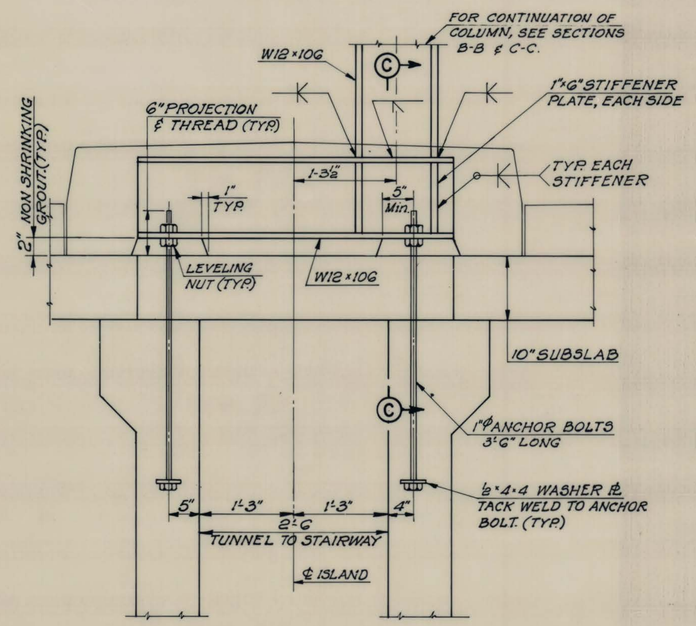
FOR LOCATIONS OF COLUMNS SEE TOLL PLAZA PLOT PLANS AND TWO LANE RAMP PLAZA DETAILS SHEET.

STRUCTURAL STEEL SHALL CONFORM TO ASTM A-36, ANCHOR BOLTS SHALL CONFORM TO ASTM A-449, WASHERS AND NUTS SHALL CONFORM TO ASTM A-325

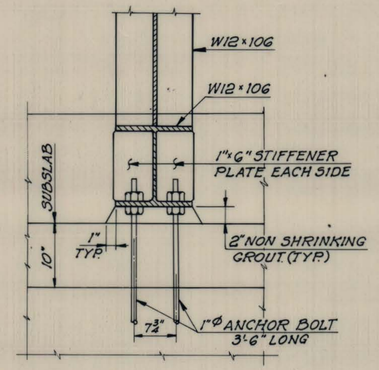
FOR DETAILS OF ALUMINUM CLADDING ON COLUMNS, SEE SHEET NO. P14

FOR LOCATIONS OF ROOF DRAINS AND COLUMNS THAT REQUIRE DRAINAGE, SEE TOLL PLAZA PLOT PLANS AND TWO LANE RAMP PLAZA DETAILS SHEETS.

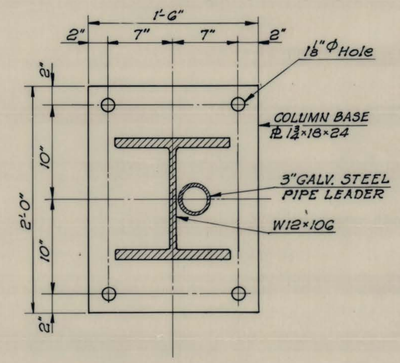
C.O.D.P. DENOTES CLEAN OUT WITH DECK PLATE.



SECTION A-A
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION E-E
1½" = 1'-0"

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

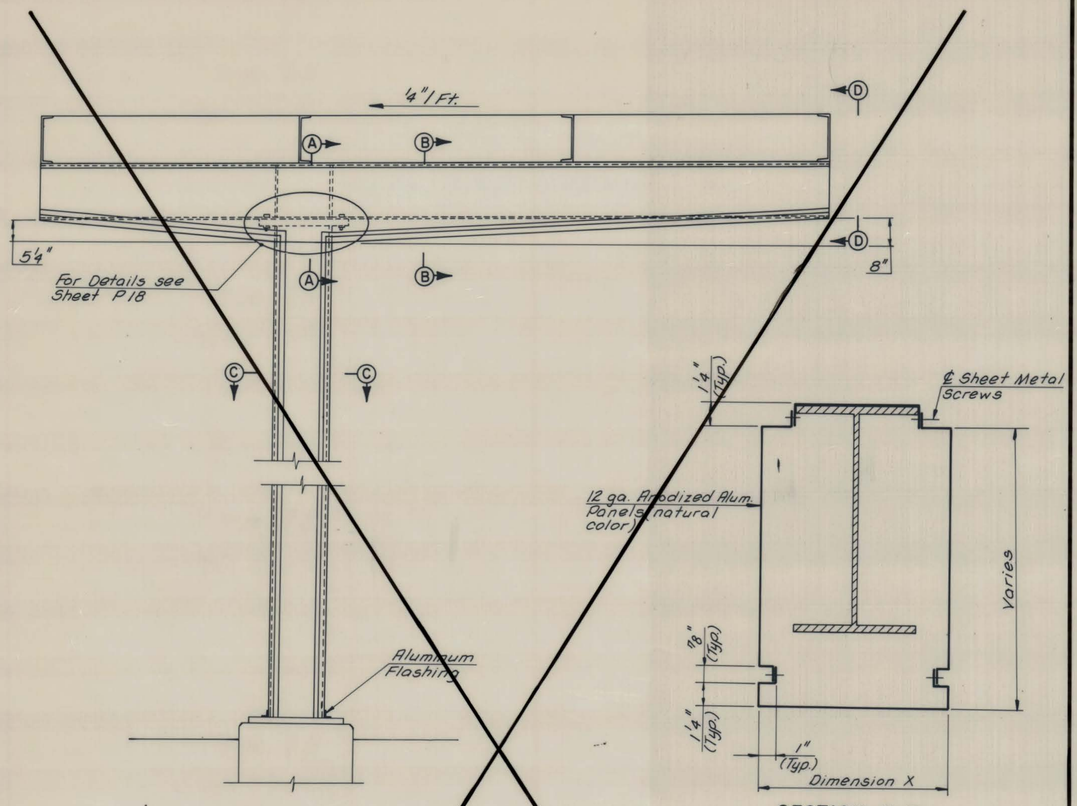
SCALE: Horiz. AS SHOWN Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA COUNTIES~~
~~BARRIER PLAZAS A, B, & C~~ CORRIDOR L
~~AND TWO LANE RAMP PLAZAS~~
CANOPY SUPPORT COLUMN DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

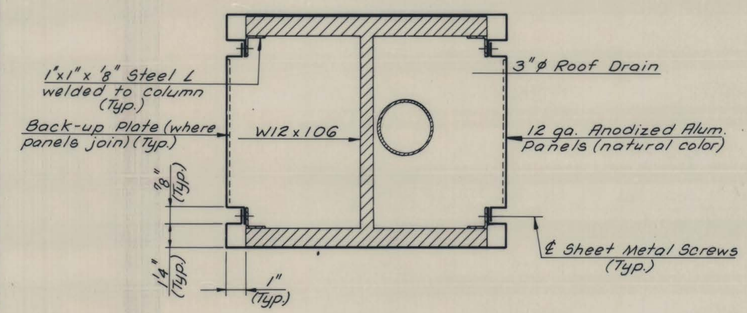
SHEET NO. P13

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(639) C-3	1979	~~MERCER~~, RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	109	130

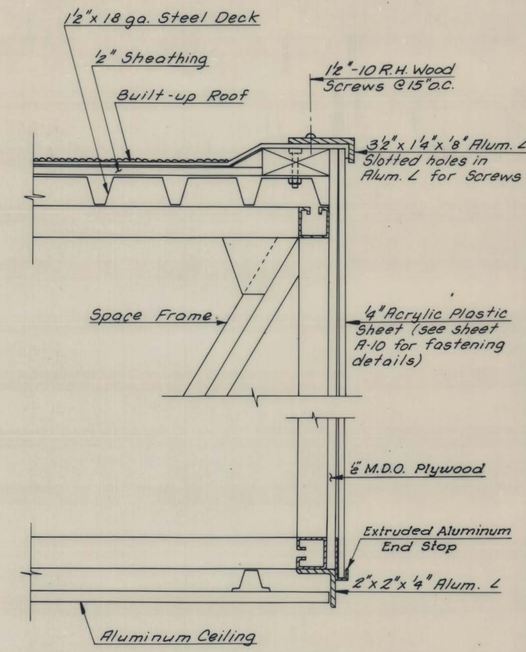


RAMP CANOPY COLUMN
3/4"=1'-0"

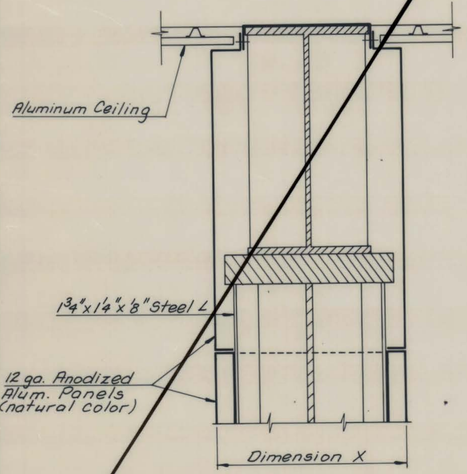
SECTION B-B
3"=1'-0"



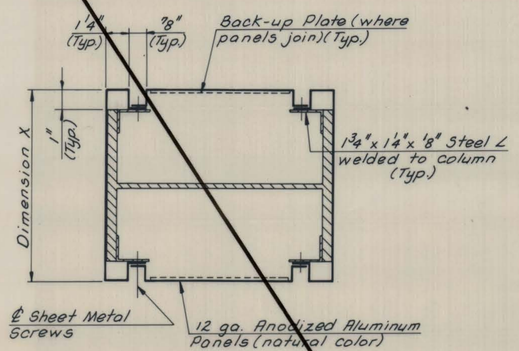
TYPICAL COLUMN SECTION
BARRIER PLAZA CANOPY
3"=1'-0"



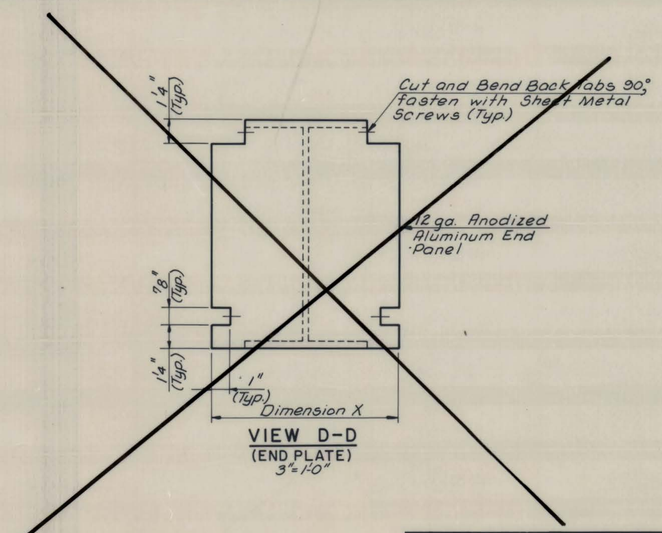
CANOPY FASCIA DETAILS- ~~BARRIER PLAZAS A,B & C~~
CORRIDOR L
~~TWO LANE RAMP~~
3"=1'-0"



SECTION A-A
3"=1'-0"

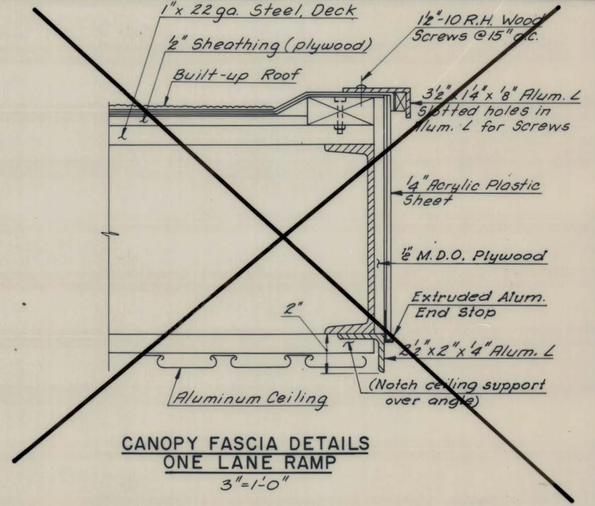


SECTION C-C
3"=1'-0"



VIEW D-D
(END PLATE)
3"=1'-0"

NOTE:
Dimension 'X' varies for Manned and Unmanned Ramp Canopies.



CANOPY FASCIA DETAILS
ONE LANE RAMP
3"=1'-0"

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERCER~~, RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

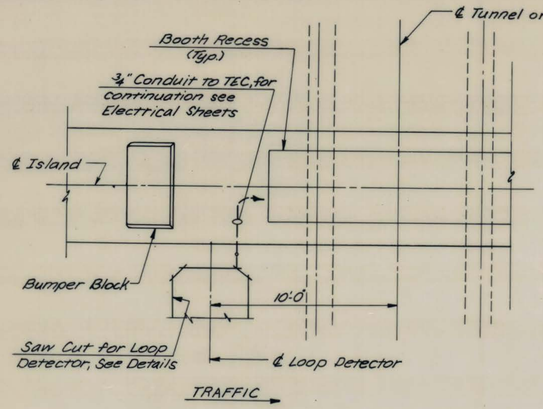
CANOPY ARCHITECTURAL DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P 14

K&E 19 1255 9-77 TEM 2229+

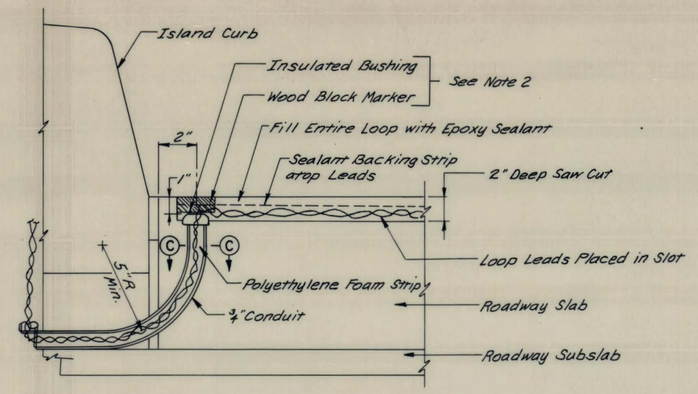
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	1979	~~MERCER~~, RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	110	136



PLAN

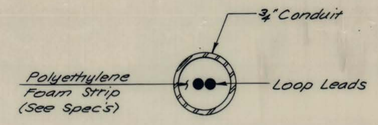
LOOP DETECTOR INSTALLATION

4" = 1'-0"
(See Note 1)



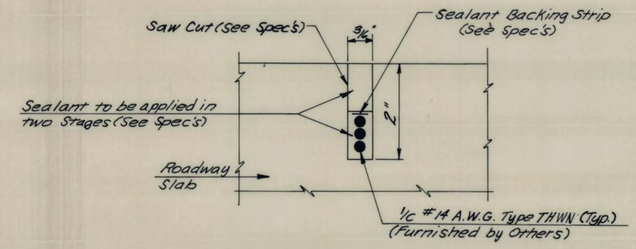
SECTION A-A

3" = 1'-0"



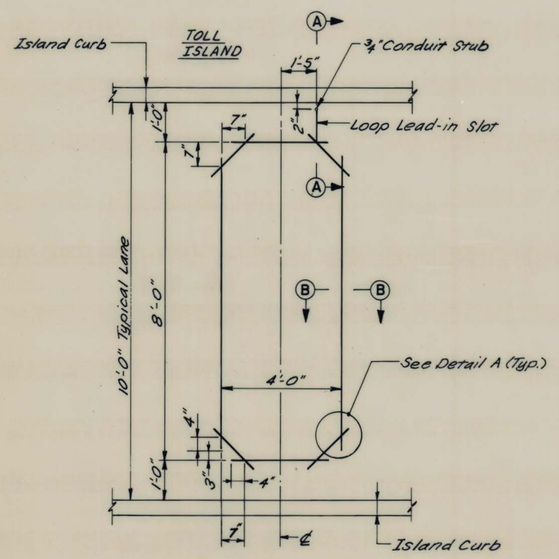
SECTION C-C

No Scale



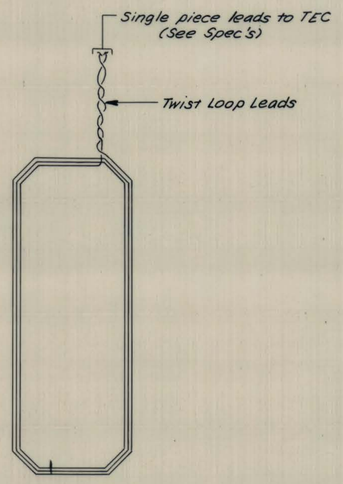
SECTION B-B

No Scale



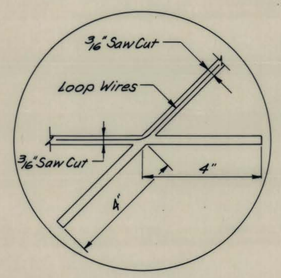
LOOP DETECTOR SAW CUT CONFIGURATION

No Scale



LOOP WIRE LAYOUT

No Scale



DETAIL "A"

No Scale

NOTES:

1. The Plan shows the typical arrangement of treadle and loop detector locations. Each uni-directional lane shall have one loop detector as shown. The reversible lanes shall have one loop detector at 10'-0" each side of tunnel.
2. During the construction of the roadway slab, the conduit stub shall be capped, protected and marked by means of an approved size wood block.
3. TEC denotes Toll Equipment Cabinet.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. | DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERCER~~, RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

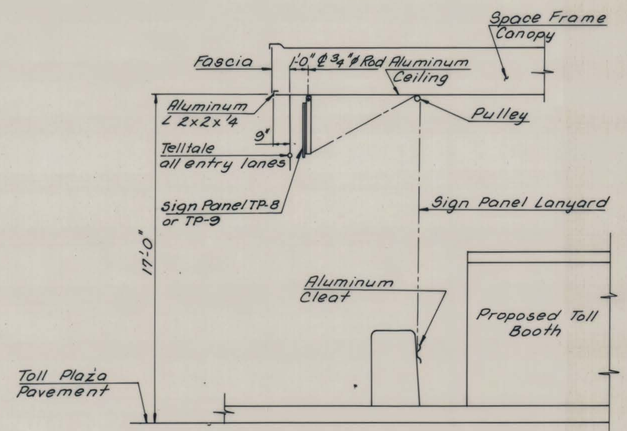
LOOP DETECTOR INSTALLATION DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

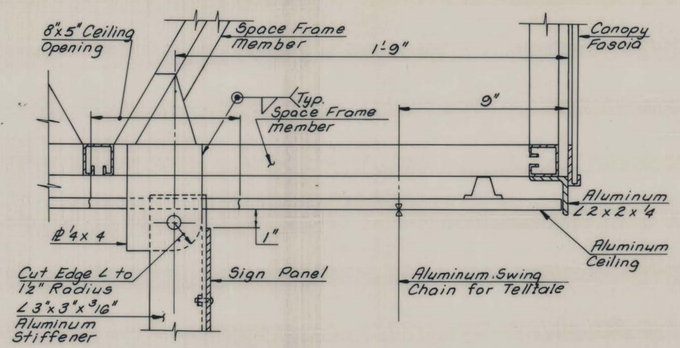
SHEET NO. P 15

K&E 19 1255 9-77 TEM 2229•

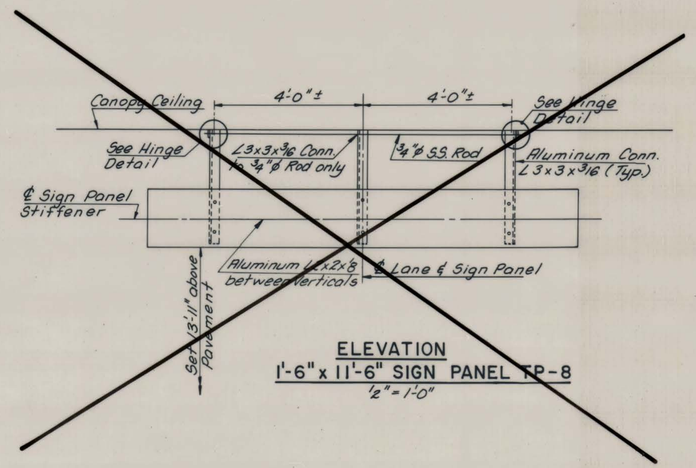
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-3	79	~~MERCER~~, RALEIGH ~~FAYETTE & KANAWHA~~	111	136



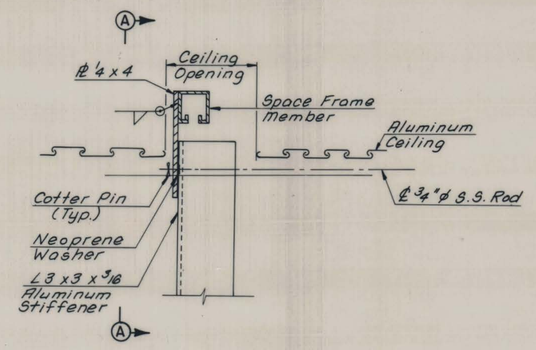
TELLTALE & SIGN PANEL LOCATION
1/4"=1'-0"



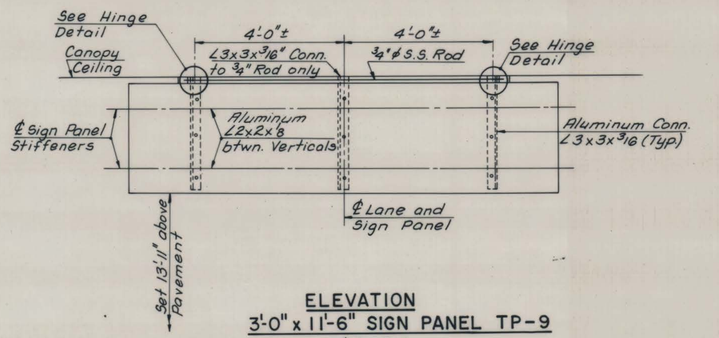
VIEW A-A
3"=1'-0"



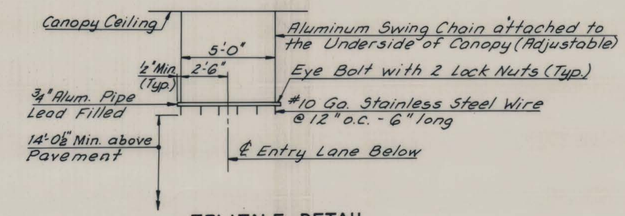
ELEVATION
1'-6" x 11'-6" SIGN PANEL TP-8
½"=1'-0"



HINGE DETAIL
3"=1'-0"

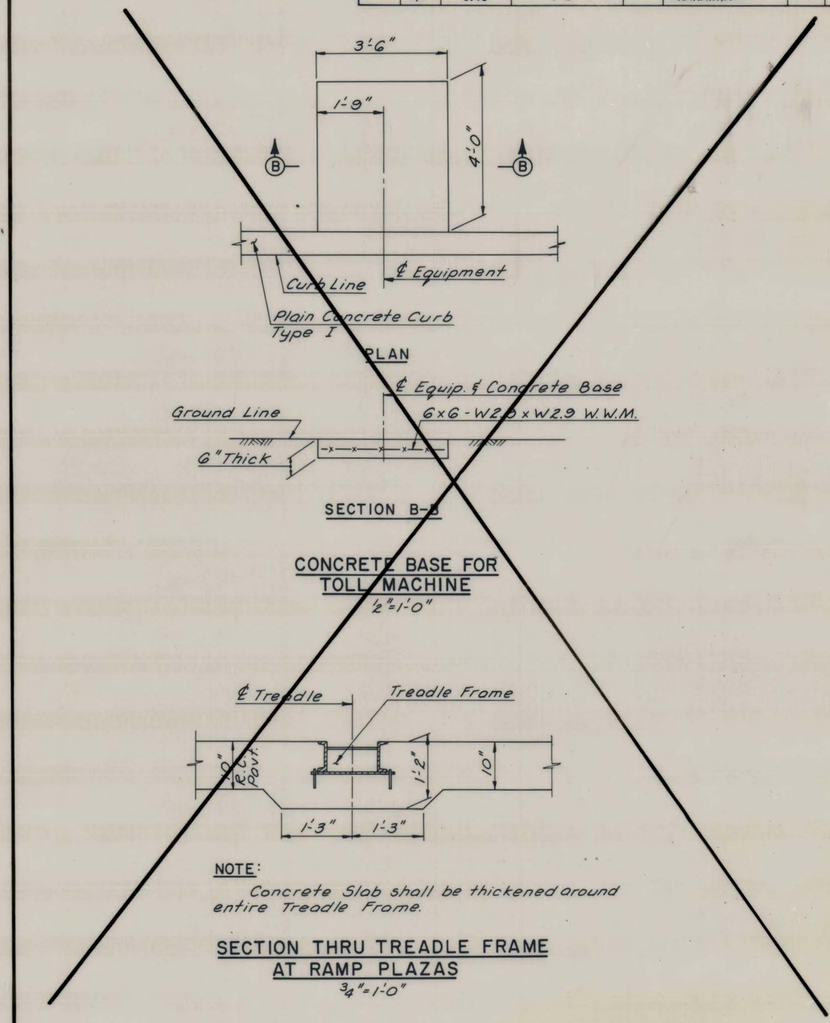


ELEVATION
3'-0" x 11'-6" SIGN PANEL TP-9
½"=1'-0"



TELLTALE DETAIL
¼"=1'-0"

NOTE:
Telltale shall be placed on the entry side of canopy on all one way traffic lanes, and on both sides of canopy on all reversible lanes.
Sign Panels ~~TP-8 and~~ TP-9 to be furnished and installed under this Contract.
For Details of Sign Panels ~~TP-8 and~~ TP-9, see Signing Sheet.



CONCRETE BASE FOR TOLL MACHINE
½"=1'-0"

NOTE:
Concrete Slab shall be thickened around entire Treadle Frame.

SECTION THRU TREADLE FRAME AT RAMP PLAZAS
¾"=1'-0"

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERCER~~, RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

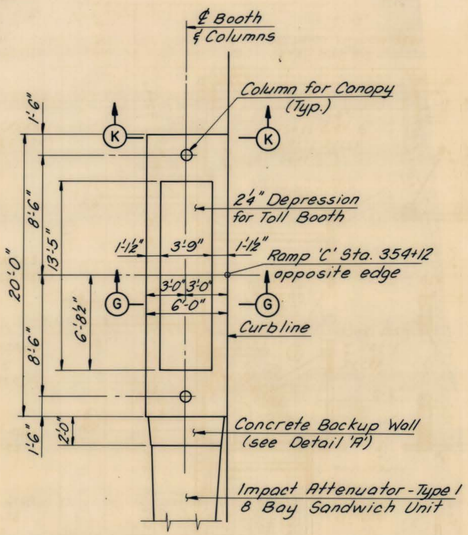
MISCELLANEOUS PLAZA DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

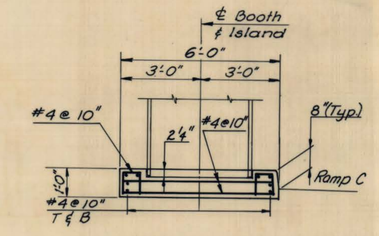
SHEET NO. P 19

K&E 191255 9-77 TEM 2229x

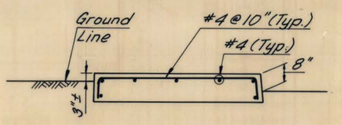
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(46)9	1977	RALEIGH	112	136



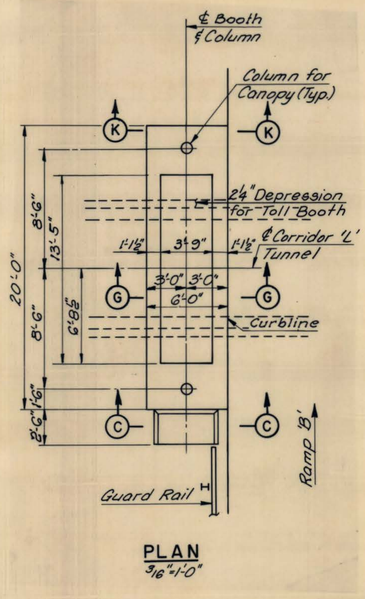
PLAN
3/16"=1'-0"



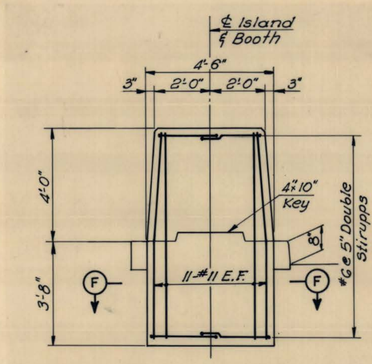
SECTION G-G
3/8"=1'-0"



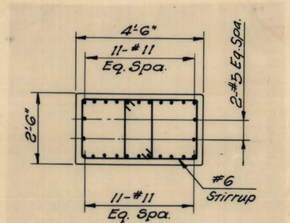
SECTION K-K
3/8"=1'-0"



PLAN
3/16"=1'-0"

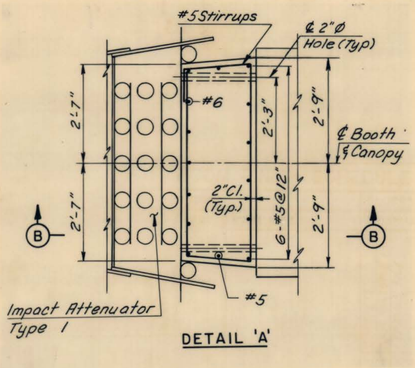


SECTION C-C
3/8"=1'-0"

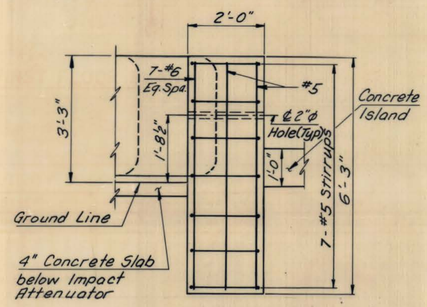


SECTION F-F
3/8"=1'-0"

TEMPORARY TOLL ISLAND - RAMP 'B'



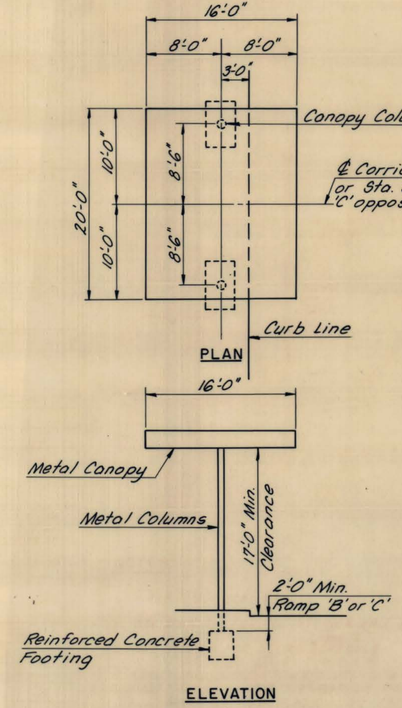
DETAIL 'A'



SECTION B-B

CONCRETE BACKUP WALL DETAILS
½"=1'-0"

TEMPORARY TOLL ISLAND - RAMP 'C'



ELEVATION

TEMPORARY CANOPY DETAILS
⅛"=1'-0"

NOTES:

For location Plan of Temporary Toll Facility at Ramp 'C' see "Corridor 'L' Interchange Electrical Plan."

For Location Plan of Temporary Toll Facility at Ramp 'B' see "Corridor 'L' Interchange Toll Plaza Plot Plan."

For Details of Impact Attenuator Type I see Sheet P8. The attenuator at Ramp 'C' shall be constructed upon a 4" thick concrete pad reinforced with 6x6 - W2.9 x W2.9 W.W.M. The Front Cable Anchorage shall be Imbedded Type 'A' shown on Energy Absorption Systems Inc. drawing 35-07-02 or an approved equal.

For Details of Guard Rail Attachment to Bumper Block at Ramp 'B' see Sheet P9.

For Installation Details of Toll Booths see Reference Drawing A19.

Design Requirements and additional data on Temporary Canopies are listed in the "Special Provisions for Temporary Toll Facilities at Ramps B & C."

Payment for electrical work at Ramps "B" and "C" shall be included in the Lump Sum Item for "Toll Plaza Utility Building."

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS SHOWN Vert. DATE:

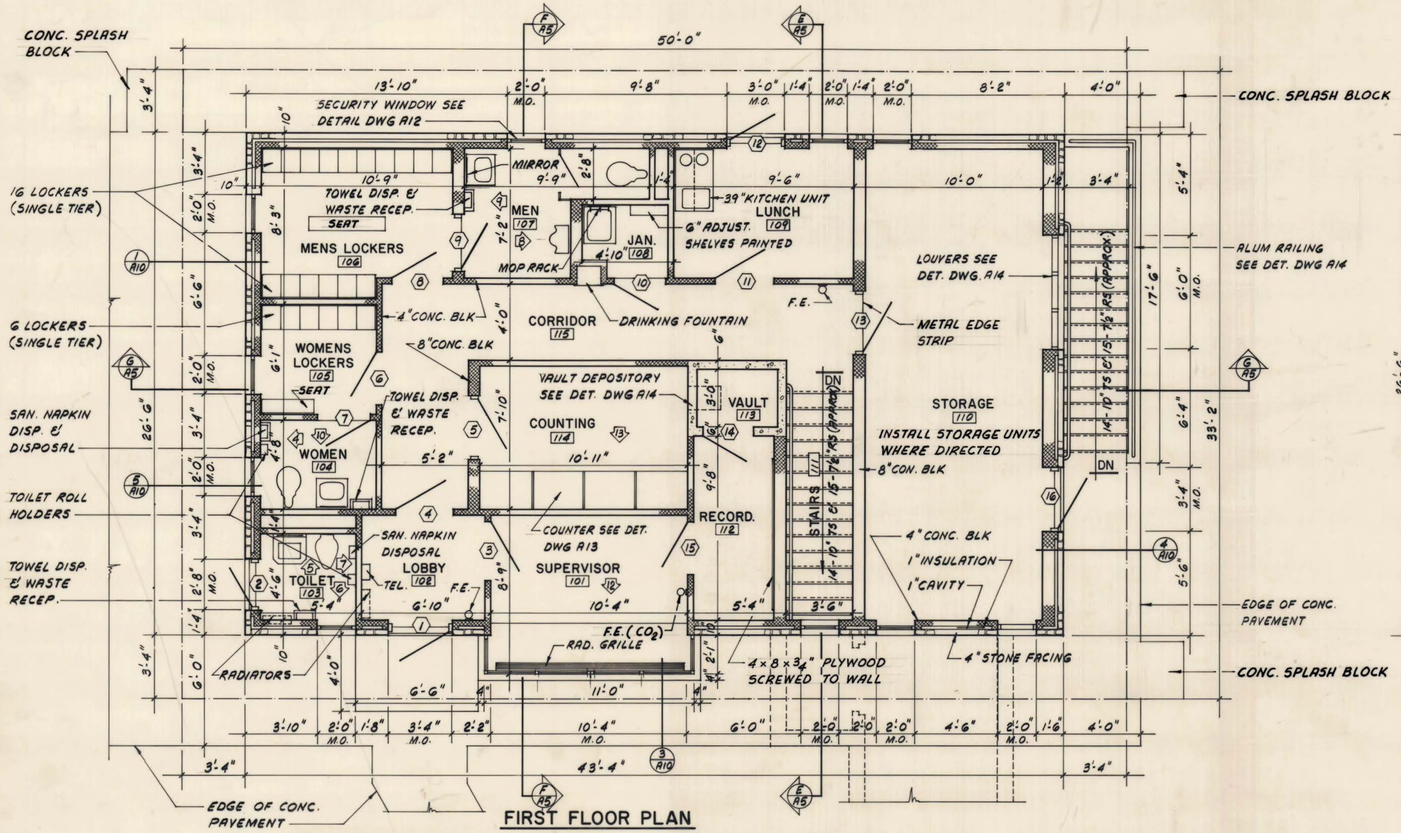
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR 'L' INTERCHANGE
TEMPORARY TOLL FACILITIES
RAMPS 'B' AND 'C'

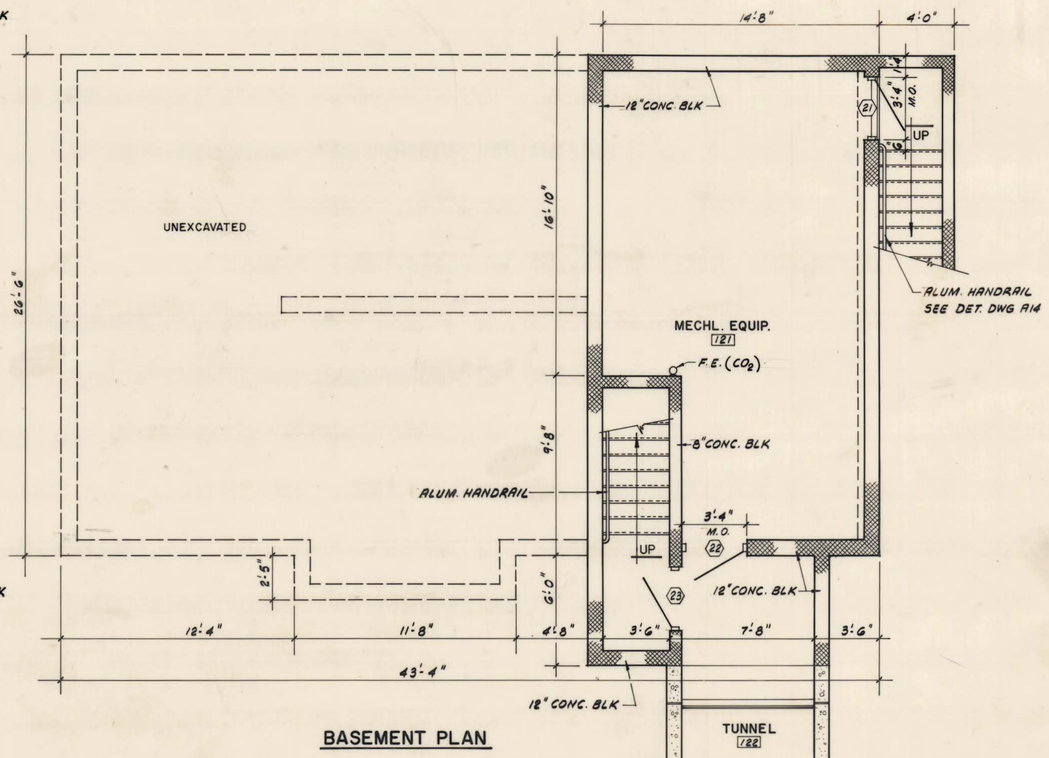
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. P20

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9.43	1-77-2(63) 9 C-3 4	79	RALEIGH	113	136



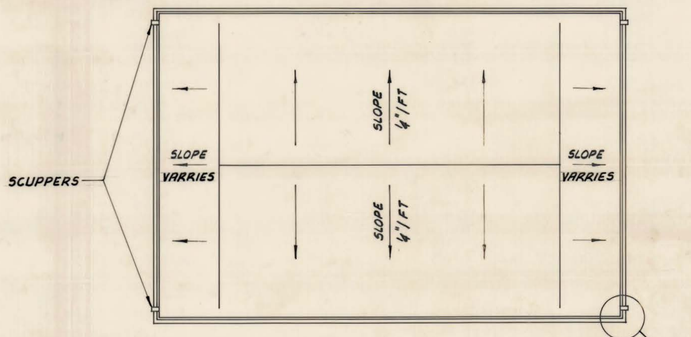
FIRST FLOOR PLAN



BASEMENT PLAN

ROOM FINISH SCHEDULE FOR UTILITY BUILDING AT CORRIDOR L

LOCATION	ROOM NO.	ROOM NAME	FLOORS: CONCRETE 1	FLOORS: VINYL ASBESTOS TILE 2	FLOORS: CERAMIC TILE 3 4 5 6 P	BASES: RUBBER 1	BASES: CERAMIC TILE 2 3 4 5 6 P	WAINSCOTS: MATERIALS 1 2 3 4 P	WAINSCOTS: HT.	WALLS: CONC. BLOCK 1	WALLS: EXPOSED CONC. 2 3 4 5 6	WALLS: PAINTED P	CEILINGS: LAY-IN PANEL 1	CEILINGS: EXPOSED CONC. 2 3 4 5 6	CEILINGS: PAINTED P	CEILINGS: MTG. C	CEILINGS: MTG. F	CEILINGS: SUSPENDED S	CEILINGS: SUSP. HT.	REMARKS
FIRST FLOOR	101	SUPERVISOR		2		1				1		P	1					S	8'-4"	
	102	LOBBY		2		1				1		P	1					S	8'-4"	
	103	TOILET			3		2			1		P	1					S	8'-4"	
	104	WOMEN			3		2			1		P	1					S	8'-4"	
	105	WOMENS LOCKERS		2		1				1		P	1					S	8'-4"	
	106	MENS LOCKERS		2		1				1		P	1					S	8'-4"	
	107	MEN			3		2			1		P	1					S	8'-4"	
	108	JANITOR			3		2			1		P	1					S	8'-4"	
	109	LUNCH		2		1				1		P	1					S	8'-4"	
	110	STORAGE	1							1		P	1					S	8'-4"	
	111	STAIRS	1			1*				1	2	P	1					S	8'-4"	* RUBBER BASE AT UPPER LANDING ONLY
	112	RECORDER		2		1				1	2	P	1					S	8'-4"	
	113	VAULT		2							2	P	2			P				
	114	COUNTING		2		1				1	2	P	1					S	8'-4"	
	115	CORRIDOR		2		1				1	2	P	1					S	8'-4"	
BASEMENT	121	MECHL. EQUIP.	1							1				2						
TUNNEL	125	TUNNEL	1								2			2						



ROOF PLAN
SCALE ⅛" = 1'-0"

ABBREVIATION

M.O.	MASONRY OPENING
F.E.	FIRE EXTINGUISHER
TEL.	TELEPHONE
V.A.TILE	VINYL ASBESTOS TILE
CER.TILE	CERAMIC TILE
M.D.O.	MEDIUM DENSITY
H.M.	HOLLOW METAL
SST	STAINLESS STEEL
W.W.M.	WELDED WIRE MESH
CSK.HD.	COUNTER SUNK HEAD
MFR	MANUFACTURER
CLG.	CEILING

LEGEND

- STONE FACING
- CONCRETE BLOCK
- CONCRETE
- COMPACTED GRAVEL
- PERIMETER INSULATION
- RIGID INSULATION
- ROUGH WOOD
- FINISH WOOD

NOTES:

1. FIRST FLOOR ELE. 2320.25
2. SEE DWG A13 FOR ALL INTERIOR WALL ELEVATIONS
3. SEE DWG A11 FOR DOORS SCHEDULE
4. OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: 1/4" = 1'-0" DATE: JULY, 1978

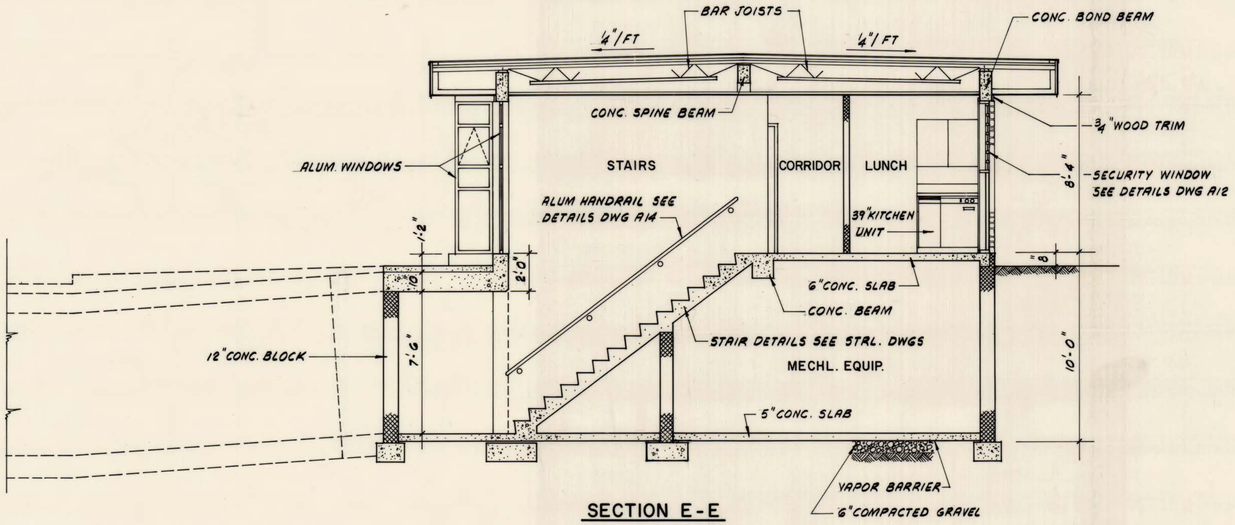
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR L
UTILITY BUILDING
PLANS & FINISH SCHEDULE

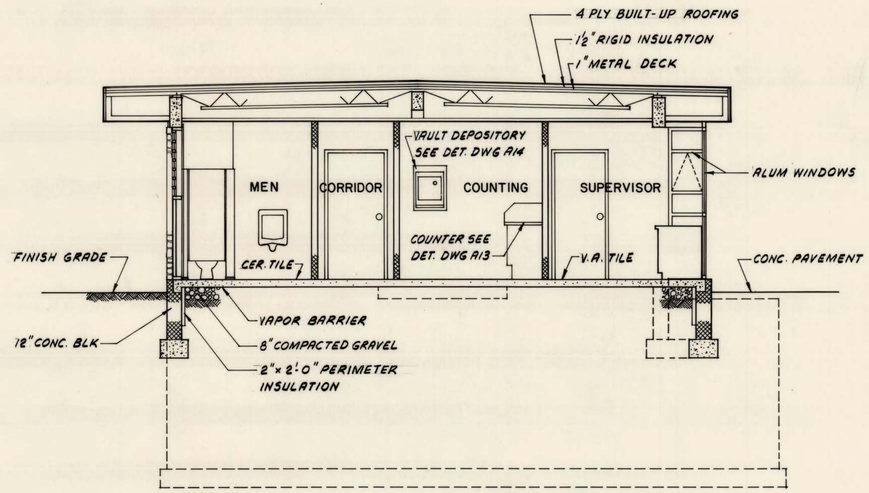
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A4

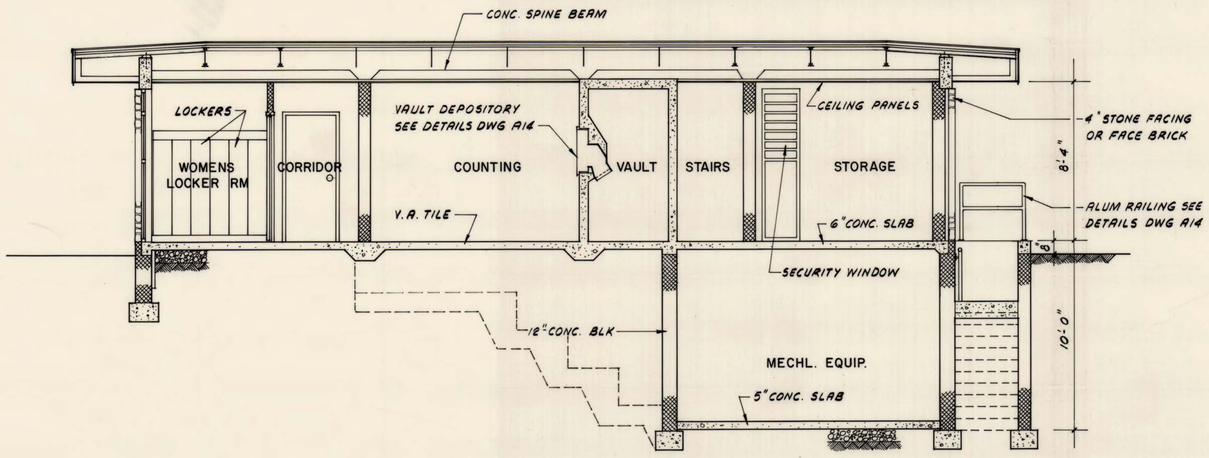
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9.43	1-77-2(63) 9 C-3 4	79	RALEIGH	114	136



SECTION E-E



SECTION F-F



SECTION G-G

NOTE:

1. OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

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

DATE: JULY, 1978

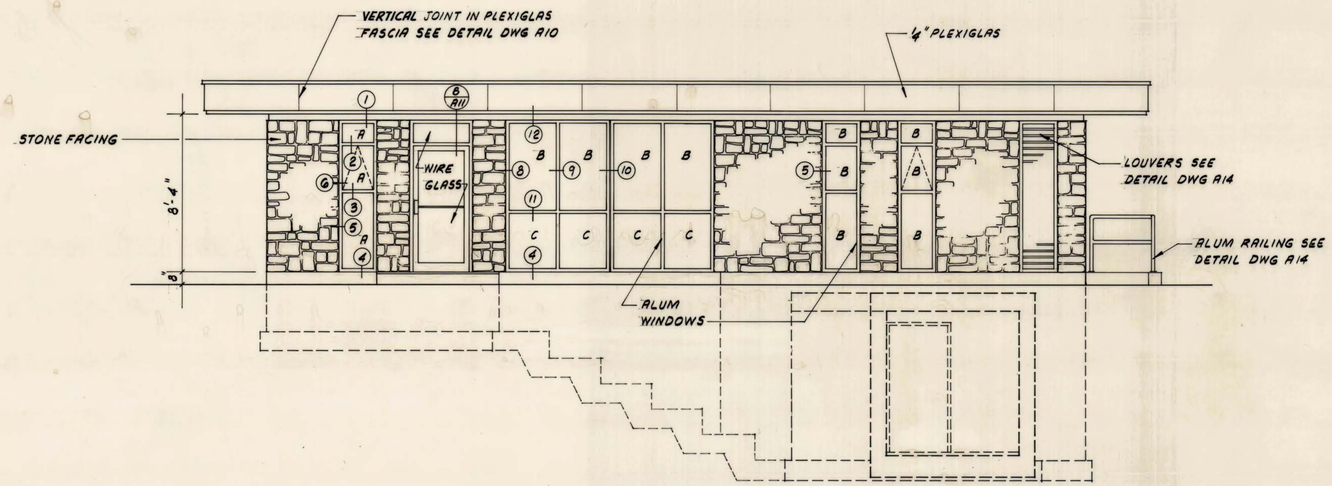
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR L
UTILITY BUILDING
SECTIONS

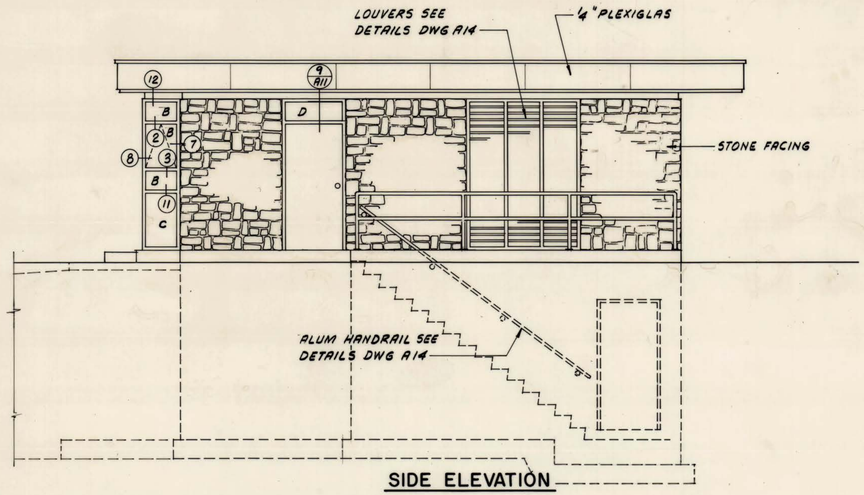
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A5

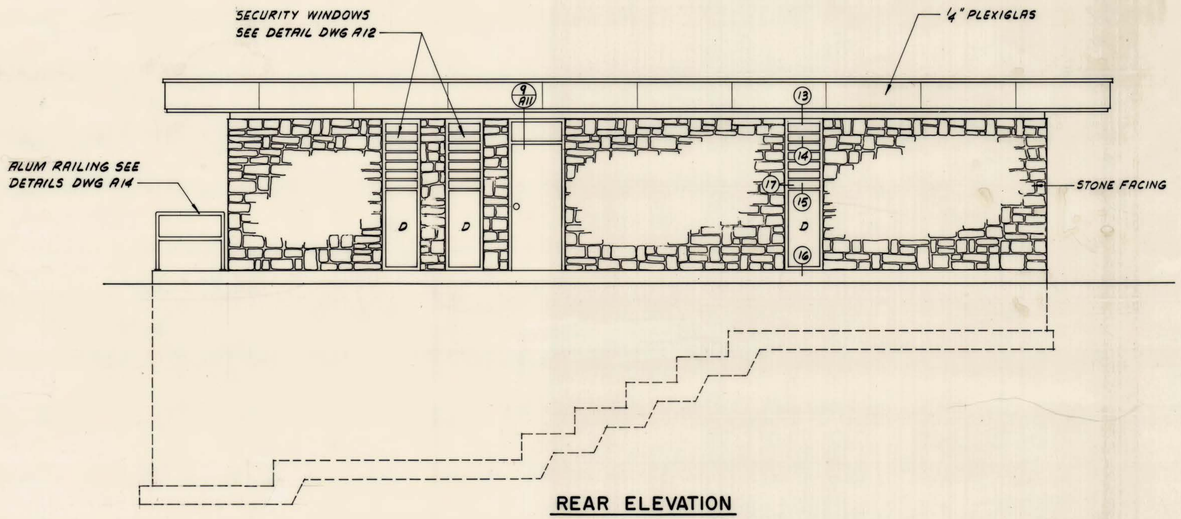
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9.43	1-77-2(63) 9 C-& 4	'79	RALEIGH	115	136



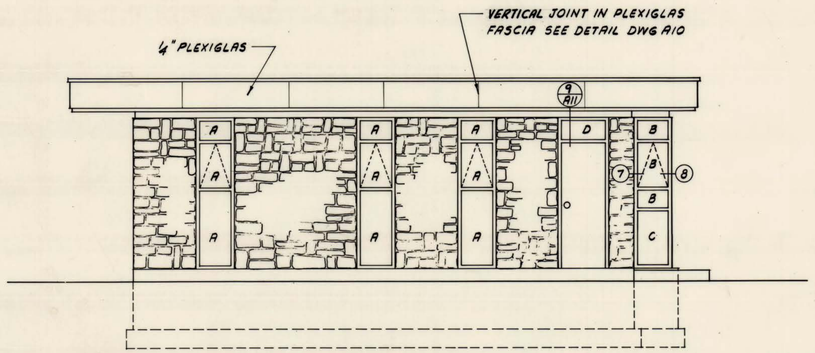
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



SIDE ELEVATION

NOTES:

FOR WINDOW DETAILS SEE DWG A12

A = REFLECTIVE + OBSCURE GLASS

B = REFLECTIVE + CLEAR GLASS

C = REFLECTIVE GLASS + METAL PANEL

D = METAL PANEL

OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: 1/4" = 1'-0" DATE: JULY, 1978

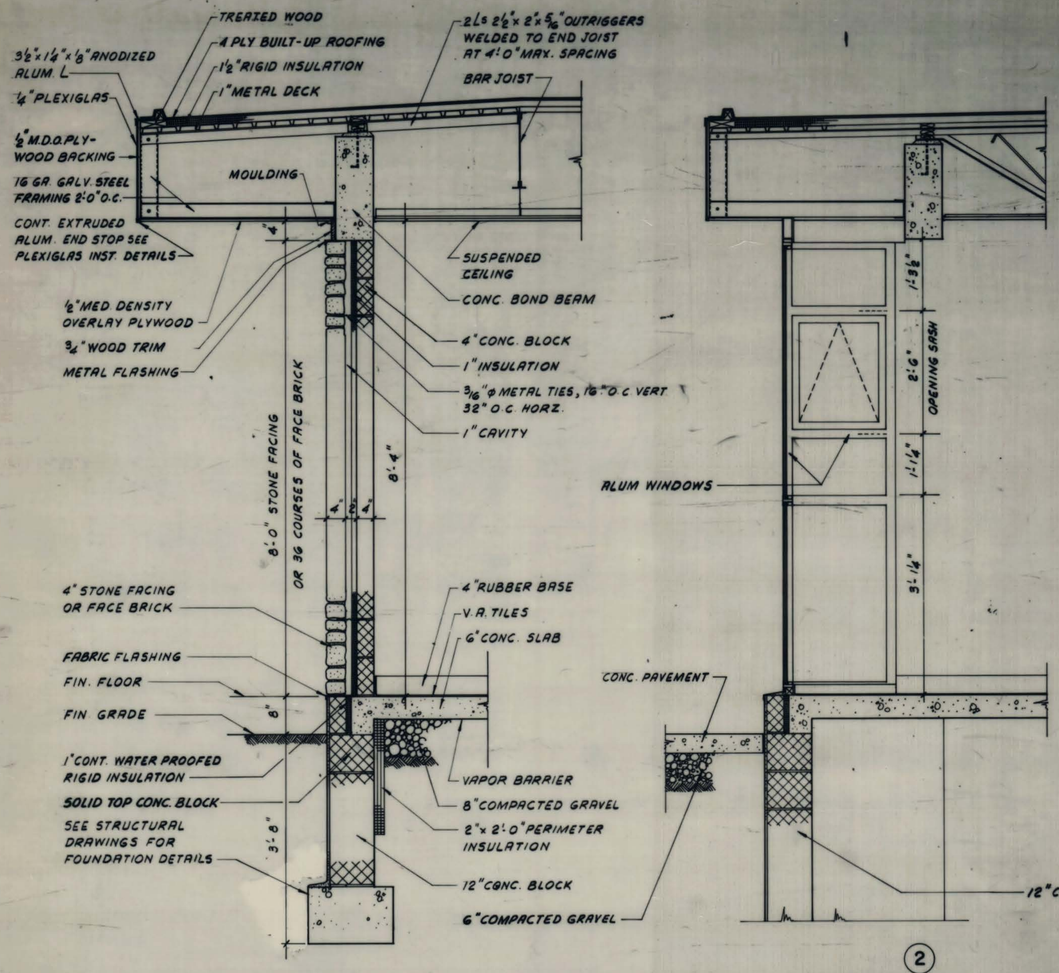
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR L
UTILITY BUILDING
ELEVATIONS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

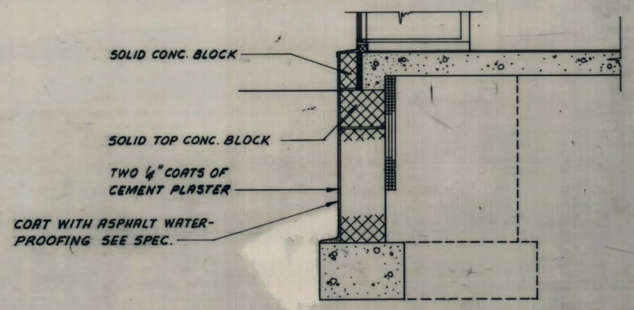
SHEET NO. A6

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328-77-9-43	1-77-2(63) 9 C-2-4	79	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	116	136



①

②



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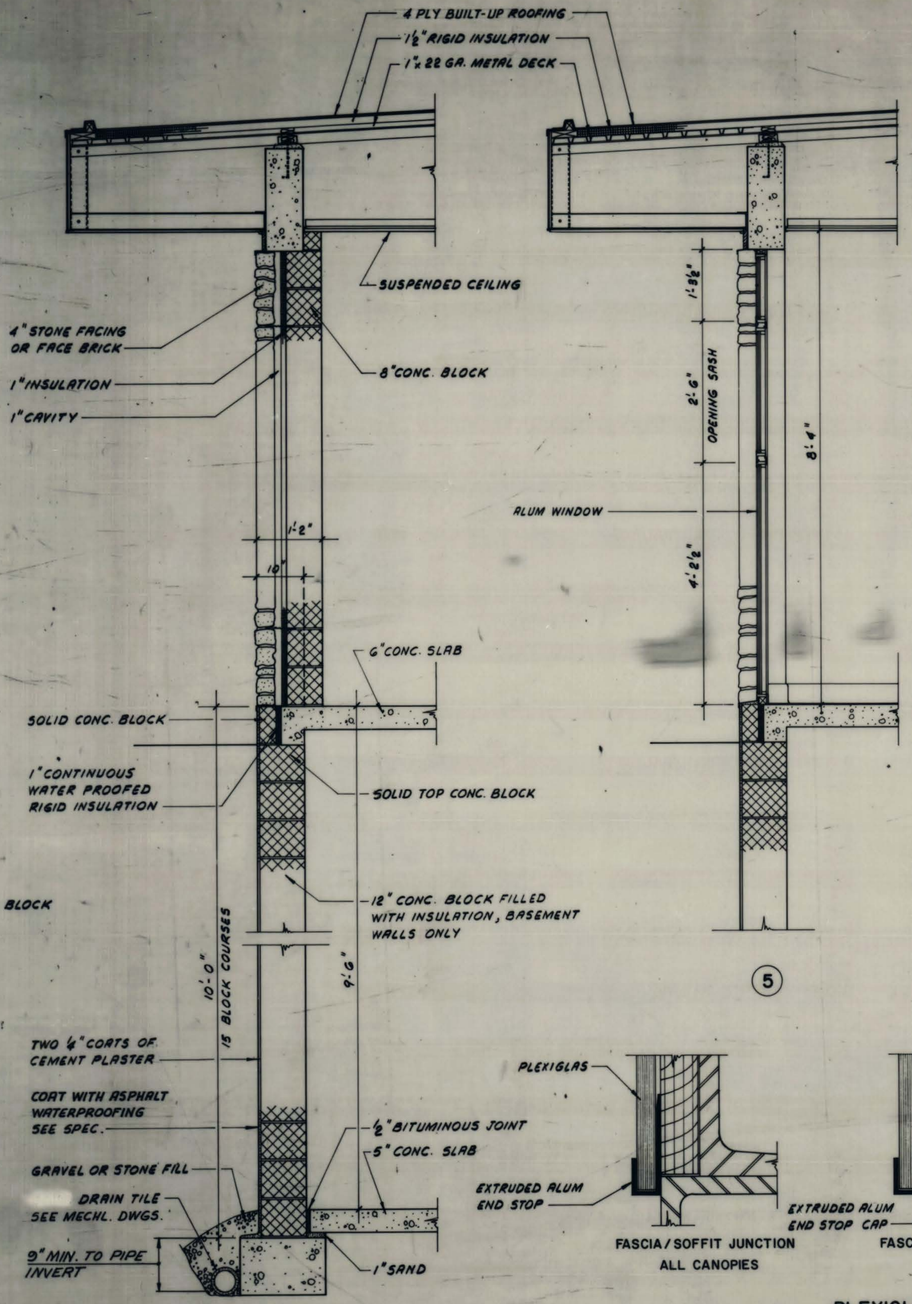


④

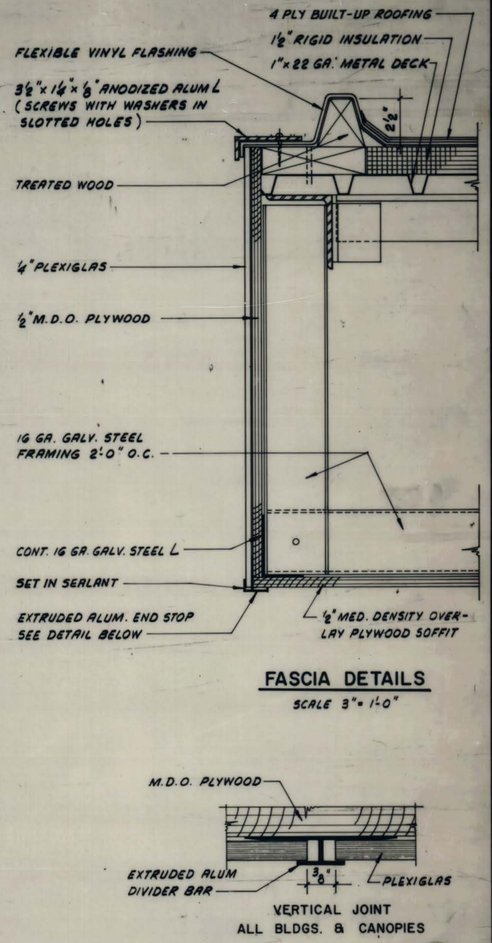
⑤

WALL SECTIONS

SCALE ¾" = 1'-0"

NOTE:

1. OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.

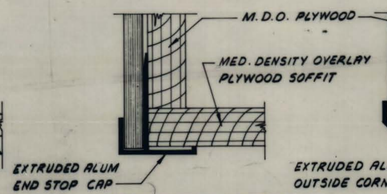


FASCIA DETAILS

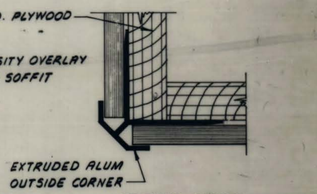
SCALE 3" = 1'-0"

VERTICAL JOINT
ALL BLDGS. & CANOPIES

FASCIA / SOFFIT JUNCTION
ALL CANOPIES



FASCIA / SOFFIT JUNCTION
ALL UTIL. BLDGS.



VERTICAL CORNER
ALL BLDGS. & CANOPIES

PLEXIGLAS INSTALLATION DETAILS

SCALE FULL SIZE

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: AS NOTED

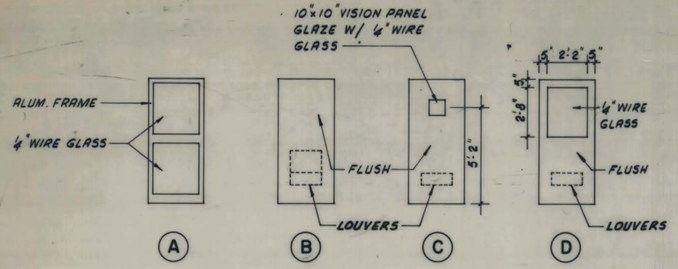
DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES
~~BARRIER PLAZAS A, B, C &~~ CORRIDOR L
UTILITY BUILDINGS
WALL SECTIONS

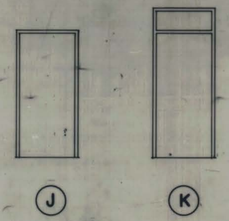
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A10

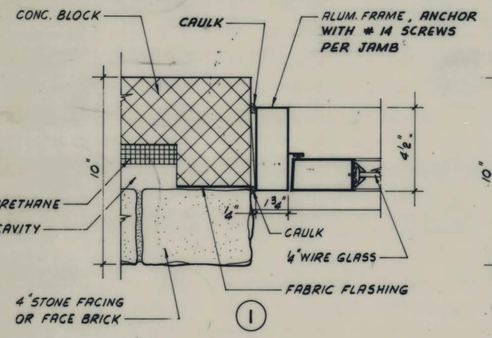
PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9.43	1-77-2(63) 9 C-3-4	79	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	117	136

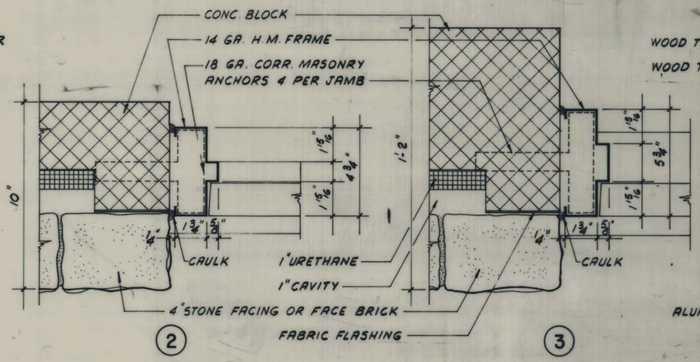


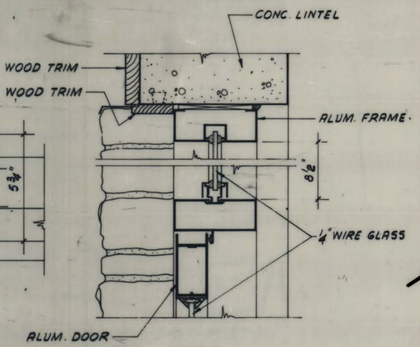
DOOR TYPES

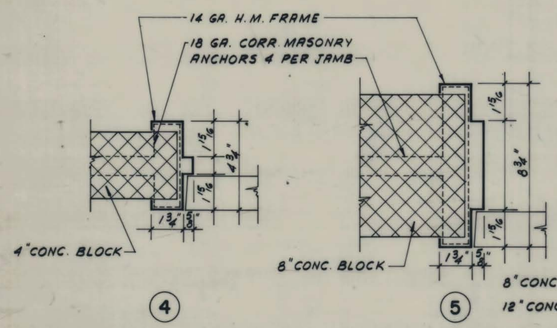


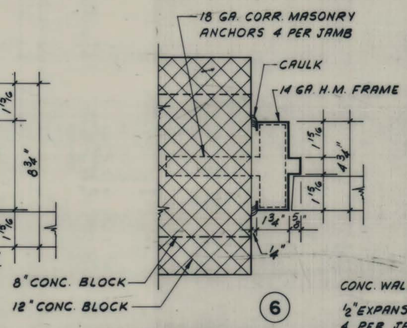
FRAME TYPES





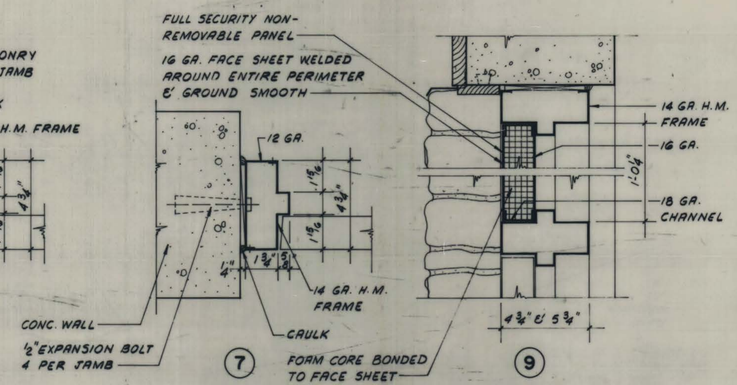






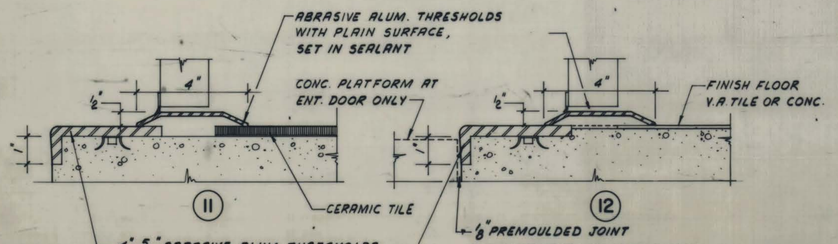
FRAME DETAILS

SCALE 3"= 1'-0"



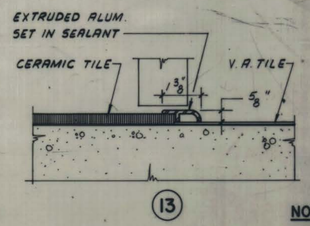
TRANSOM DETAILS

SCALE 3"= 1'-0"



THRESHOLD DETAILS

SCALE ⅜ FULL SIZE



NOTE:

1. OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.

DOORS AND FRAMES SCHEDULE FOR UTILITY BUILDINGS AT ~~BARRIER PLAZA B & C~~

LOCATION	DOOR NO.	DOOR SIZE W	H	T	MAT.	TYPE	GLASS	LOUVER W	H	FRAME MAT.	TYPE	DETAILS JAMB	HEAD	SILL	FIRE RATING LAB.	CON.	HARDWARE SET NO.	KEYSIDE ROOM NO.	REMARKS
FIRST FLOOR	1	3'-0"	7'-0"	1¾"	ALUM.	A	¼" WIRE			ALUM.	K	1		12				EXTR.	
	2	2'-4"	6'-8"	1¾"	H.M.	B				H.M.	K	2		11				EXTR.	
	3	3'-0"	6'-8"	1¾"	WOOD	D	¼" WIRE				J	4						102	
	4	3'-0"	6'-8"	1¾"														102	
	5	3'-0"	6'-8"	1¾"				1'-8"	8"									115	
	6	2'-8"	6'-8"	1¾"		C													
	7	2'-8"	6'-8"	1¾"		B		1'-8"	8"					13				104	
	8	2'-8"	6'-8"	1¾"		C	¼" WIRE												
	9	2'-8"	6'-8"	1¾"		C	¼" WIRE	1'-8"	8"			5		13					
	10	2'-8"	6'-8"	1¾"		B						4		13				115	
	11	3'-0"	6'-8"	1¾"		D	¼" WIRE	1'-8"	8"			4						115	
	12	2'-8"	6'-8"	1¾"	H.M.	B					K	2		12				EXTR.	
	13	3'-0"	6'-8"	1¾"	H.M.	C	¼" WIRE				K	5			B			115	
	14																		VAULT DOOR SEE SPEC. & DETAILS
	15	2'-8"	6'-8"	1¾"	WOOD	B		1'-8"	1'-10"	H.M.	J	4						101	
	16	3'-0"	6'-8"	1¾"	H.M.	B				H.M.	K	3		12				EXTR.	
BASEMENT	21	3'-0"	6'-8"	1¾"	H.M.	C	¼" WIRE			H.M.	J	6		12				EXTR.	
	22	3'-0"	6'-8"	1¾"		B												122	
	23	3'-0"	6'-8"	1¾"		C	¼" WIRE											111	
	24	3'-0"	6'-8"	1¾"		B												111	BARRIER PLAZA B ONLY
	25	3'-0"	6'-8"	1¾"		C	¼" WIRE							12				EXTR.	BARRIER PLAZA B ONLY
TUNNEL	30	2'-2"	6'-8"	1¾"	H.M.	C	¼" WIRE			H.M.	J	7		12				EXTR.	
	31	2'-2"	6'-8"	1¾"	H.M.	C	¼" WIRE			H.M.	J	7		12				EXTR.	

DOORS AND FRAMES SCHEDULE FOR UTILITY BUILDINGS AT ~~BARRIER PLAZA A & C~~ CORRIDOR L

LOCATION	DOOR NO.	DOOR SIZE W	H	T	MAT.	TYPE	GLASS	LOUVER W	H	FRAME MAT.	TYPE	DETAILS JAMB	HEAD	SILL	FIRE RATING LAB.	CON.	HARDWARE SET NO.	KEYSIDE ROOM NO.	REMARKS
FIRST FLOOR	1	3'-0"	7'-0"	1¾"	ALUM.	A	¼" WIRE			ALUM	K	1		12				EXTR.	
	2	2'-4"	6'-8"	1¾"	H.M.	B				H.M.	K	2		11				EXTR.	
	3	3'-0"	6'-8"	1¾"	WOOD	D	¼" WIRE				J	4						102	
	4	3'-0"	6'-8"	1¾"														102	
	5	3'-0"	6'-8"	1¾"				1'-8"	8"									115	
	6	2'-8"	6'-8"	1¾"		C													
	7	2'-8"	6'-8"	1¾"		B		1'-8"	8"					13				104	
	8	2'-8"	6'-8"	1¾"		C	¼" WIRE												
	9	2'-8"	6'-8"	1¾"		C	¼" WIRE	1'-8"	8"			5		13					
	10	2'-8"	6'-8"	1¾"		B						4		13				115	
	11	3'-0"	6'-8"	1¾"		D	¼" WIRE	1'-8"	8"			4						115	
	12	2'-8"	6'-8"	1¾"	H.M.	B					K	2		12				EXTR.	
	13	3'-0"	6'-8"	1¾"	H.M.	C	¼" WIRE				K	5			B			115	
	14																		VAULT DOOR SEE SPEC. & DETAILS
	15	2'-8"	6'-8"	1¾"	WOOD	B		1'-8"	1'-10"	H.M.	J	4						101	
	16	3'-0"	6'-8"	1¾"	H.M.	B				H.M.	K	3		12				EXTR.	
BASEMENT	21	3'-0"	6'-8"	1¾"	H.M.	C	¼" WIRE			H.M.	J	6		12				EXTR.	
	22	3'-0"	6'-8"	1¾"		B												122	
	23	3'-0"	6'-8"	1¾"		C	¼" WIRE											111	
TUNNEL	30	2'-2"	6'-8"	1¾"	H.M.	C	¼" WIRE			H.M.	J	7		12				EXTR.	
	31	2'-2"	6'-8"	1¾"	H.M.	C	¼" WIRE			H.M.	J	7		12				EXTR.	CORRIDOR L ONLY

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: AS NOTED

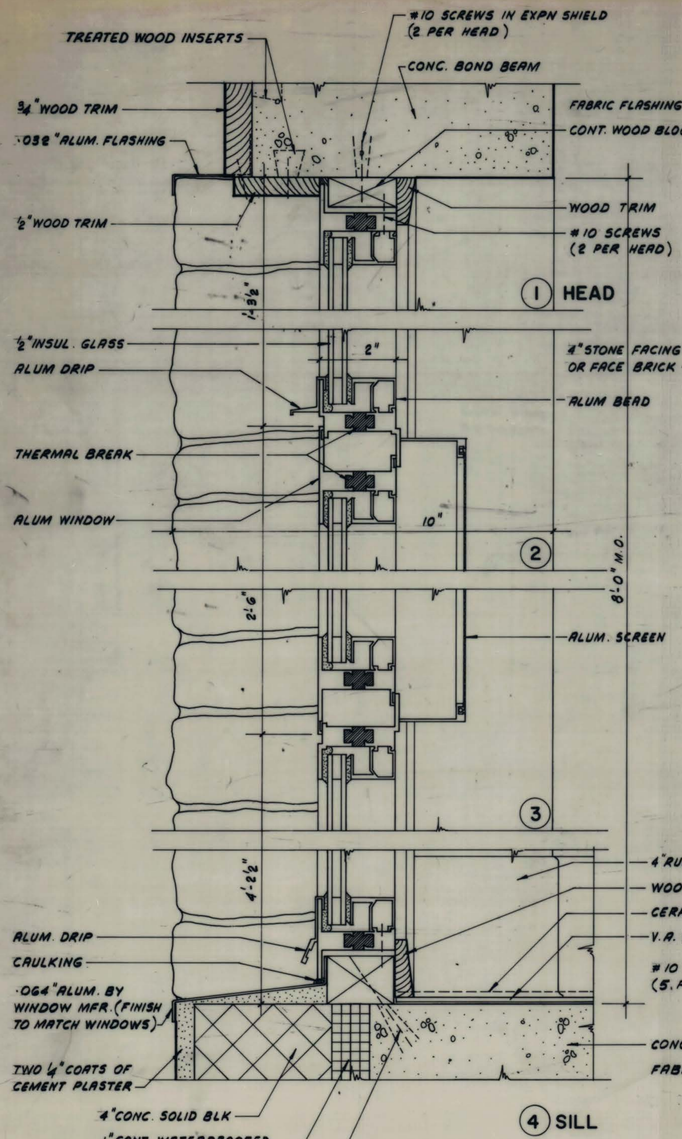
DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES
~~BARRIER PLAZAS A, B, C &~~ CORRIDOR L
UTILITY BUILDINGS
DOORS, FRAMES & SCHEDULES

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

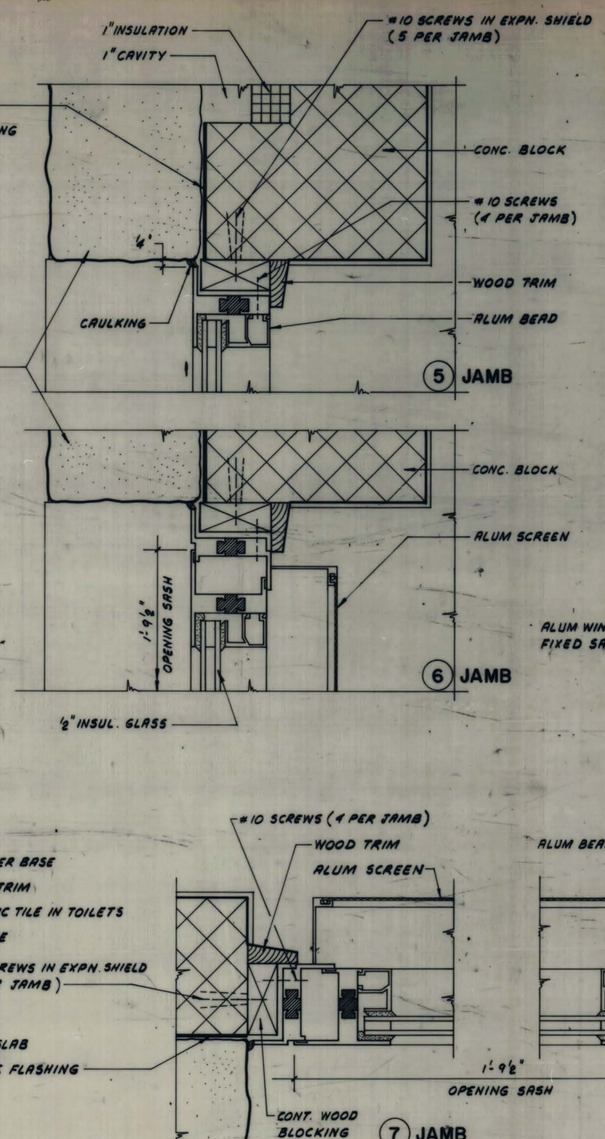
SHEET NO. A11

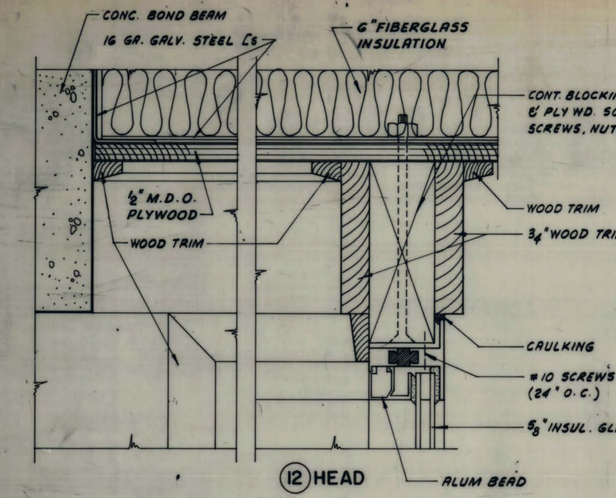
PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328-77-9.43	1-77-2(63)9 C-9.4	1979	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	118	136

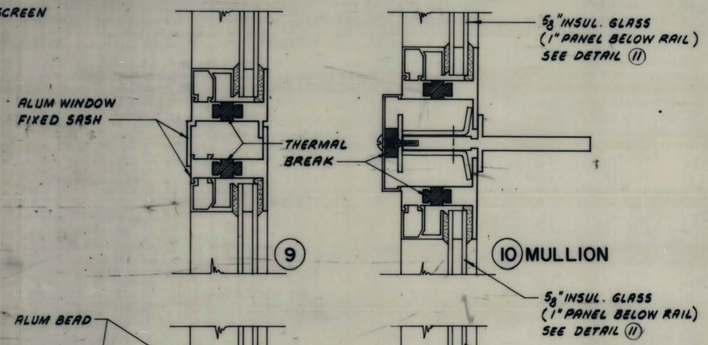


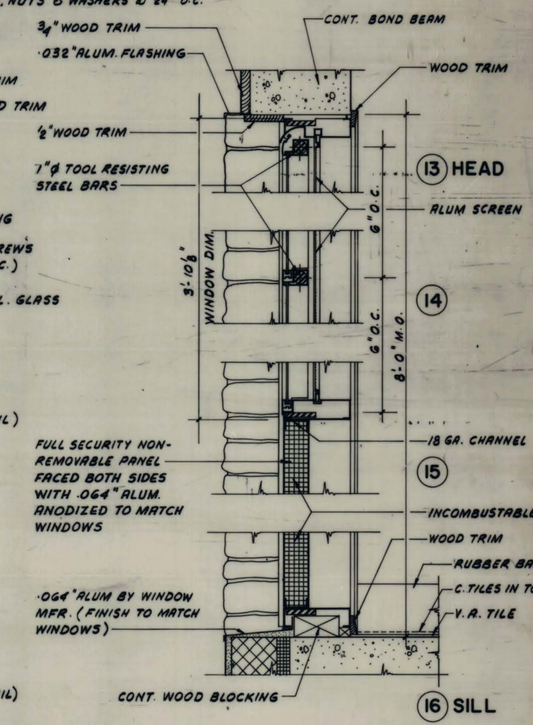
TYP. WINDOW DETAILS

SCALE ½ FULL SIZE



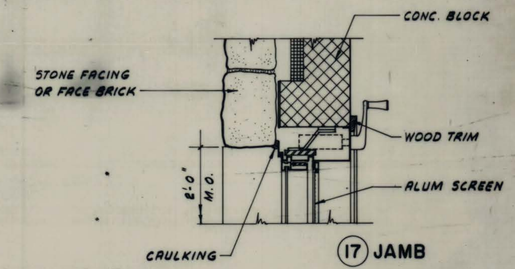






SUPERVISOR'S ROOM WINDOW DETAILS

SCALE ½ FULL SIZE



SECURITY WINDOW DETAILS

NO SCALE

NOTES:

1. FOR INSUL. GLASS & PANEL THICKNESSES & DETAILS SEE ELEVATIONS & SPECS.
2. OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: AS NOTED

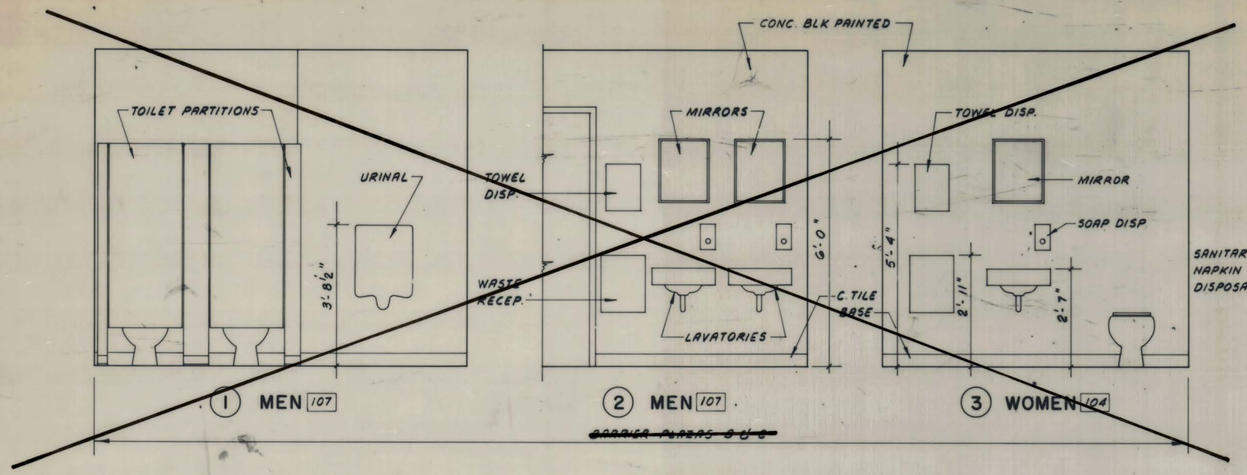
DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES
~~BARRIER PLAZAS A, B, C & D~~ CORRIDOR L
UTILITY BUILDINGS
WINDOW DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A12

PUBLIC ROADS D'V	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9.43	1-77-2(63) 9 C--~~3~~ 4	1979	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	119	136

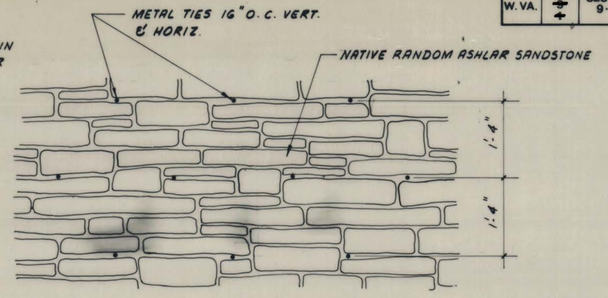


1 MEN 107 — 2 MEN 107 — 3 WOMEN 104

~~BARRIER PLAZAS B & C~~

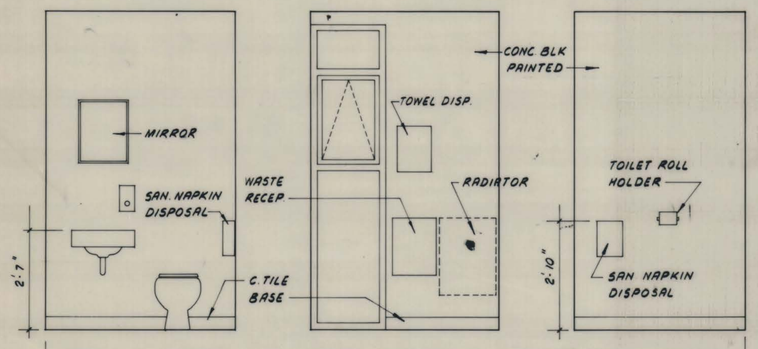
4 WOMEN 104

~~BARRIER PLAZAS B & C~~ ~~& CORRIDOR L~~ ~~(BARRIER PLAZA A REVERSE)~~



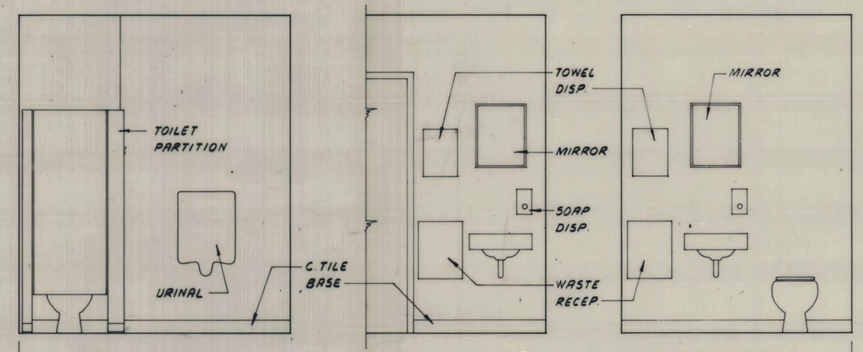
TYPICAL STONE PATTERN

SCALE 3/4" = 1'-0"



5 TOILET 103 — 6 TOILET 103 — 7 TOILET 103

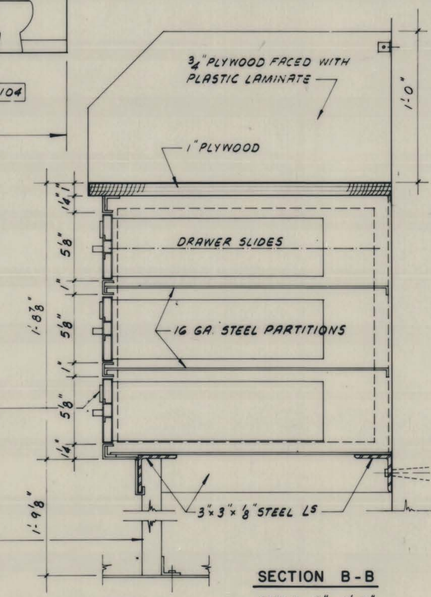
~~BARRIER PLAZAS A, B, C & D~~ CORRIDOR L



8 MEN 107 — 9 MEN 107 — 10 WOMEN 104

CORRIDOR L

~~(BARRIER PLAZA A REVERSE)~~

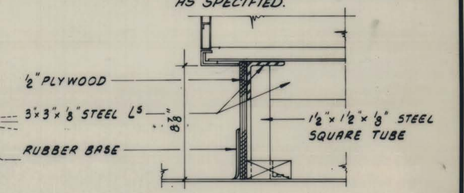


SECTION B-B

SCALE 2" = 1'-0"

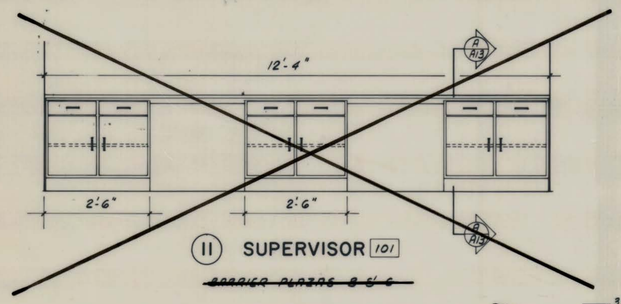
NOTES:

1. ALL COUNTER TOPS & EDGES SHALL BE FACED WITH PLASTIC LAMINATE
2. SEE DWG A15 FOR CASH DRAWER DETAILS
3. OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.



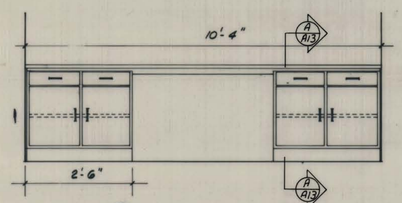
SECTION C

SCALE 2" = 1'-0"



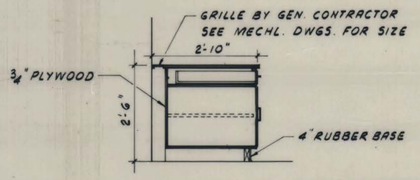
11 SUPERVISOR 101

~~BARRIER PLAZAS B & C~~

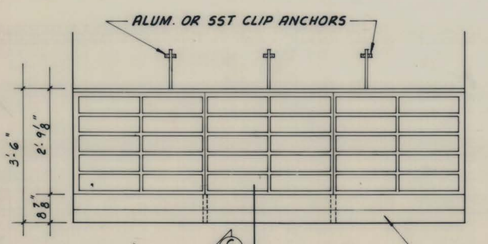


12 SUPERVISOR 101

~~BARRIER PLAZA B~~ CORRIDOR L

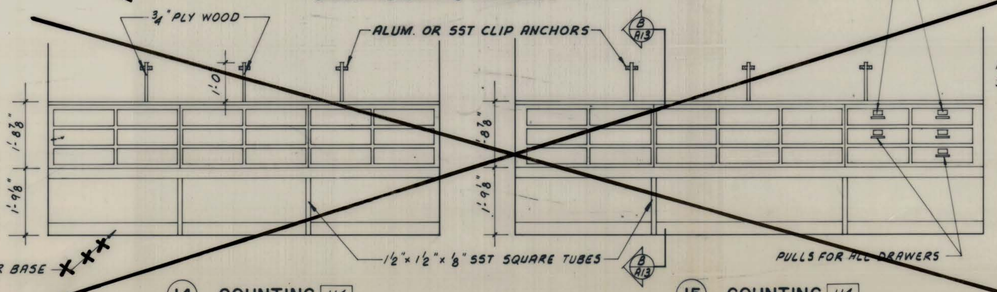


SECTION A-A



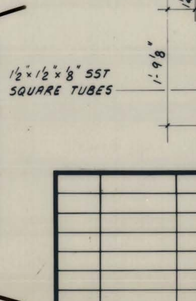
13 COUNTING 114

CORRIDOR L



14 COUNTING 114

BARRIER PLAZA A



15 COUNTING 114

BARRIER PLAZAS B & C

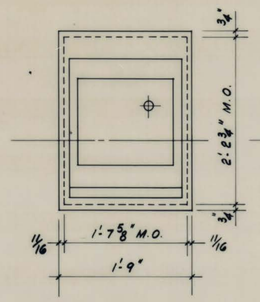
REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY
SCALE: 1/2" = 1'-0" OR AS NOTED		DATE: JULY, 1978		

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES
~~BARRIER PLAZAS A, B, C & D~~ CORRIDOR L
UTILITY BUILDINGS
INTERIOR WALL ELEVATIONS & MISC.

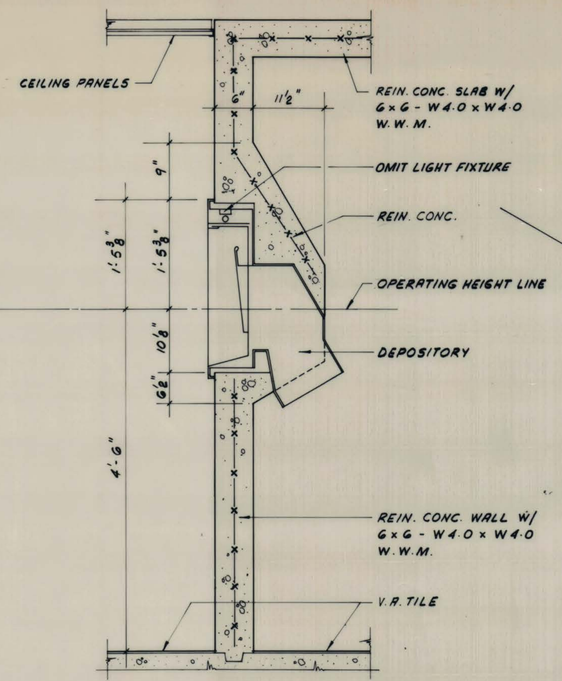
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A13

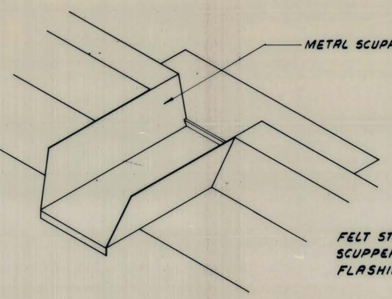
PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9.43	1-77-2(63) 9 C-34	1979	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	120	136



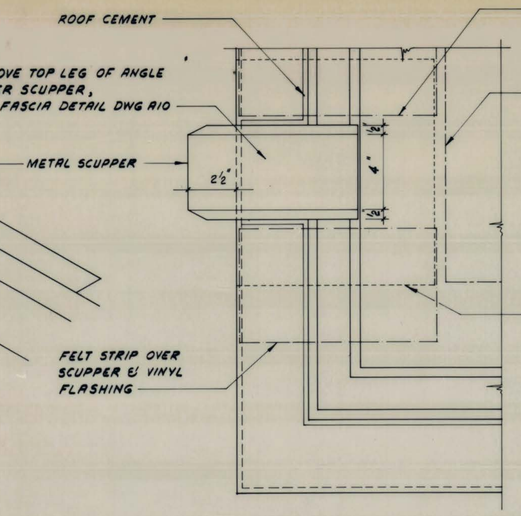
DEPOSITORY ELEVATION
DIEBOLD NO. 106-13



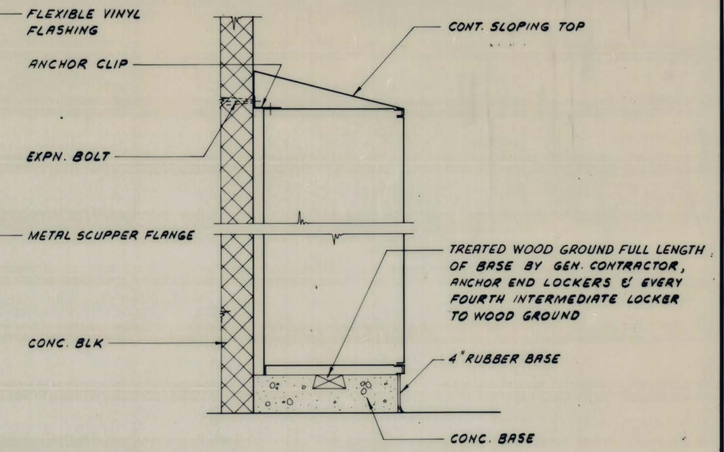
SECTION THRU DEPOSITORY



ISOMETRIC



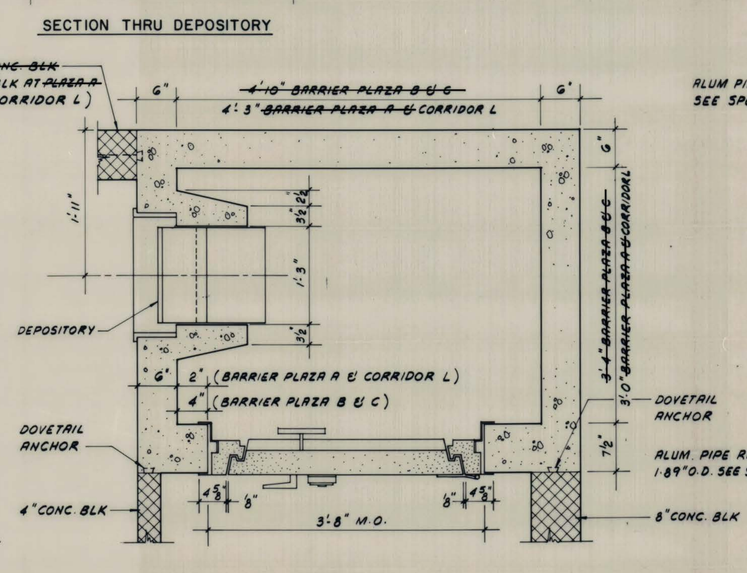
PLAN
SCALE 3" = 1'-0"



SCUPPER DETAILS

DOOR ELEVATION
DIEBOLD NO. 2085
NO SCALE

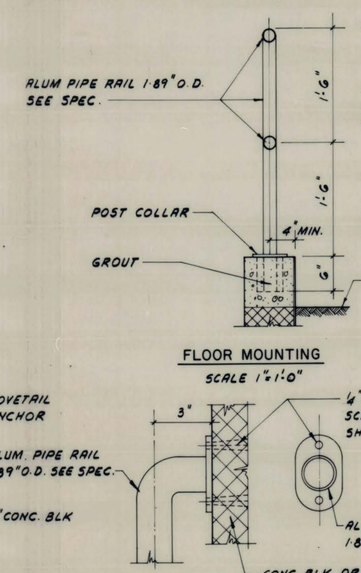
SECTION THRU DOOR
NO SCALE



VAULT PLAN

THE VAULT DOORS AND DEPOSITORIES SHOWN ARE DIEBOLD. SIMILAR ITEMS BY MOSLER, OR SCHWAB SAFE CO. OR AN APPROVED EQUAL WILL BE ACCEPTABLE PROVIDED THEY MEET OR EXCEED THE REQUIREMENTS DETAILED.

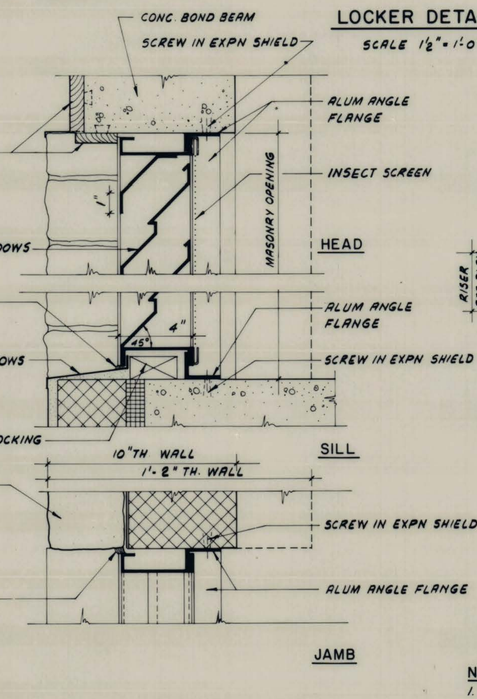
VAULT DETAILS
SCALE 1" = 1'-0" EXCEPT NOTED



FLOOR MOUNTING
SCALE 1" = 1'-0"

WALL MOUNTING
SCALE 3" = 1'-0"

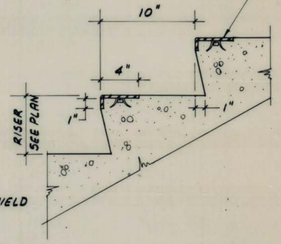
ALUM. RAILING & HANDRAIL DETAILS



ALUM. LOUVER DETAILS
SCALE 3" = 1'-0"
(2" MAX. MULLION WIDTH)

LOCKER DETAILS
SCALE 1½" = 1'-0"

4" x 5/16" ABRASIVE ALUM TREAD; STOP TREAD 6" FROM WALLS



TYP. NOSING DETAILS
SCALE 1½" = 1'-0"

NOTE:
1. OMIT ALL SANDSTONE FACING WHERE SHOWN AND SUBSTITUTE FACEBRICK AS SPECIFIED.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: AS NOTED
DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES
~~BARRIER PLAZAS A, B, C &~~ CORRIDOR L
UTILITY BUILDINGS
MISCELLANEOUS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A14

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
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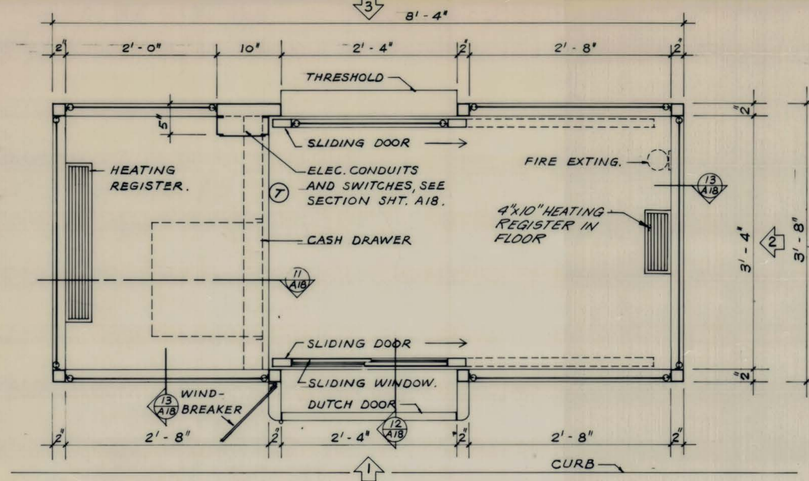
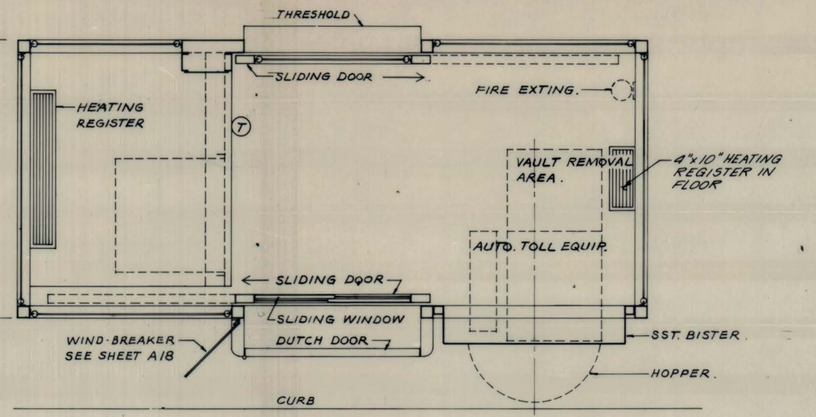
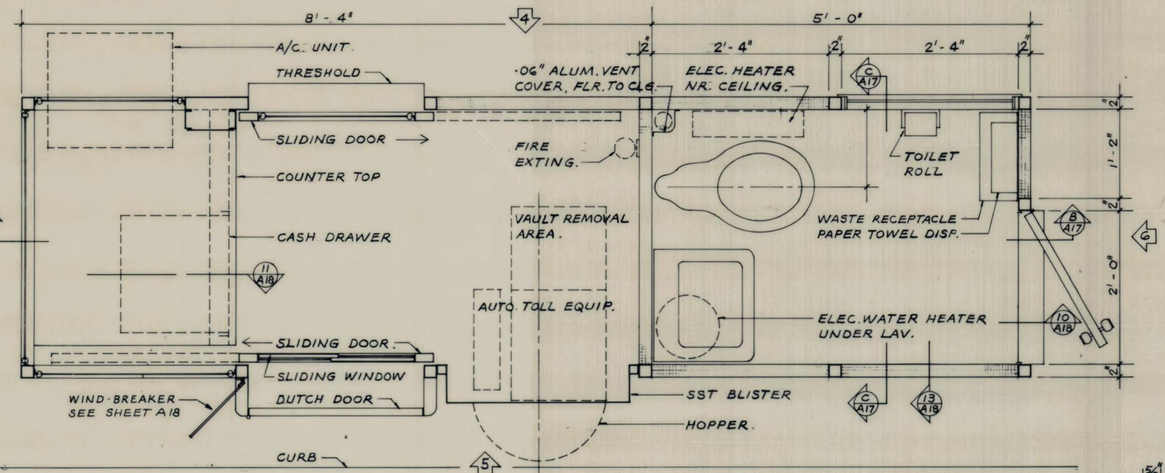


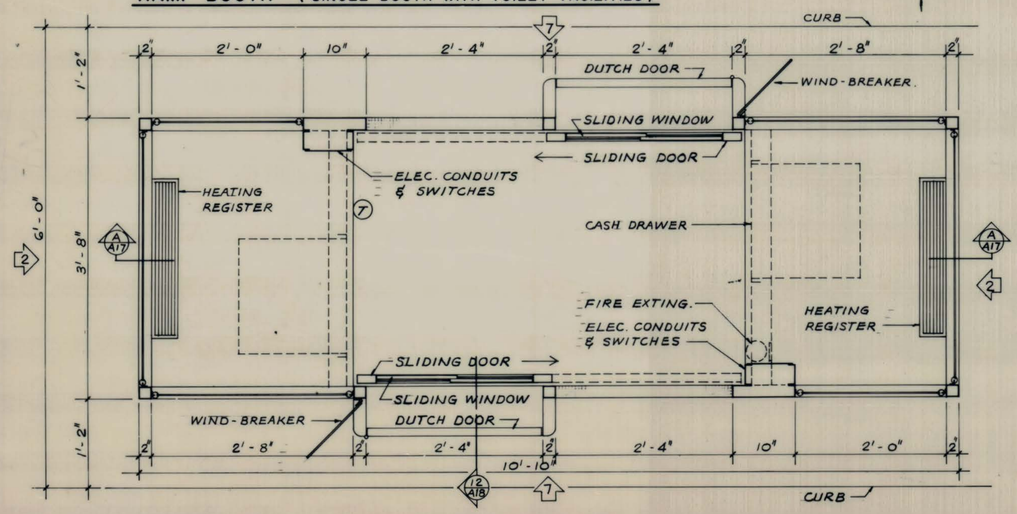
SINGLE BOOTH



SINGLE BOOTH (WITH AUTOMATIC TOLL EQUIP.)



RAMP BOOTH - (SINGLE BOOTH WITH TOILET FACILITIES)

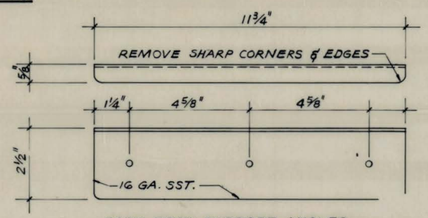


DOUBLE BOOTH

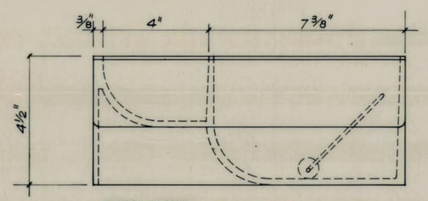
SCALE 1" = 1'-0"

BOOTH TYPES	NO. REQUIRD
SINGLE	20
SINGLE (WITH AUTO TOLL EQP.)	2
RAMP	8
DOUBLE	5

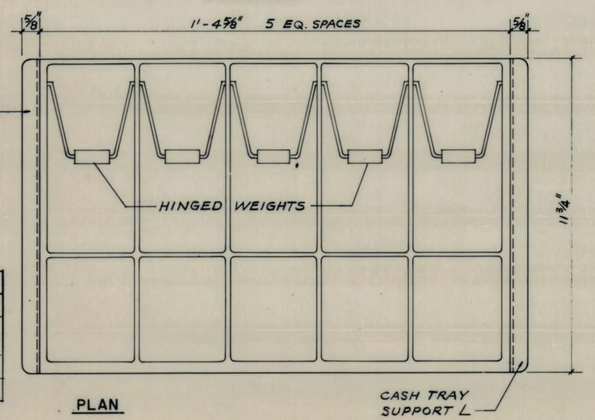
NOTE :–
FOR NUMBERED BOOTH ELEVATIONS (⬡) SEE SHEETS A16 & A17



CASH TRAY SUPPORT ANGLES



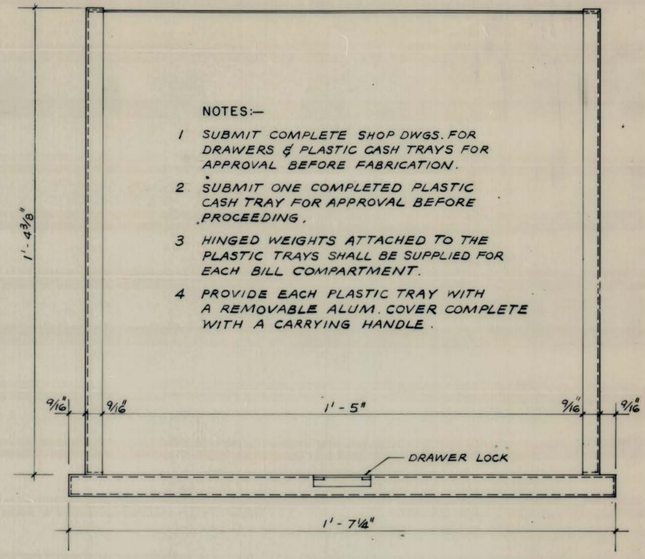
SIDE VIEW

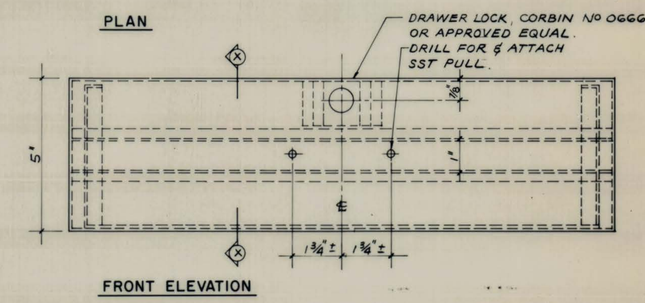


PLASTIC CASH TRAY INSERTS

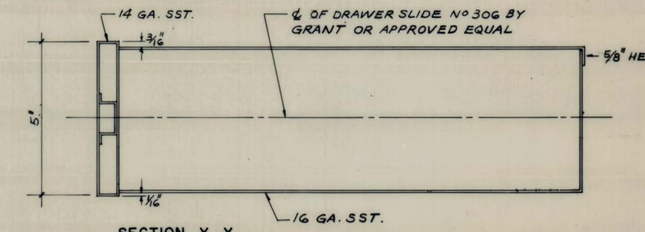
Nº REQUIRED - 158

SCALE ⅜" = 1 INCH.





FRONT ELEVATION



SECTION X-X

CASH DRAWER DETAILS

SCALE ⅜" = 1 INCH.

REFERENCE DRAWING

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: AS NOTED

DATE: JULY, 1978

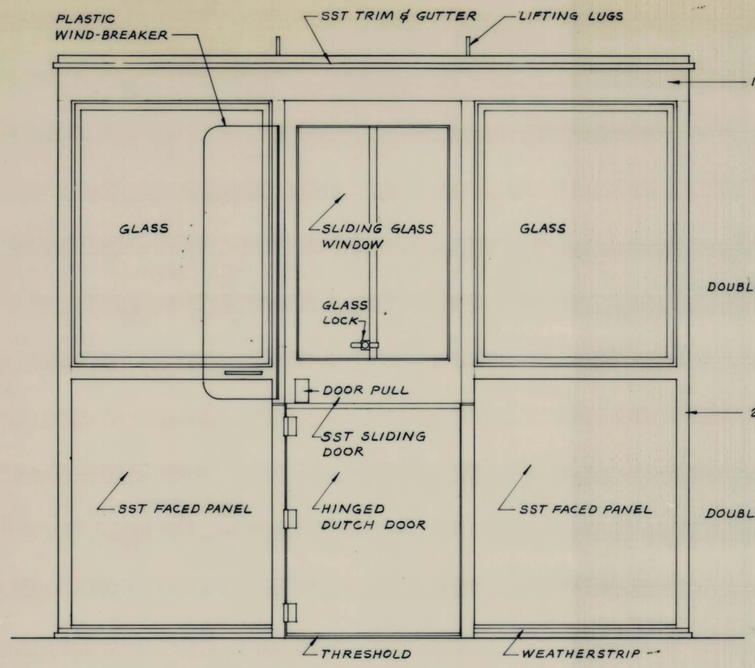
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

BARRIER & RAMP PLAZAS
TOLL BOOTHS
PLANS & DETAILS

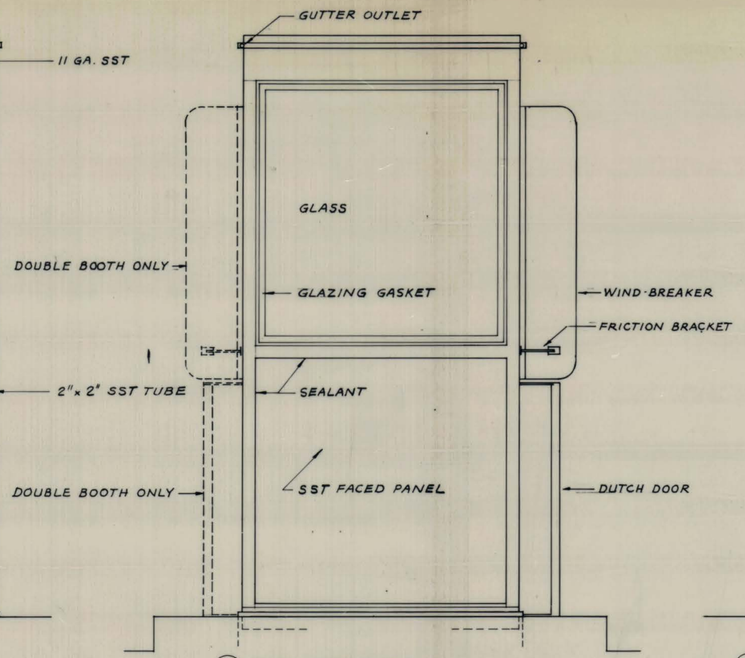
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A15

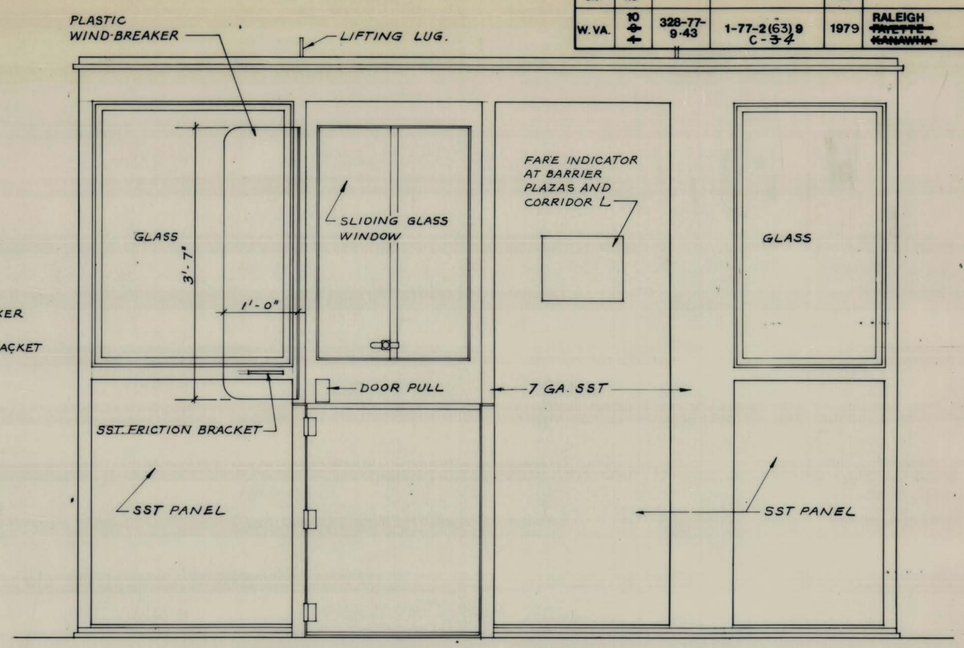
PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9·43	1-77-2(63) 9 C-34	1979	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	122	136



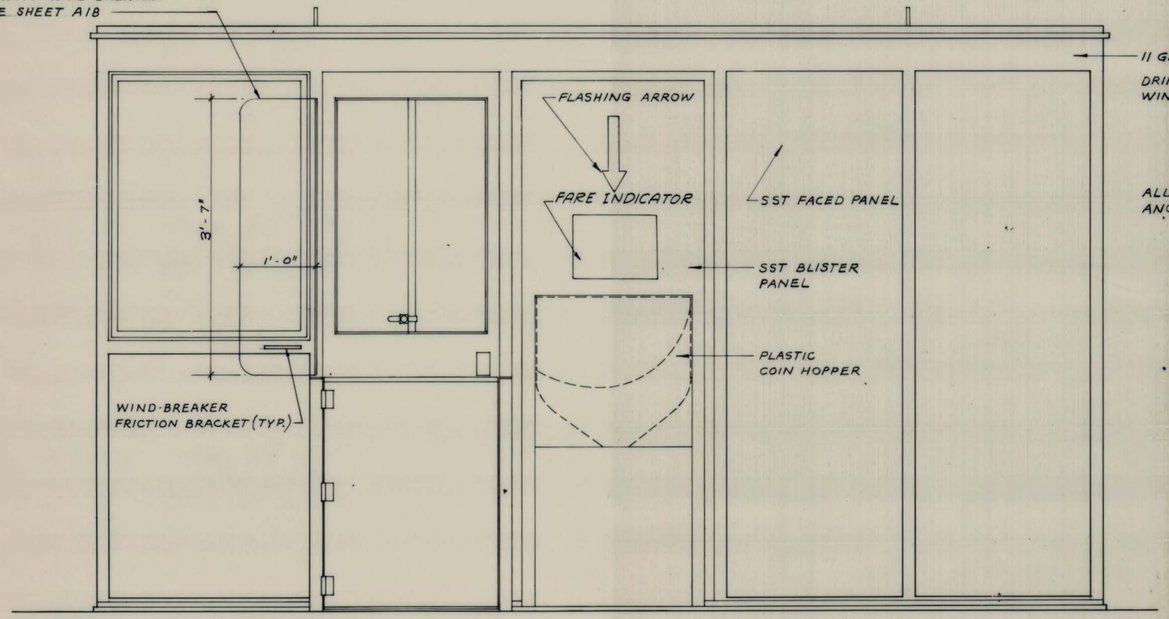
(1) SINGLE BOOTH



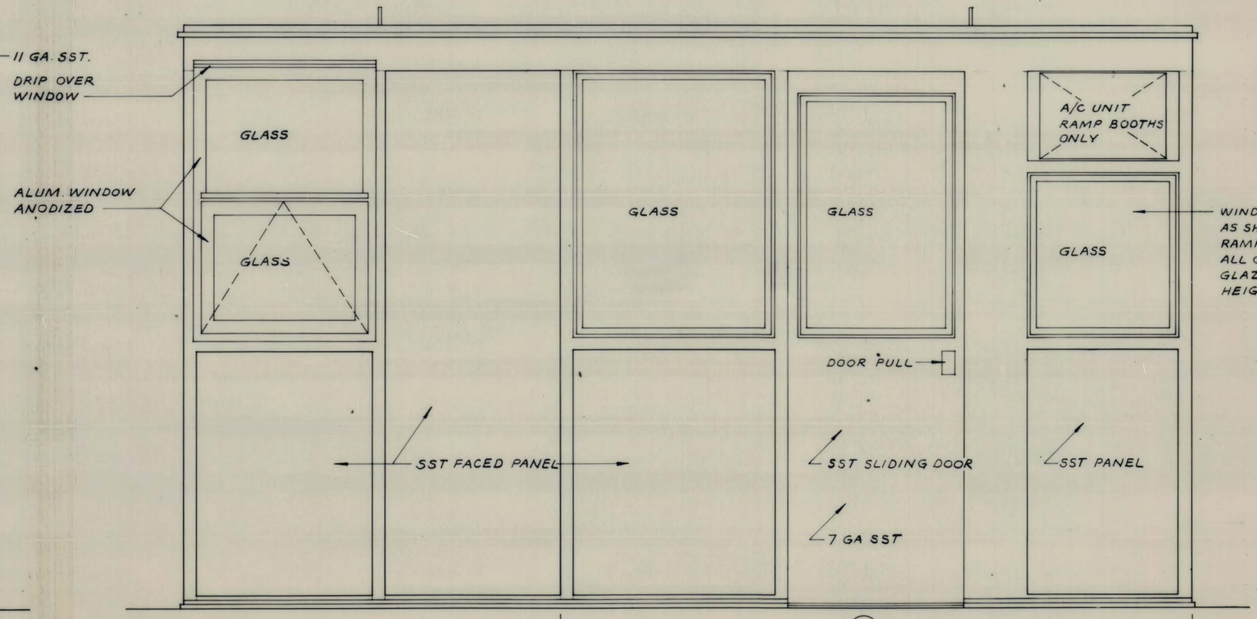
(2) TYP. END ELEV.



(7) DOUBLE BOOTH (BOTH SIDES THE SAME)



(5) RAMP BOOTH



(4) RAMP BOOTH

REFERENCE DRAWING

NOTE
ALL EXPOSED STAINLESS STEEL (SST.) FRAMING, TRIM AND PANEL SURFACES, SHALL HAVE A No 2D (DULL SATIN) FINISH. PANEL SURFACES EXPOSED TO INTERIOR OF BOOTHS SHALL BE ALUM. ANODIZED (NATURAL ALUM. COLOR)

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: 1" = 1'-0" DATE: JULY, 1978

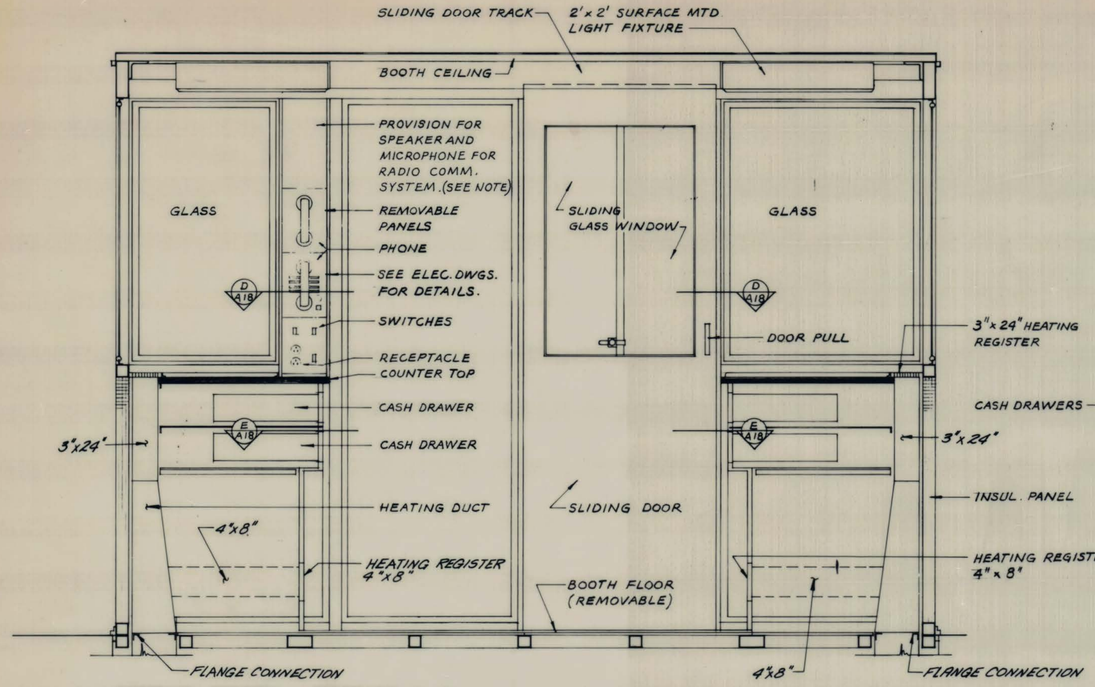
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

BARRIER & RAMP PLAZAS
TOLL BOOTHS
ELEVATIONS

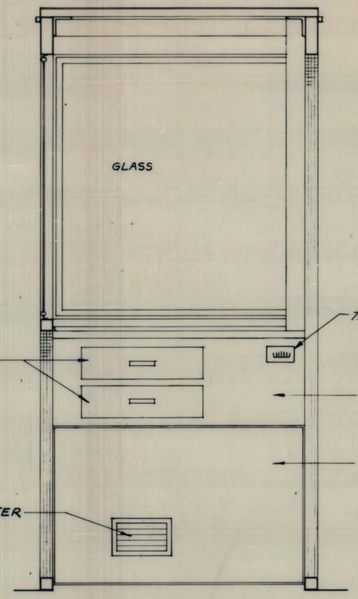
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A16

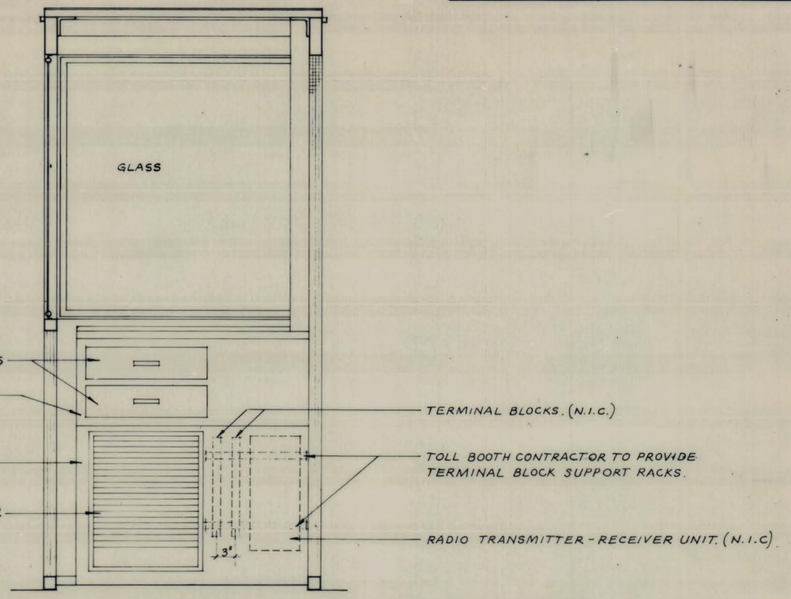
PUBLIC ROADS DIV.	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328-77-9.43	1-77-2(63) 9 C-34	1979	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	123	136



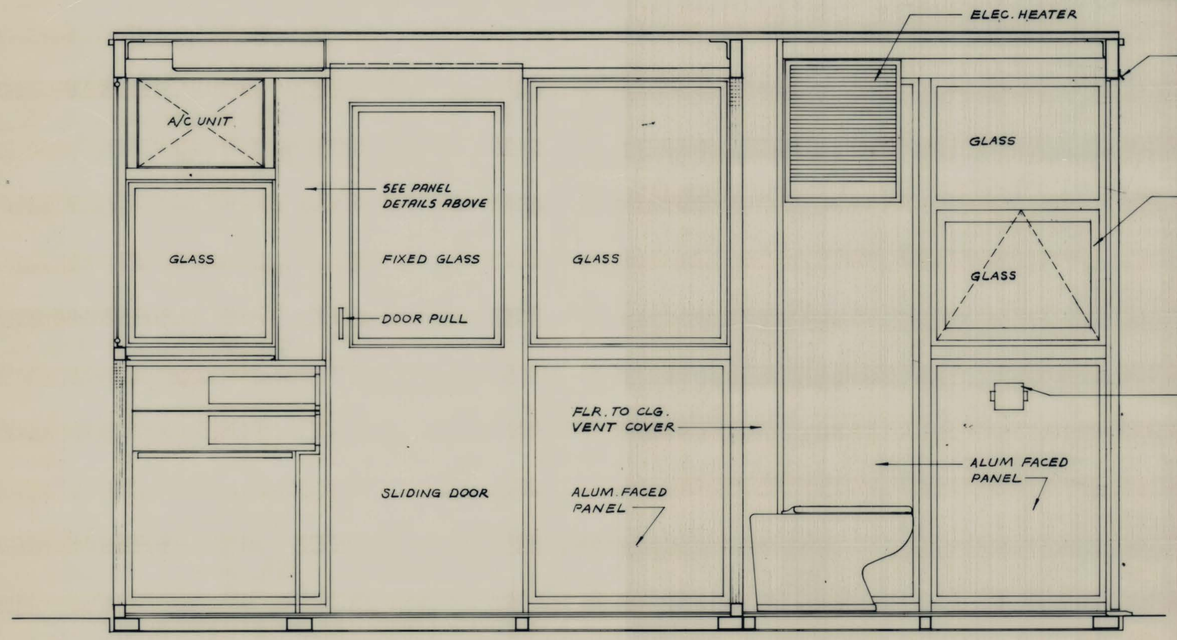
DOUBLE BOOTH - SECTION A-A



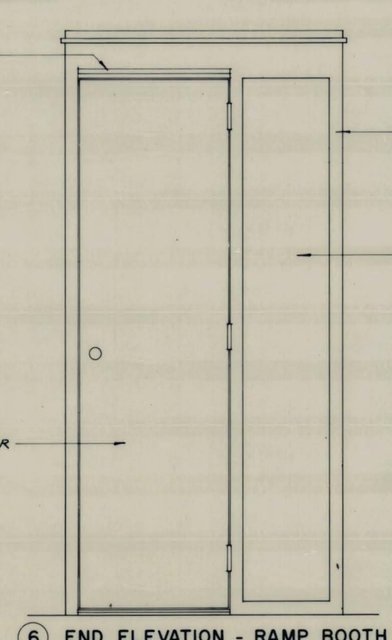
SECTION SHOWING COUNTER FRONT SINGLE & DOUBLE BOOTH



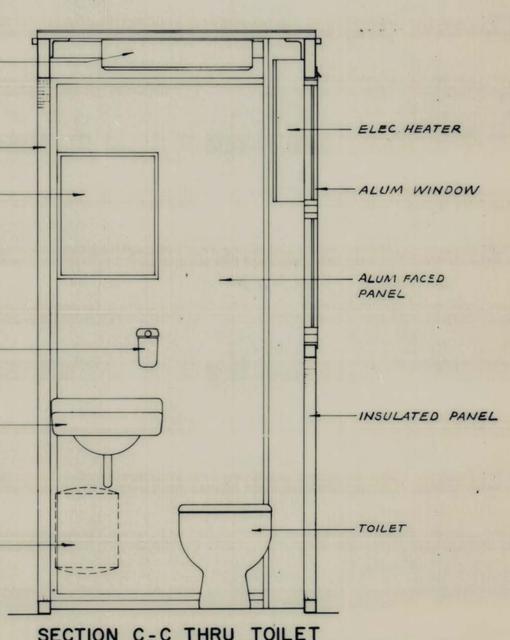
SECTION SHOWING COUNTER FRONT RAMP BOOTHS



RAMP BOOTH - SECTION B-B



(6) END ELEVATION - RAMP BOOTH



SECTION C-C THRU TOILET

NOTE
MAKE PROVISION FOR SPEAKER & MICROPHONE FOR RADIO COMMUNICATION SYSTEM IN :-
6 - SINGLE BOOTHS.
2 - SINGLE BOOTHS WITH AUTO. EQUIP.
8 - RAMP BOOTHS.

REFERENCE DRAWING

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: 1" = 1'-0" DATE: JULY, 1978

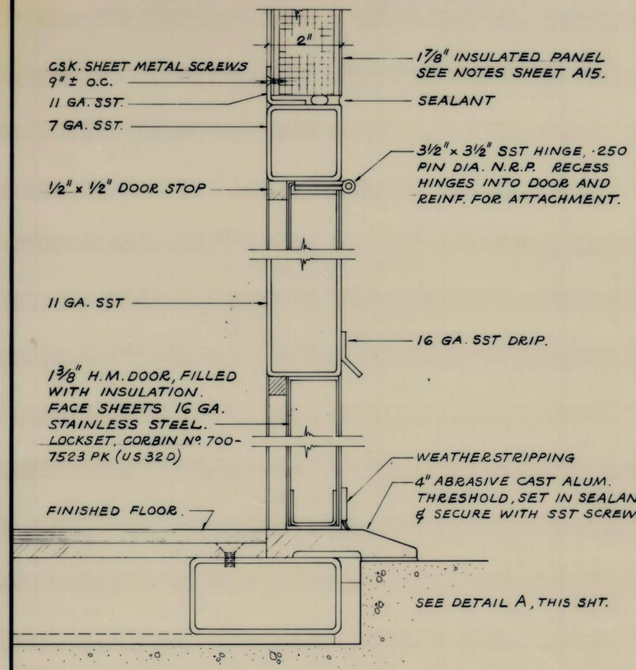
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

BARRIER & RAMP PLAZAS
TOLL BOOTHS
SECTIONS & ELEVATION

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

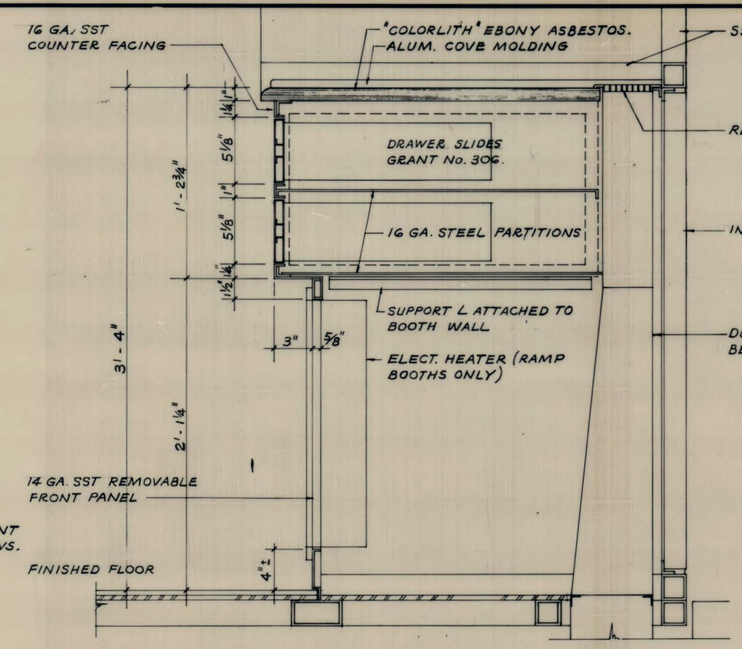
SHEET NO. A17

PUBLIC ROADS DIV	STATE DIST NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10 4 4	328-77-9-43	1-77-2(63) 9 C-8 4	1979	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	124	136



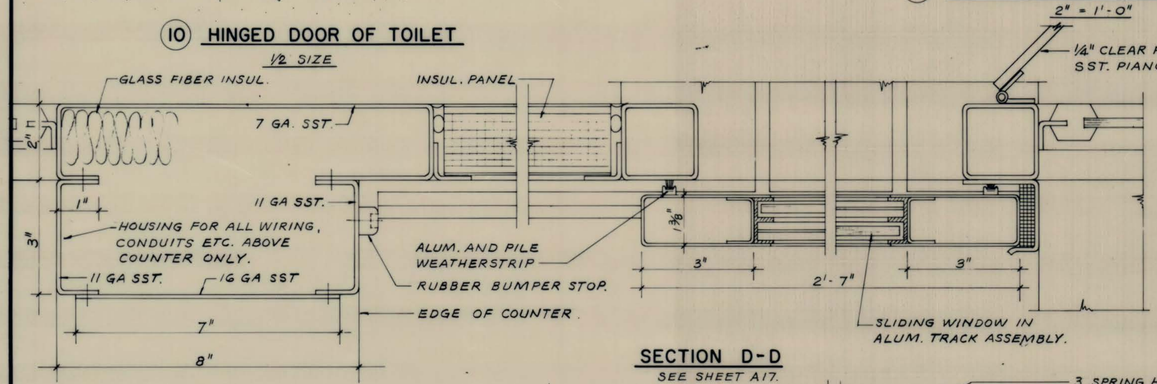
(10) HINGED DOOR OF TOILET

½ SIZE



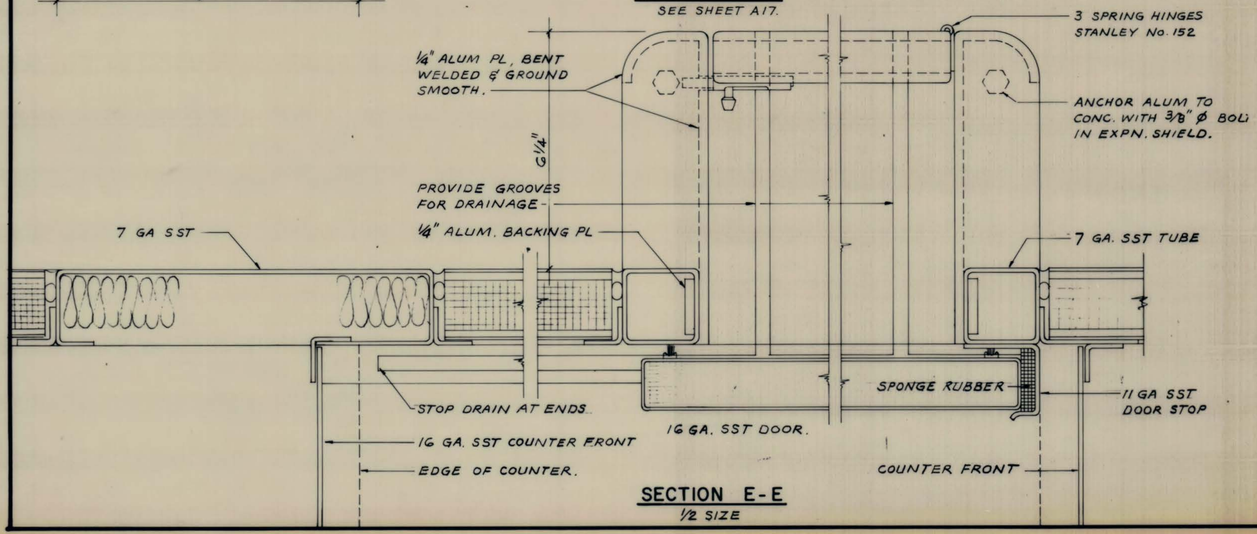
(11) TYPICAL SECTION THRU COUNTER

2" = 1'-0"



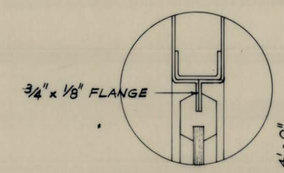
SECTION D-D

SEE SHEET A17.

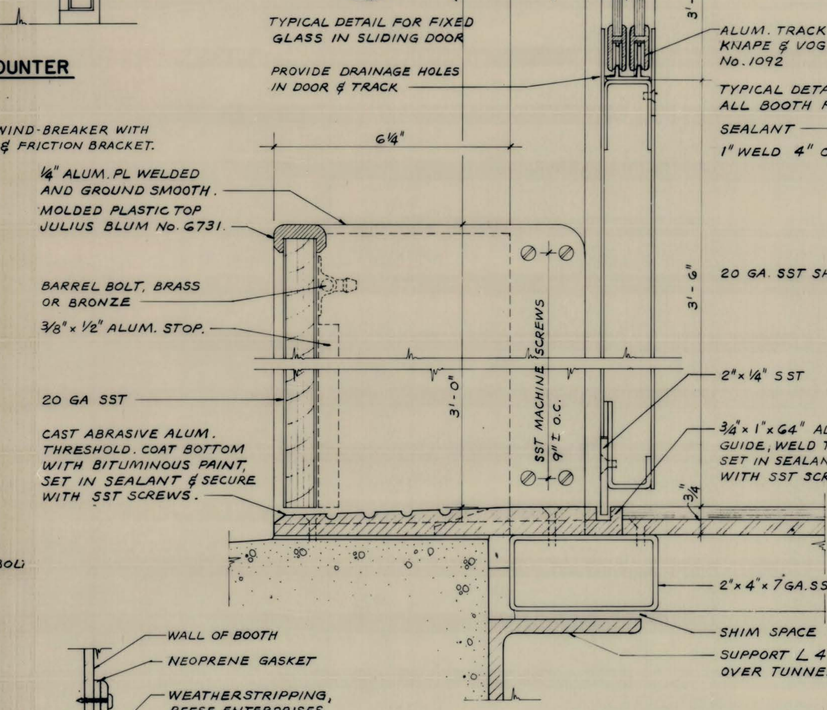


SECTION E-E

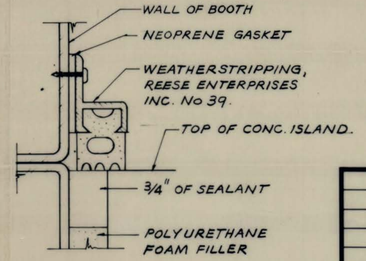
½ SIZE



TYPICAL DETAIL FOR FIXED GLASS IN SLIDING DOOR

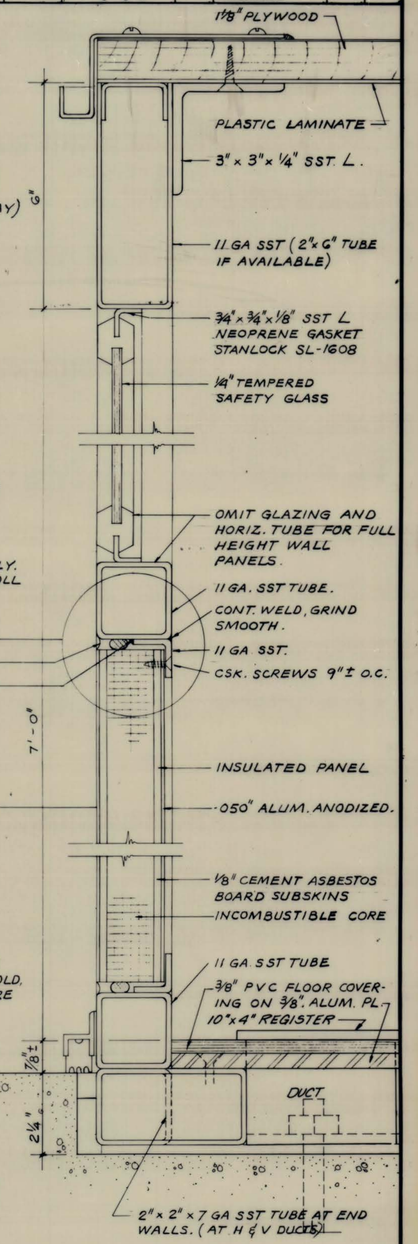


(12) SECTION AT SLIDING DOOR



DETAIL A

FULL SIZE



(13) SECTION THRU BOOTH WALL

SCALE ½ SIZE

REFERENCE DRAWING

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: AS NOTED

DATE: JULY, 1978

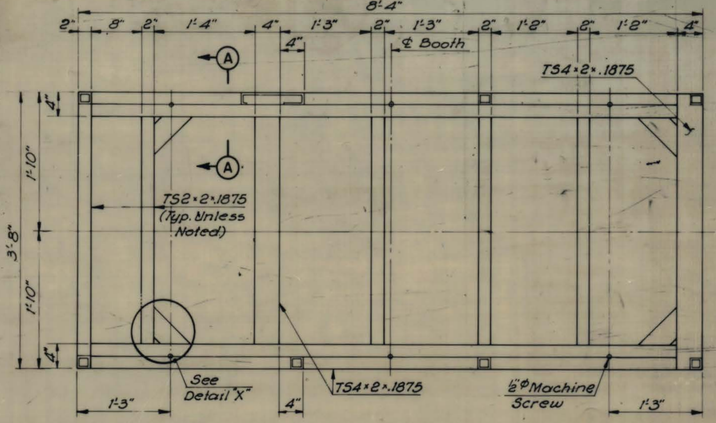
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

BARRIER & RAMP PLAZAS
- TOLL BOOTHS
SECTIONS & DETAILS

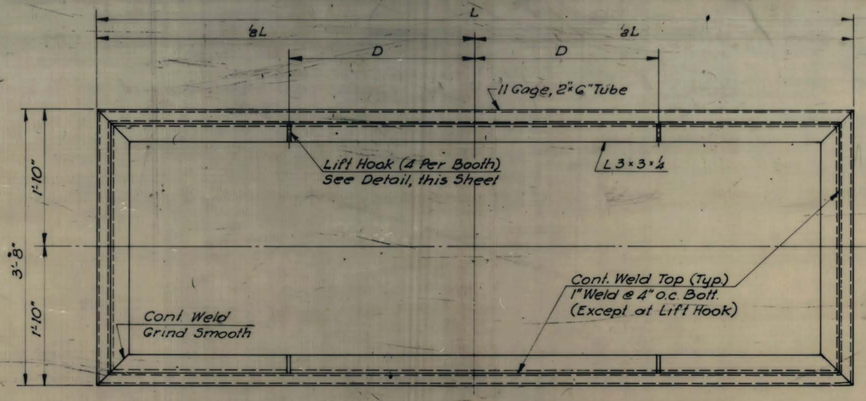
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. A18

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	32A 77 943	I 77 X1639 C-34	19 79	RALEIGH	125	130

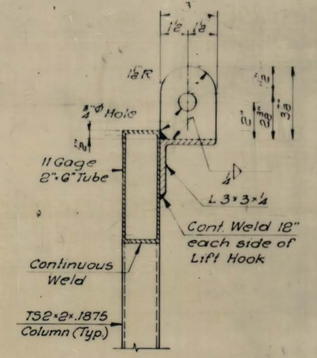


FRAMING PLAN AT BASE
SINGLE BOOTH
1"=1'-0"

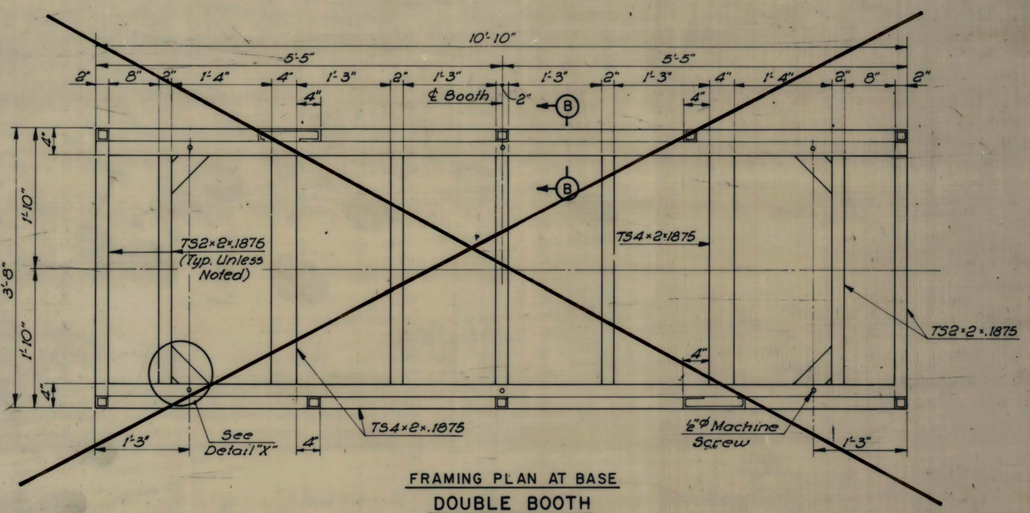


FRAMING PLAN AT TOP
ALL BOOTHS
1"=1'-0"

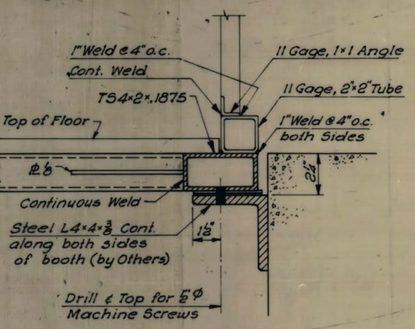
LIFT HOOK LOCATIONS		
BOOTH TYPE	L	D
SINGLE BOOTH	8'-4"	1'-3"
DOUBLE BOOTH	10'-10"	2"6"
RAMP BOOTH	13'-4"	3'-11"



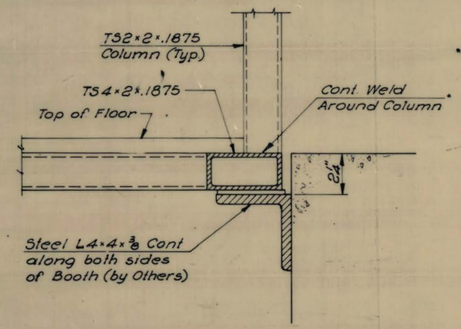
LIFT HOOK DETAILS
3"=1'-0"



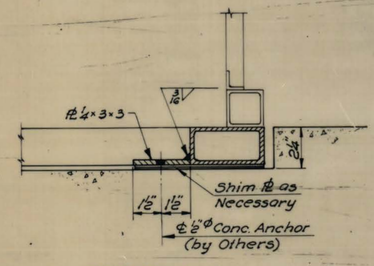
FRAMING PLAN AT BASE
DOUBLE BOOTH
1"=1'-0"



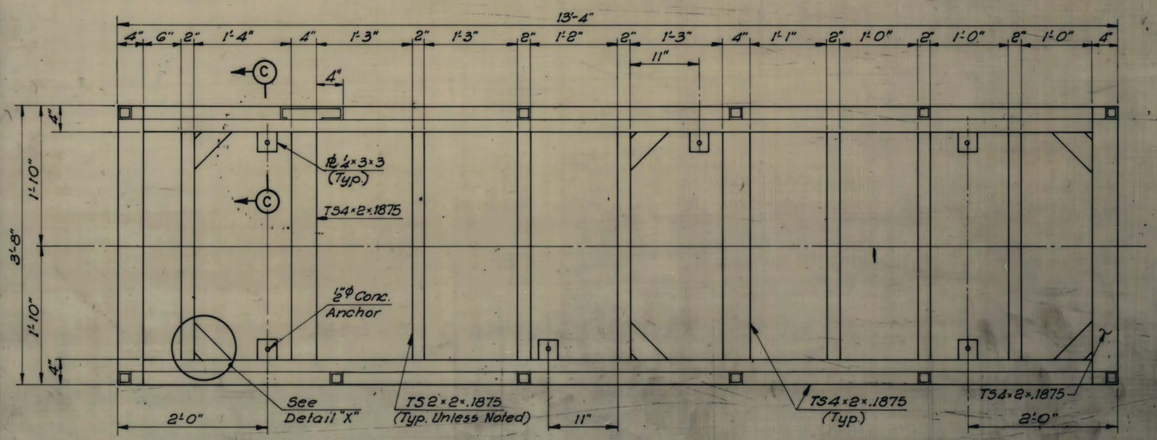
SECTION A-A
3"=1'-0"



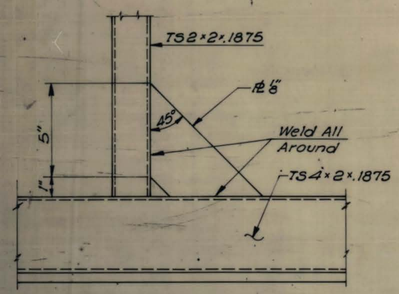
SECTION B-B
3"=1'-0"



SECTION C-C
3"=1'-0"



FRAMING PLAN AT BASE
RAMP BOOTH
1"=1'-0"



DETAIL "X"
3"=1'-0"

NOTES:

The tubing used for the toll booth framing shall be stainless steel, conforming to ASTM A-554.

The stainless steel framework is constructed generally with welded connections. Other types of constructions such as rivets, bolts, screws etc., will be considered, but approval will be based upon complete shop drawings showing all features of the installation. All detailed requirements must be met.

REFERENCE DRAWING

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. AS NOTED Vert. | DATE: JULY, 1978

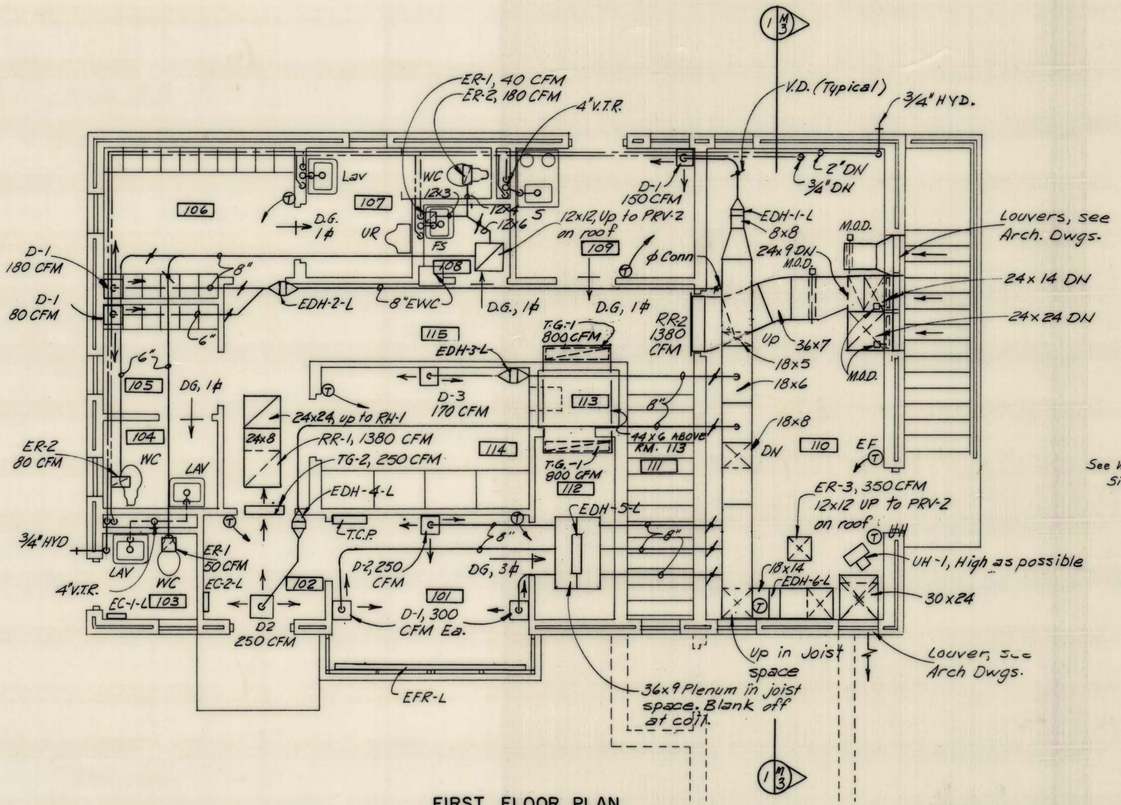
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE, & KANAWHA~~ COUNTIES

BARRIER & RAMP PLAZAS
TOLL BOOTHS
FRAMING DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

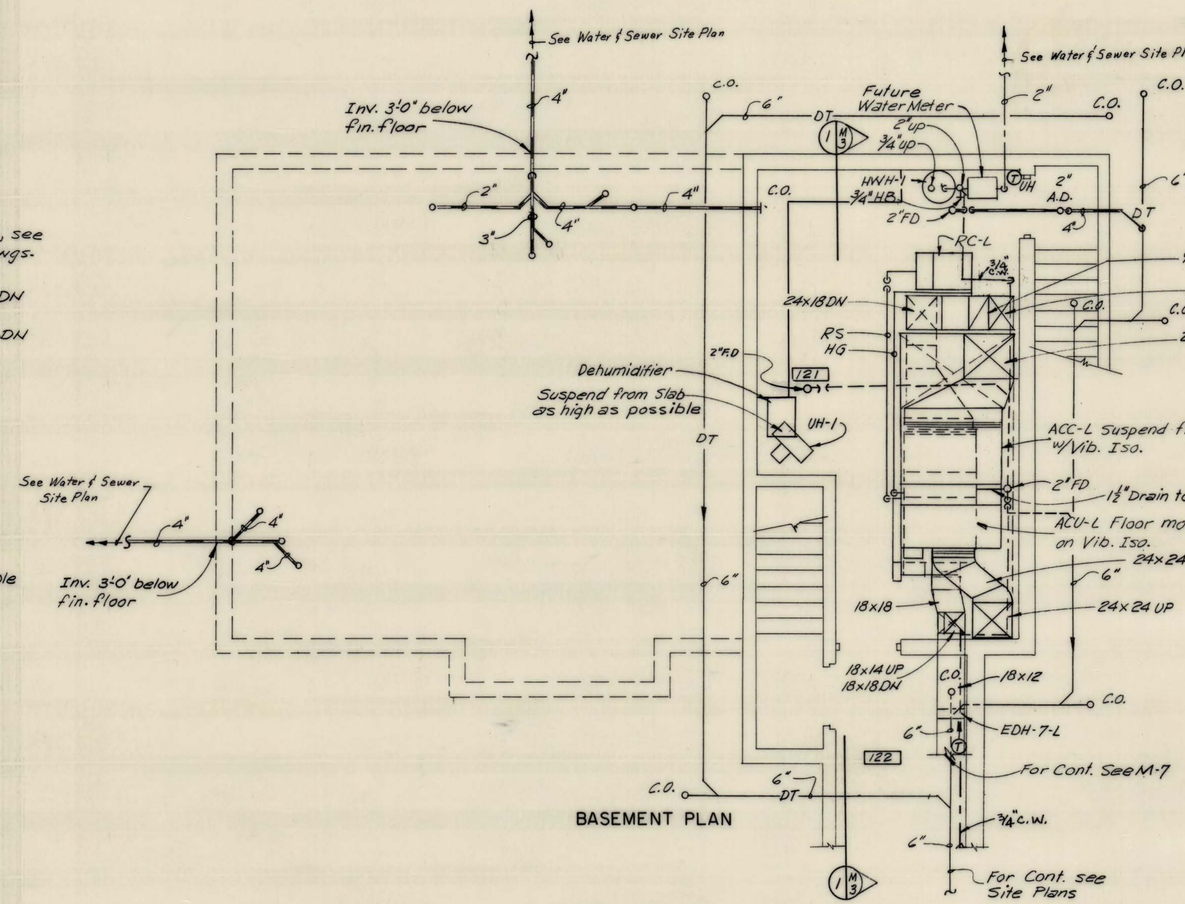
SHEET NO. A19

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(639) C-34	1979	RALEIGH	126	136



FIRST FLOOR PLAN

SECTION



BASEMENT PLAN

Notes:
1. All Supply Branch and Runout Ductwork on first floor to be installed between or through joists as indicated. See Structural Drawings for size and location of Joists.
2. See Sheets M-9, 10 and 11 for Legend's and Details.
3. See Sheet M-8 for Schedules.
4. See Site Drawings for Cont. of D.T., S.S. & C.W.
5. Starting Invert of D.T. to be 9" below foundation Footing. Slope 1/16"/ft. See Struct. Dwgs. for footing.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1"=1'-0" Vert. 1/4"=1'-0" DATE: JULY, 1978

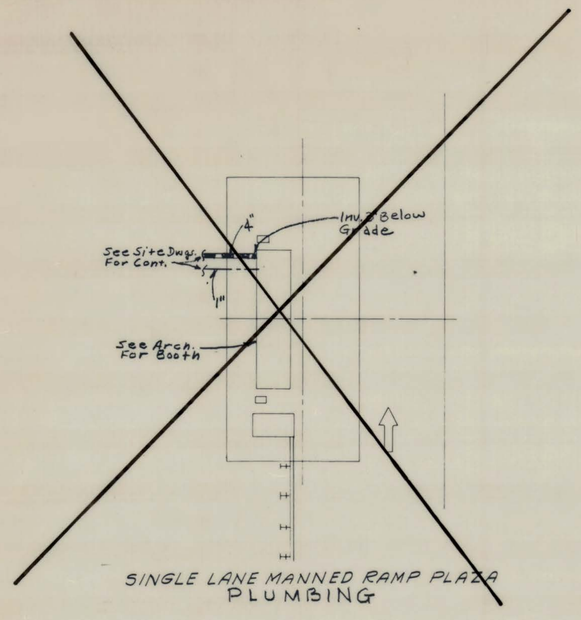
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

CORRIDOR "L"
PLUMBING & HVAC

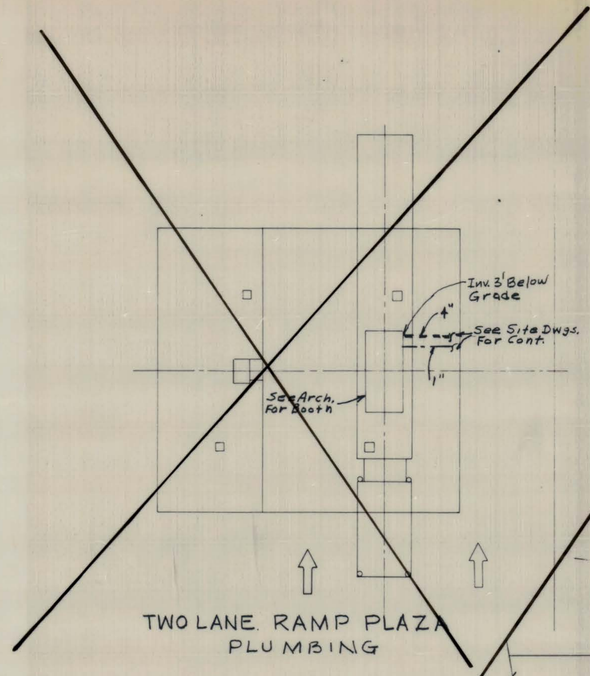
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. M-3

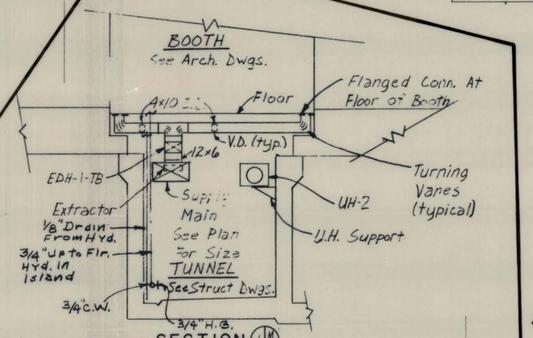
PUBLIC ROADS DIV.	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(63)9 C-~~3~~ 4	79	RALEIGH ~~KANAWHA~~	127	136



SINGLE LANE MANNED RAMP PLAZA
PLUMBING

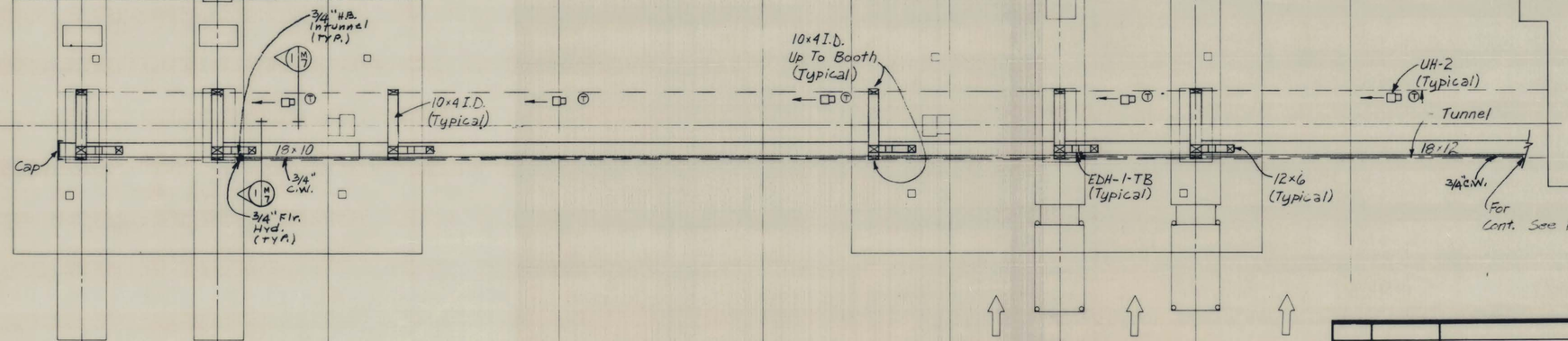


TWO LANE RAMP PLAZA
PLUMBING

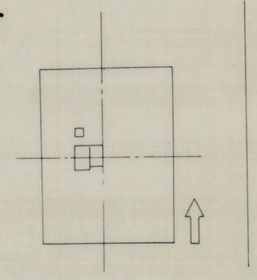


SECTION (1/M7)
Scale 1/4"=1'-0"

~~PLAN VIEW~~
~~PLAZA "A" SOUTHBOUND~~
~~(NORTHBOUND THE SAME)~~



PLAN VIEW
CORRIDOR "L"



REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1/8"=1'-0" Vert. 1/4"=1'-0" DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH ~~& KANAWHA~~ COUNTIES

~~BARRIER PLAZA "A"~~, CORRIDOR "L" ~~& RAMP PLAZAS~~
PLUMBING & HVAC

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. M-7

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(63) 9 C-3.4	79	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	128	136

AIR CONDITIONING UNIT SCHEDULE

MARK No: ACU-

MARK No.	LOC.	MFR.	MODEL	TYPE	CFM TOTAL	CFM O.A.	S.P. IN. H_2O	FAN RPM	MOTOR H.P.	MOTOR	MOTOR No.	OUT VEL. (FPM)	FACE & BYPASS INT.	FACE & BYPASS EXT.	FILTERS	TYPE MIX BOX	HUMIDIFIER TYPE	HUMIDIFIER FURN. BY	MULTI-ZONE	No. ZONES	DUAL DUCT	VOL. DPRS.	PREHEAT COIL	REHEAT COIL	COOLING COIL	REMARKS
~~ACU-A~~	~~BSMT.~~	~~TRANE~~	~~#8~~	~~PKG.~~	2780	1400	2.5	1275	3	~~480V 3ϕ~~		1230			PERMANENT	FIELD									~~DX~~	~~TWO(2) UNITS REQ'D. MED.~~
ACU-L	↓	↓	↓	↓	3000	1620	2.5	1260	3	↓	↓	1320	↓	↓	↓	FAB.	↓	↓	↓	↓	↓	↓	↓	↓	↓	PRESSURE
~~ACU-B~~					4420	2170	2.75	1295	5			1940														
~~ACU-C~~					3840	2390	2.75	1265	5			1675														

AIR COOLED CONDENSER SCHEDULE

MARK No: ACC-

MARK No.	LOC.	MFR.	MODEL	REFRIG	FAN CFM	FAN DIA	FAN RPM	FAN H.P.	FAN	FAN MTR. NO.	DRIVE	CONDENSER CAP TONS	CONDENSER COND TEMP	CONDENSER SUCT TEMP	CONDENSER ENT. D.B.	CONDENSER NO. OF CIRCUITS	LIQUID RECEIVER SIZE	LIQUID RECEIVER CAP. AT 80% FULL	REMARKS
~~ACC-A~~	~~BSMT.~~	~~TRANE~~	~~TC-12~~	~~R-22~~	~~8,010~~	~~18¼~~	~~775~~	~~5~~	~~480V 3ϕ~~		~~V-BELT~~	~~14.0~~	~~125~~	~~40°~~	~~100°~~		~~6X18~~		~~TWO (2) UNITS REQ'D.~~
ACC-L	↓	↓	TC-12	↓	↓	↓	↓	5	↓	↓	↓	14.0	↓	↓	↓	↓	↓	↓	↓
~~ACC-B~~			~~TC-21~~		~~14,200~~	~~2-16½~~	~~875~~	~~10~~				~~23.0~~							
~~ACC-C~~			~~TC-21~~		↓	↓	↓	~~10~~	↓	↓		↓							

POWER ROOF VENTILATOR SCHEDULE

MARK No: PRV-

MARK No.	LOC.	MFR.	MODEL	CFM	S.P. (H_2O)	RPM	WHL. DIA.	TIP SPEED	DPR. BY	MOTOR H.P.	MOTOR	MOTOR No.	SERVICE
PRV-1	ROOF	PENN	BB45	410	0.25	650		2550	MFG.	1/6	120V 1ϕ		T.R. EXH.
PRV-2	ROOF	PENN	AW20	350	0.25	860		2675	MFG.	1/20	↓		EXHAUST

ELECTRIC RADIATION SCHEDULE

MARK No: EFR-

MARK No.	LOC.	MFR.	MODEL	CAPACITY MBH	CAPACITY KW	HTG. MEDIUM	ELEMENT PIPE SIZE	ELEMENT FINS PER IN.	ELEMENT LENGTH	CABINET D.	CABINET L.	CABINET H.	MTG. HGT. TO TOP	DPR.	No. OF ROWS
EFR-1	SUPER.	MARKEL	4600		5.34	ELECT.				5"	10'-0"	20"	24"		
						277V 1ϕ									

AIR CONDITIONING UNIT COOLING COIL SCHEDULE

MARK No: ACCC-

MARK No.	A.C. UNIT	MFR.	TYPE	SERIES	TOTAL CFM	O.A. C.F.M.	COIL CONDITIONS EDB	COIL CONDITIONS EWB	COIL CONDITIONS LDB	COIL CONDITIONS LWB	CAP. MBH	COIL FACE AREA	COIL FACE VEL.	COIL AIR P.D.	COIL MEDIUM	COIL SUCT. TEMP	COIL LVG. TEMP	COIL GPM	COIL WATER P.D.	REMARKS
~~A~~	~~ACU-A~~	~~TRANE~~	~~DX~~		~~2780~~	~~1400~~	~~84.0°~~	~~70.0°~~	~~56.0°~~	~~54.0°~~	~~137~~	~~7.5 #~~	~~370~~	~~0.60~~	~~R-22~~	~~40°F~~				
L	L				3000	1620	84.5°	70.5°			155		400	0.65						
~~B~~	~~B~~				~~4420~~	~~2170~~	~~84.0°~~	~~70.0°~~			~~220~~		~~530~~	~~0.85~~						
~~C~~	~~C~~				~~3840~~	~~2390~~	~~85.2°~~	~~71.8°~~			~~208~~		~~510~~	~~0.75~~						

CONVECTOR RADIATION SCHEDULE

MARK No: EC-

MARK No.	LOC.	MFR.	MODEL	CABINET D.	CABINET L.	CABINET H.	CAPACITY MBH	CAPACITY KW	HTG. MED.	RECESS DEPTH	HGT. ABOVE ARCH BASE	END POCK.	DPR.	REMARKS
EC-1	T.R.	MARKEL	3450	5"	18"	24"		2.0	ELECT.	3"	6"			277V 1ϕ
EC-2	LOBBY	↓	↓	↓	↓	↓		3.0	↓	3"	6"			↓

REFRIGERATION COMPRESSOR SCHEDULE

MARK No: RC-

MARK No.	LOC.	MFR	MODEL	SERVING	EVAP TEMP	TONS CAP	REFR	MOTOR KW	MOTOR RPM	MOTOR	MOTOR No	REMARKS
~~RC-A~~	~~BSMT.~~	~~TRANE~~	~~HCUA150M~~	~~ACU-A ACC-A~~	~~40~~	~~11.5~~	~~R-22~~	~~19~~	~~3600~~	~~480Y 3ϕ~~		~~TWO(2) UNITS REQ'D~~
RC-L	↓	↓	↓	-L -L	↓	13.0	↓	19	↓	↓	↓	2 STAGE UNLOAD.
~~RC-B~~			~~HCUA200M~~	~~-B -B~~		~~18.2~~		~~24~~				~~3~~
~~RC-C~~			↓	~~-C -C~~		~~17.2~~		~~24~~				

EXHAUST AND RETURN GRILLE SCHEDULE

MARK No. RR-ER-

MARK	No. REQ'D.	CFM EACH	MTG. HT. TO BOTTOM	EXHAUST OR RETURN	T & B MODEL	DAMPER	SIZE	REMARKS
RR-1	1	SEE PLANS	CEIL.	R		YES	24X24	
RR-2	1		7'-2"	E			36X6	
ER-1	2		CEIL.	E			12X12	
ER-2	2	↓	CEIL.	E		↓	12X6	

UNIT HEATER SCHEDULE

MARK No: UH-

MARK No.	LOC.	MFR.	MODEL	M.B.H.	E.A.T.	KW	VOLT	F.A.T.	P.D.	THROW	CFM	MOTOR H.P.	MOTOR VOLT/ϕ	MOTOR No.	RPM
UH-1	BSMT.	TRANE	E3A07GH	42	60	12.5	480/3ϕ	104		15'	525	16WATT	120/1ϕ		1600
UH-2	SEE PLANS		E3A12GH	28		7.5		116		30'	700	1/20	120/1ϕ		1500
UH-	STORAGE	↓	E3A07GH	42	↓	12.5	↓	104		15'	525	16WATT	120/1ϕ		1600

ELECTRIC HOT WATER HEATER SCHEDULE

MARK No. HWH-

MARK No.	LOC.	MFR.	MODEL	TEMP RISE	RECOVERY GPH	STORAGE CAP. (GAL)	ELEMENT KW UPPER	ELEMENT KW LOWER	VOLTS PH.	LINING	RELIEF VALVE	THERM. SETTING	REMARKS
HWH-1	BSMT.	LOCH.	405-10	80	42	40	4.5	4.5	277/1ϕ	GLASS	YES		

SUPPLY GRILLE AND DIFFUSER SCHEDULE

MARK No. D-

MARK	No. REQ'D.	CFM EACH	MTG. HT. TO BOTTOM	T & B MODEL	DAMPER	SIZE	REMARKS
D-1	5	SEE PLANS	CEIL. MTD.	AME-2C	YES	12 X 12	
D-2	2			AME-3S		15 X 15	
D-3	1			AME-2		12 X 12	
~~D-4~~	2	↓	7'-6"	AME-3S	↓	~~18 X 18~~	

TRANSFER GRILLE SCHEDULE

LOC.	No. REQ'D.	CFM EACH	MODEL	SIZE	AREA (SQ. IN)	REMARKS
TG-1	2	SEE PLANS	AN-CT	42 X 6	214	CLG. MTD.
TG-2	2	↓	AN-CT	24 X 6	122	WALL MTD.

RELIEF & INTAKE HOOD SCHEDULE

MARK No: RH-

MARK No.	LOC.	MFR.	MODEL	CFM	THROAT SIZE L.	THROAT SIZE W.	S.P. (H_2O)	THROAT VEL. FPM	BIRD SCREEN	CURB. FURN. BY	REL. OR INT.	CONSTR.	REMARKS
RH-1	ROOF	PENN	AIRETTE	SEE PLANS	24	24	.05	450	YES	MFG.	REL.	22GA.	BLDG.
RH-2	↓	↓	↓	↓	24	24	↓	500	↓	↓	↓	↓	RELIEF

ELECTRIC DUCT HEATER SCHEDULE

MARK No. EDH-

MARK No.	SERVING	MFR.	TYPE	CAPACITY MBH	CAPACITY KW*	VOLTS	CFM	AIR TEMP. ENT.	AIR TEMP. LVG.	SIZE W.	SIZE H.	REMARKS
1-A	LUNCH	BRASCH	SLIP-IN		3.0	277V 1ϕ	150			8"	8"	
2-A	LKRS	↓	↓		4.0	↓	260			↓	↓	
3-A	COUNT.				1.5		170					~~TWO(2) SETS FOR 'A'~~
4-A	LOBBY				3.0		250					~~BLDGS ONE FOR 'L'~~
5-A	SUPER.				6.5	↓	850			24	8	BLDG.
6-A	BLDG				20.0	480 3ϕ	1680			18	14	
7-A	BOOTHS				16.0	↓	1320			18	12	
~~1-B~~	~~LUNCH~~				~~4.0~~	~~277 1ϕ~~	~~105~~			~~8~~	~~8~~	
2-B	LKRS.				5.0		320					
3-B	COUNT.				1.5		180					
4-B	LOBBY				3.0		260					~~SAME FOR 'C' BLDG.~~
5-B	SUPER.				7.0	↓	920			24	8	
6-B	BLDG				26.0	480 3ϕ	1865			26	8	
7-B	BOOTHS				25.0	↓	1980			24	12	
8-B	BSMT.				16.0	277 1ϕ	800			14	10	
~~1-B~~	~~BOOTH~~	↓	↓		4.0	↓	220			12	6	

* ALL HEATERS UP TO 8.0KW TO HAVE 0.5KW STAGES; 8 TO 15KW TO HAVE 1.0KW; 15 TO 30 KW TO HAVE 2.0KW

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

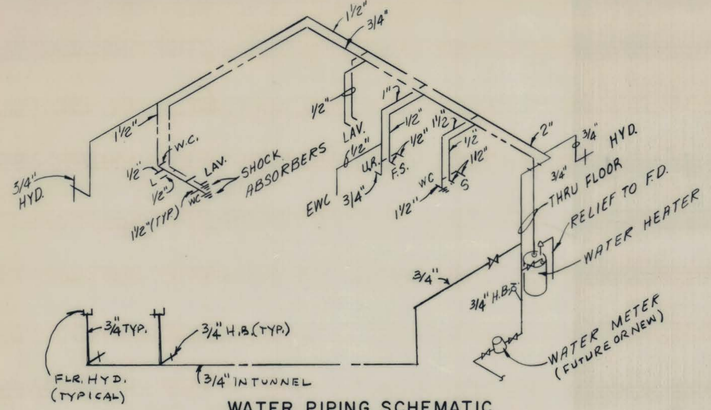
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

MECHANICAL SCHEDULES

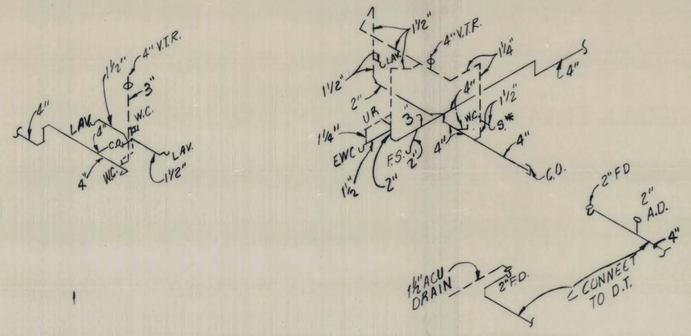
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. M-8

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(63)9 C→4	79	RALEIGH ~~FAYETTE~~ ~~KANAWHA~~	129	136



WATER PIPING SCHEMATIC
(CORRIDOR 'L') ~~(BARRIER PLAZA 'A' (2)~~ REVERSED)
NO SCALE



WASTE & VENT PIPING SCHEMATIC
(CORRIDOR 'L') ~~(BARRIER PLAZA 'A' (2)~~ REVERSED)
NO SCALE

PLUMBING SYMBOLS

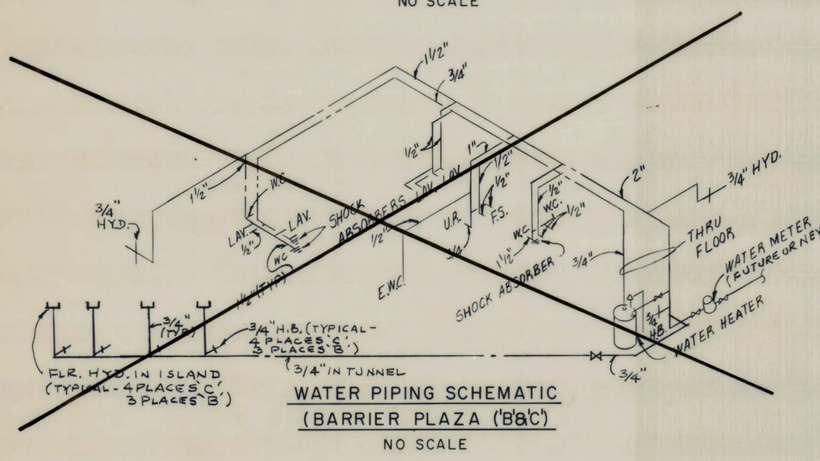
SYMBOL	DESCRIPTION
	UNDERGROUND SANITARY SEWER
	UNDERGROUND STORM SEWER
	UNDERGROUND VENT
	SOIL, WASTE ABOVE GROUND
—S—	STORM ABOVE GROUND
	VENT ABOVE GROUND
—DT—	DRAIN TILE
	COLD WATER
	HOT WATER
CO- CO-	CLEAN OUT IN FLOOR
CO-	CLEAN OUT IN RISER
LINE RISER	GATE VALVE
OS&Y	O.S.&Y. GATE VALVE
	BALANCE COCK
	CHECK VALVE
	GLOBE VALVE
3W	STOP & WASTE
HYD	WALL HYDRANT
H.B.	HOSE BIBB
FD- FD-	FLOOR DRAIN
	SHOCK ABSORBER
	LUBRICATED PLUG COCK (GAS)

M-13.9.12-031

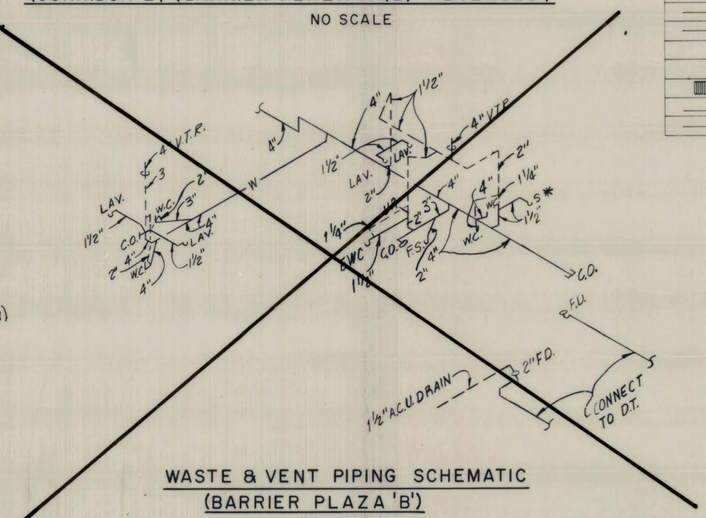
PLUMBING ABBREVIATIONS

ABBREV.	DESCRIPTION
S.S.	SOIL STACK
S.	SOIL
W.	WASTE
V	VENT
V.S.	VENT STACK
V.T.R.	VENT THRU ROOF
T.R.	THRU ROOF
D.I.	DUR-IRON
V.C.P.	VITRIFIED CLAY PIPE
C.I.	EXTRA HEAVY SOIL PIPE
R.C.	RAIN CONDUCTOR
C.W.	COLD WATER
H.W.	HOT WATER
L	LAVATORY
W.C.	WATER CLOSET
U.	URINAL
D.F.	DRINKING FOUNTAIN
H.C.	FIRE HOSE CABINET
F.S.	FLOOR SINK
SH.D.	SHOWER DRAIN
F.D.	FLOOR DRAIN
R.D.	ROOF DRAIN
C.O.	CLEAN OUT
HYD.	HYDRANT
H.B.	HOSE BIBB
A.C.	AIR CHAMBER
R.V.	RELIEF VALVE
VAC. B.	VACUUM BREAKER
B.O.	EQUIPMENT BY OTHERS
A.P.	ACCESS PANEL
I.E.	INVERT ELEVATION (FLOW LINE)
EXIST.	EXISTING
ELEV.	ELEVATION
CLG.	CEILING
TYP.	TYPICAL
CONN.	CONNECTION
EXT.	EXTENTION
FUT.	FUTURE

M-13.9.12-032

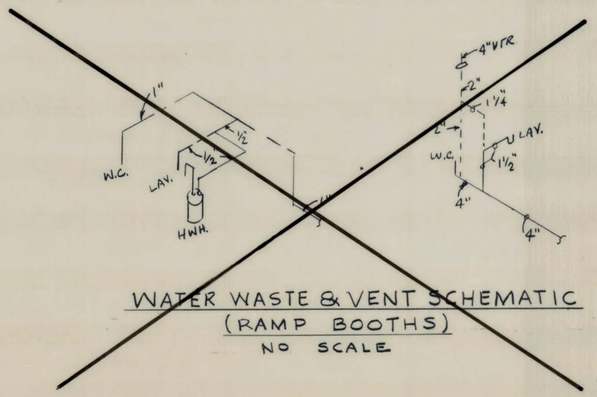


WATER PIPING SCHEMATIC
(BARRIER PLAZA ('B' & 'C')
NO SCALE

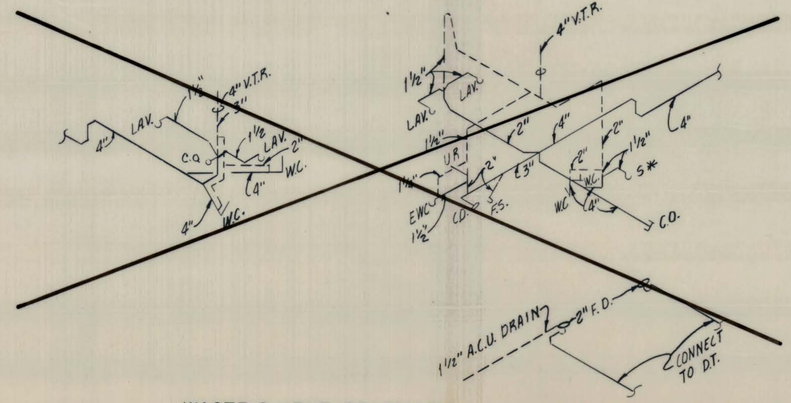


WASTE & VENT PIPING SCHEMATIC
(BARRIER PLAZA 'B')
NO SCALE

* SINK BY ARCH. DIVISON SEE ARCH. SPECIFICATIONS



WATER WASTE & VENT SCHEMATIC
(RAMP BOOTHS)
NO SCALE



WASTE & VENT SCHEMATIC
(BARRIER PLAZA 'C')
NO SCALE

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

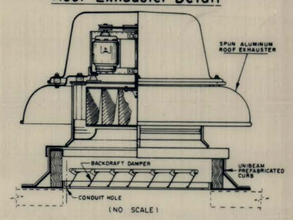
MECHANICAL DETAILS
PLUMBING

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. M-9

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA	10	328 77 9,43	I-77-2(63)9 C-34	79	RALEIGH ~~FAYETTE KANAWHA~~	130	136

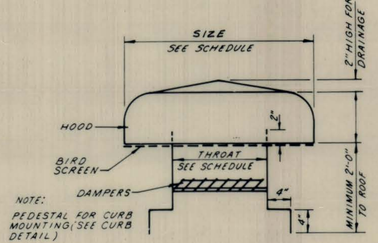
Roof Exhauster Detail



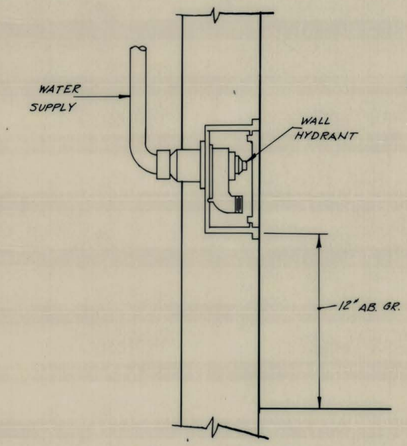
(NO SCALE)

SYMBOL & ABBREVIATION SCHEDULE

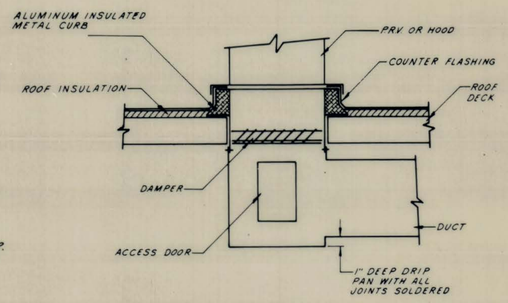
SYMBOL	IDENTIFICATION	SYMBOL	IDENTIFICATION	SYMBOL	IDENTIFICATION
	GATE VALVE		SUPPLY DUCT (UP OR SECTION)		HOT WATER SUPPLY
	GLOBE VALVE		OUTSIDE AIR DUCT (UP OR SECTION)		HOT WATER RETURN
	ANGLE GLOBE VALVE		SUPPLY OR OUTSIDE AIR DUCT (DOWN OR AWAY)	LPS	LOW PRESSURE STEAM
	CHECK VALVE		EXHAUST DUCT (UP OR SECTION)	LPR	LOW PRESSURE RETURN
	PRESSURE REDUCING VALVE		RETURN DUCT (UP OR SECTION)	MPS	MEDIUM PRESSURE STEAM
	TEMPERATURE CONTROL VALVE		EXHAUST OR RETURN DUCT (DOWN OR AWAY)	MPR	MEDIUM PRESSURE RETURN
	THREE-WAY CONTROL VALVE		CANVAS CONNECTION	HPS	HIGH PRESSURE SUPPLY
	RELIEF VALVE	~~S13~~	VOLUME DAMPER	HPR	HIGH PRESSURE RETURN
	FLOW CONTROL VALVE	~~C13D~~	MOTOR-OPERATED DAMPER	CPD	CONDENSATE PUMP DISCHARGE
	BALANCING COCK		TRANSFER GRILLE	RS	REFRIGERATION SUCTION
	STRAINER	UC	UNDERCUT DOOR (BY OTHERS)	RL	REFRIGERATION LIQUID
	UNION	D	DROP IN DUCT ELEVATION IN DIRECTION OF FLOW	HG	HOT GAS (REFRIGERATION)
	THERMOMETER	R	RISE IN DUCT ELEVATION IN DIRECTION OF FLOW	G	GAS LINE
	REDUCERS-CONCENTRIC & ECCENTRIC		ACOUSTICALLY LINED	V	VENT LINE
	PIPING-TOP TAKEOFF	T	ELECTRIC THERMOSTAT	FOS	FUEL OIL SUPPLY
	PIPING-BOTTOM TAKEOFF	T	PNEUMATIC THERMOSTAT	FOR	FUEL OIL RETURN
	PIPE ANCHOR	P	PRESSURE GAUGE	FOG	FUEL OIL GAUGE LINE
	EXPANSION JOINT WITH GUIDES	C	COMPOUND GAUGE		COLD MAKEUP WATER
	PIPE PITCH DOWN	S.G./S.R.	SUPPLY GRILLE/SUPPLY REGISTER	D	DRAIN LINE
	FLOW DIRECTION IN PIPES	E.G./E.R.	EXHAUST GRILLE/EXHAUST REGISTER	A.P.	ACCESS PANEL
F.E.T. / D.T.	FLOAT & THERMOSTATIC TRAP (F.E.T.) OR DRIP TRAP (D.T.)	R.G./R.R.	RETURN GRILLE/RETURN REGISTER		
H.P.T.	HIGH PRESSURE TRAP (H.P.T.)	T.G.	TRANSFER GRILLE		



TYPICAL INTAKE OR RELIEF HOOD
NO SCALE



WALL HYDRANT
NO SCALE



TYPICAL CURB & DRIP PAN DETAIL
NO SCALE

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

MECHANICAL DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. M-10

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
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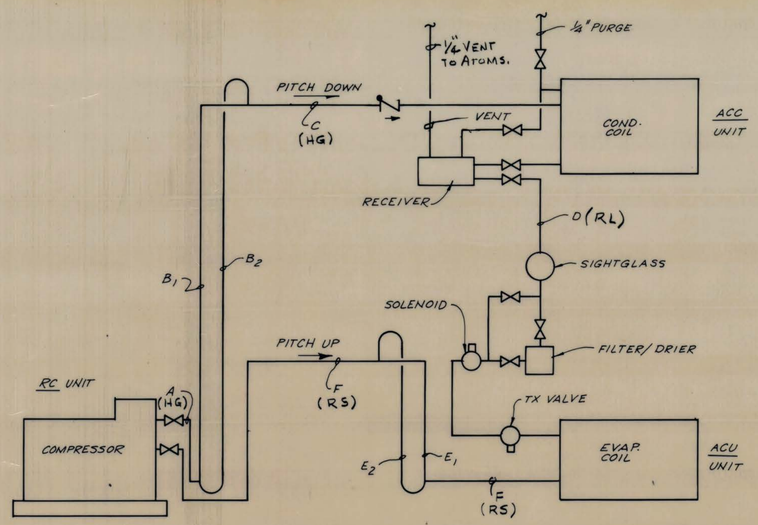
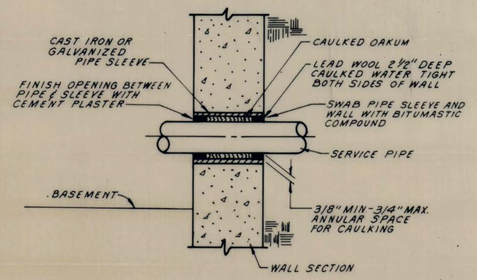


REFRIGERANT PIPING SCHEMATIC

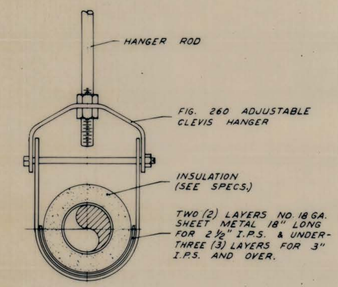
NO SCALE



DETAIL OF PIPE SLEEVE THRU CONCRETE OR BASEMENT BLOCK WALL

NO SCALE

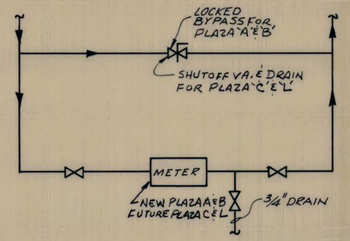
REFRIGERANT PIPE SIZE SCHEDULE										
UNITS	LOCATION	A	B_1	B_2	C	D	E_1	E_2	F	REMARKS
ACU, ACC, RC, A, & L	~~A BLDG~~ L BLDG	1 3/8"	3/4"	1 3/8"	1 3/8"	1 1/8"	1 1/8"	2 1/8"	2 1/8"	~~TWO (2) 'A' BLDGS.~~
~~ACU, ACC, RC B & C~~	~~B BLDG C BLDG~~	~~1 5/8"~~	~~7/8"~~	~~1 3/8"~~	~~1 5/8"~~	~~1 1/8"~~	~~1 3/8"~~	~~2 1/8"~~	~~2 1/8"~~	



NOTE:
PROVIDE FOAMGLAS INSULATION OF SAME THICKNESS AS SPECIFIED INSULATION AT EACH SUPPORT 18" LONG.
SEAL JOINTS WITH VAPOR BARRIER TAPE AND JACKET SAME AS ADJOINING PIPING.

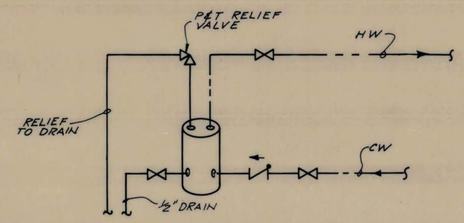
CHILLED WATER OR REFRIGERANT PIPING SUPPORT 3/4" TO 6" DIAMETER

NO SCALE



WATER METER DETAIL

NO SCALE



HOT WATER HEATER DETAIL

NO SCALE

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

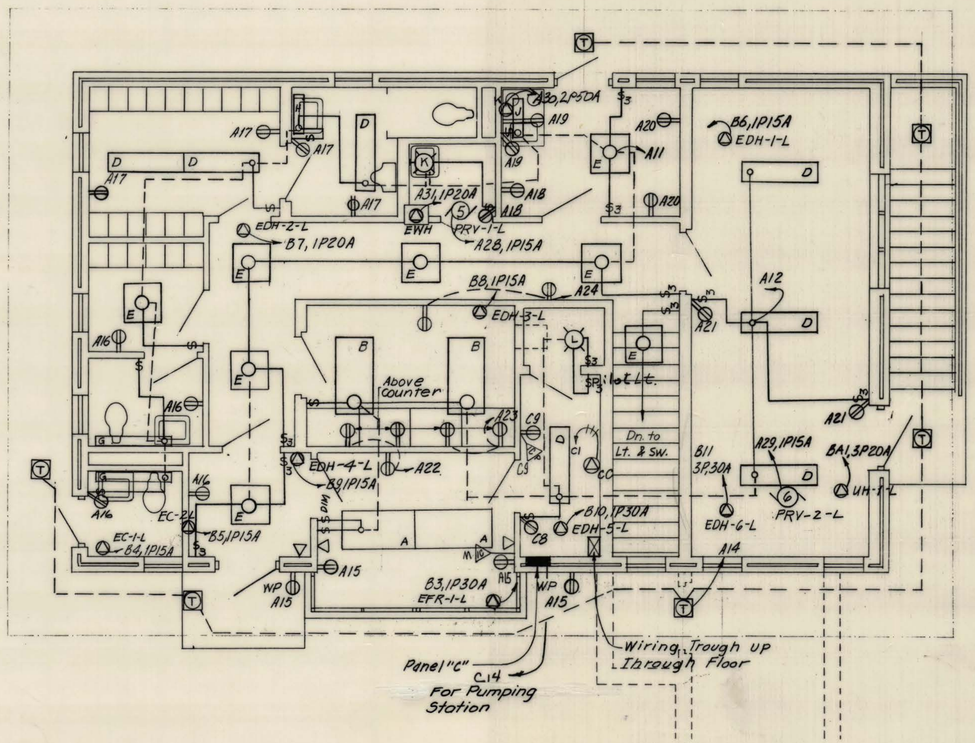
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

MECHANICAL DETAILS

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

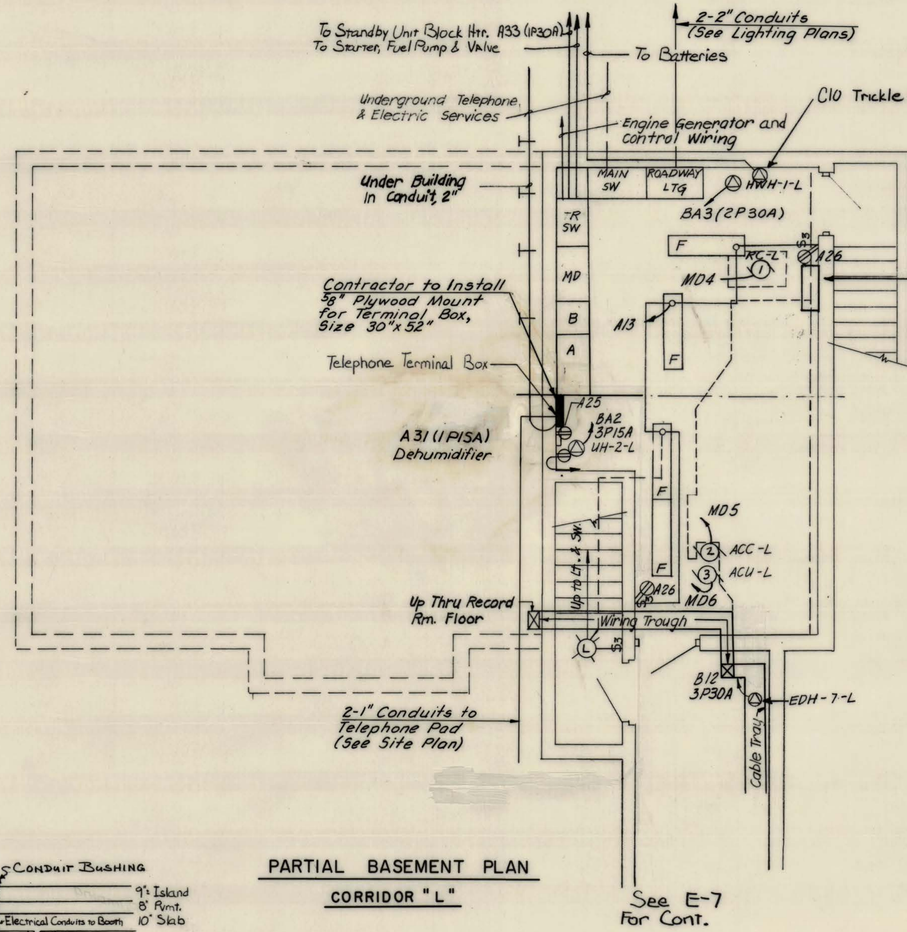
SHEET NO. M-11

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(63)9 C→4	79	RALEIGH	132	136



FIRST FLOOR PLAN

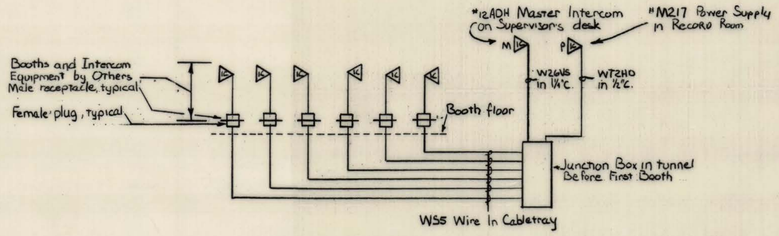
CORRIDOR "L"



PARTIAL BASEMENT PLAN

CORRIDOR "L"

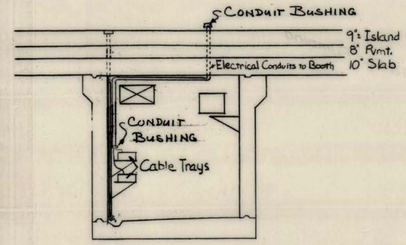
Note: Provide 2-3" Conduits from Panel "A" to Tunnel Coble Troy.



INTERCOM SYSTEM

CORRIDOR "L" INTERCHANGE

No Scale



SECTION THRU TUNNEL OUTSIDE OF BOOTH

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1/4"= 1'-0" Vert. DATE: JULY, 1978

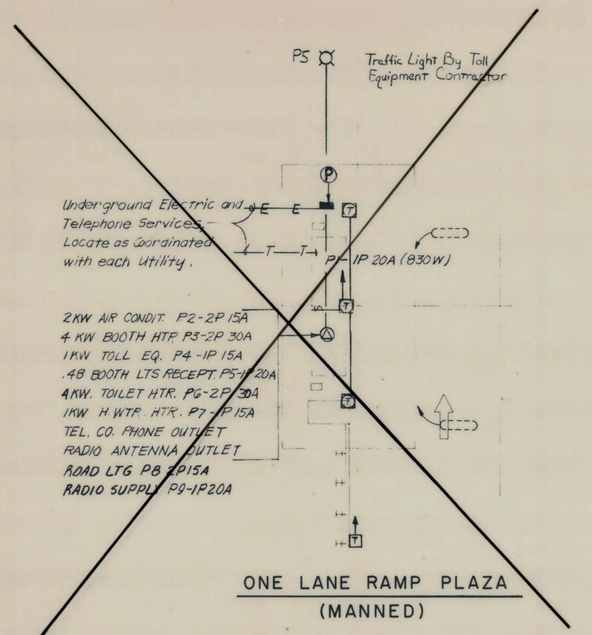
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

ELECTRICAL LAYOUT-UTILITY BLDG.
CORRIDOR "L"

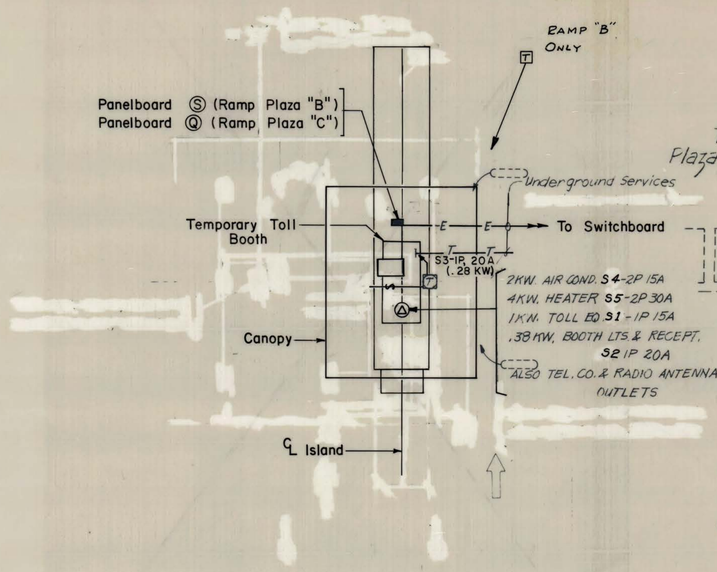
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. E-3

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W. VA.	10	328	I-77-2(63)9	79	~~MERCER~~, RALEIGH, ~~FAYETTE~~, ~~KANAWHA~~	133	136
		77	C-3-4				
		9.43					

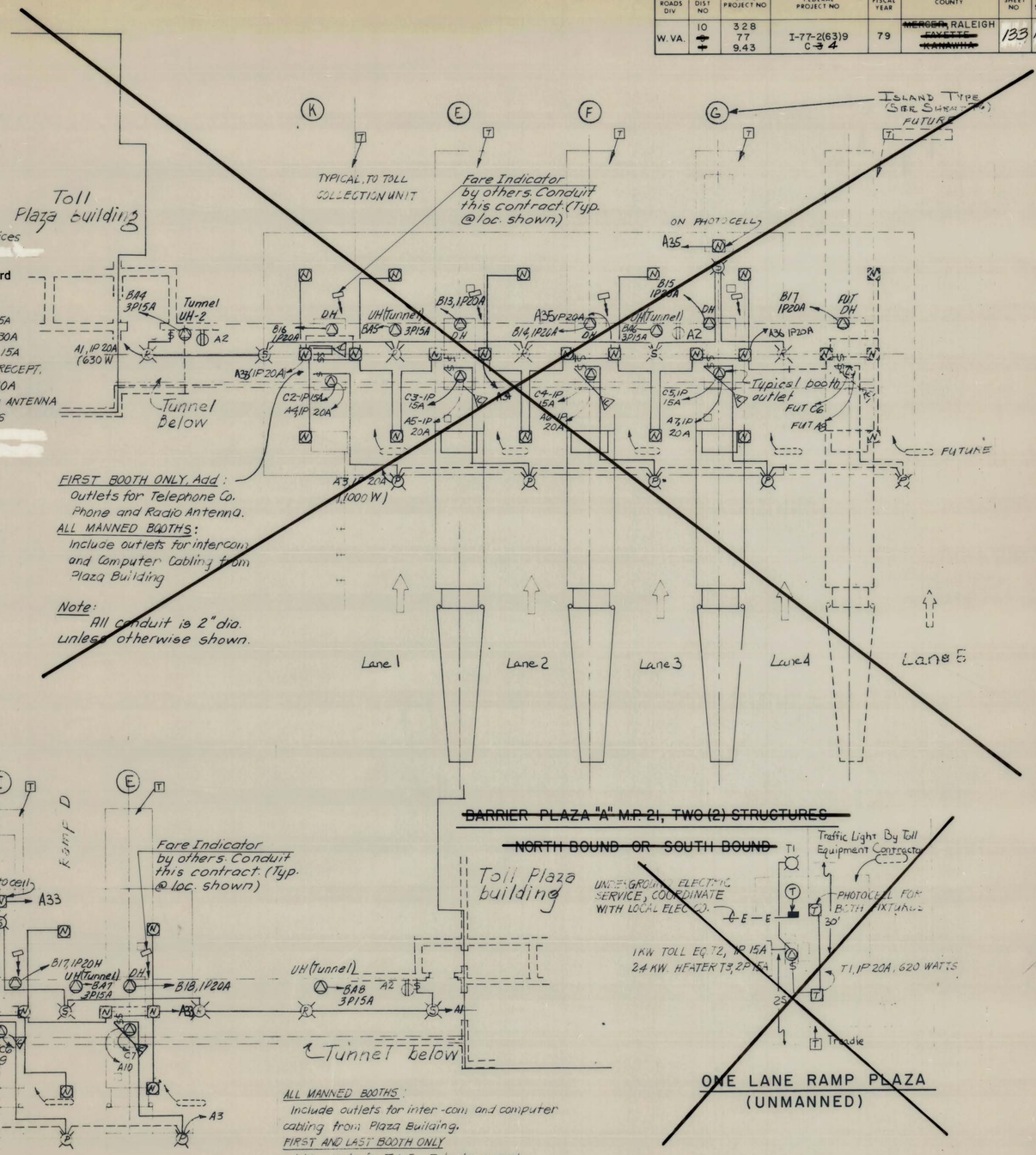


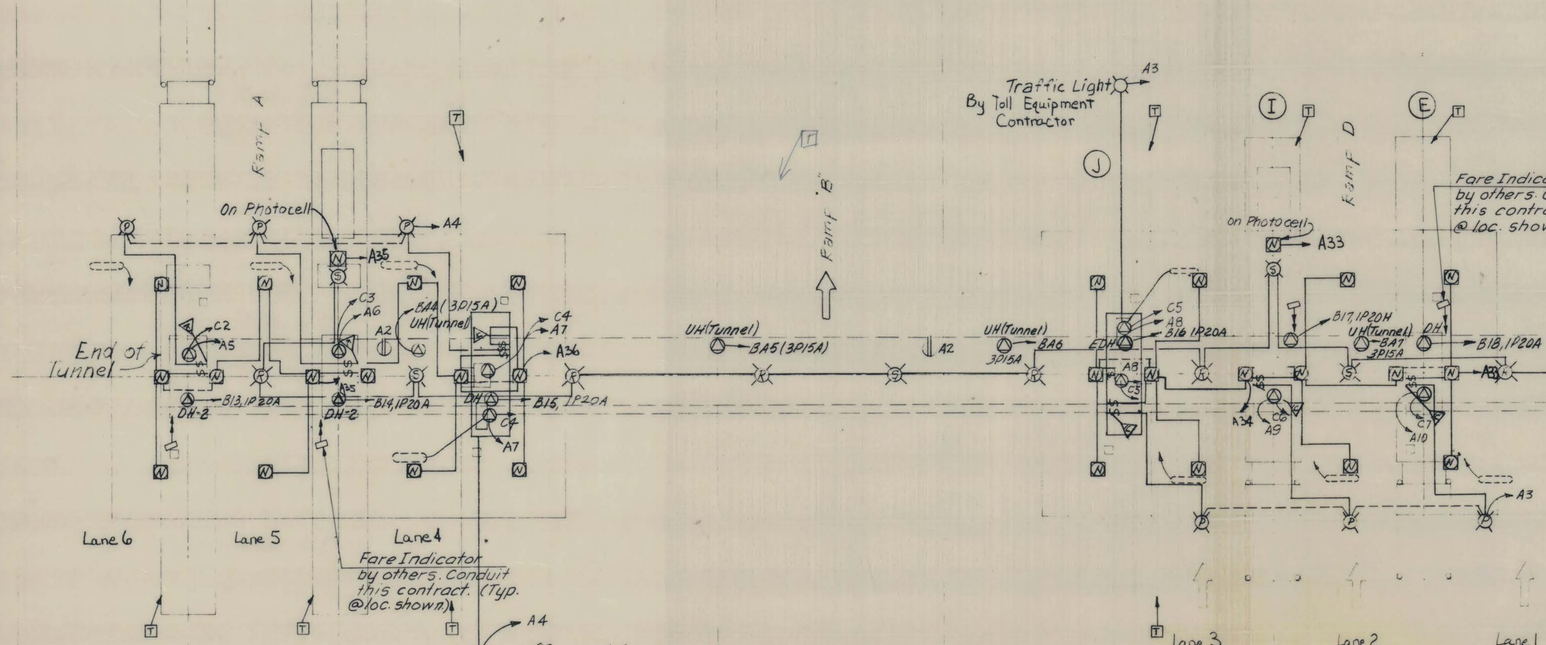
ONE LANE RAMP PLAZA
(MANNED)



RAMP "B" AND RAMP "C" PLAZAS

NOTE:
Branch circuit breaker numbers shown are for Panelboard "S". Breaker numbers for Panelboard "Q" are similar.





CORRIDOR "L" INTERCHANGE

~~BARRIER PLAZA "A" M.P. 21, TWO (2) STRUCTURES~~

~~NORTH BOUND OR SOUTH BOUND~~

ONE LANE RAMP PLAZA
(UNMANNED)

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

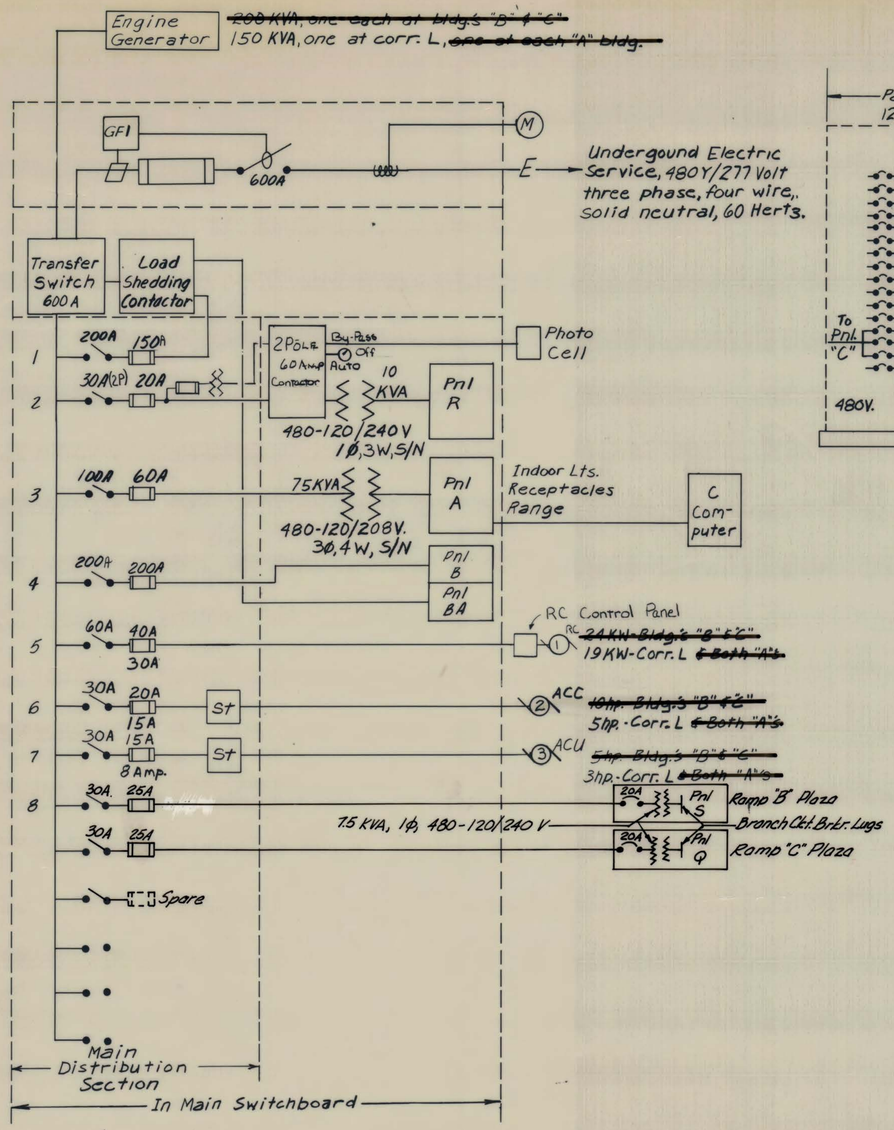
SCALE: Horiz. 1/8"=1'-0" Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERCER~~, RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES
ELECTRICAL LAYOUT - TOLL BOOTHS & TUNNEL
~~BARRIER PLAZA "A" M.P. 21~~, CORRIDOR "L" ~~& RAMP~~

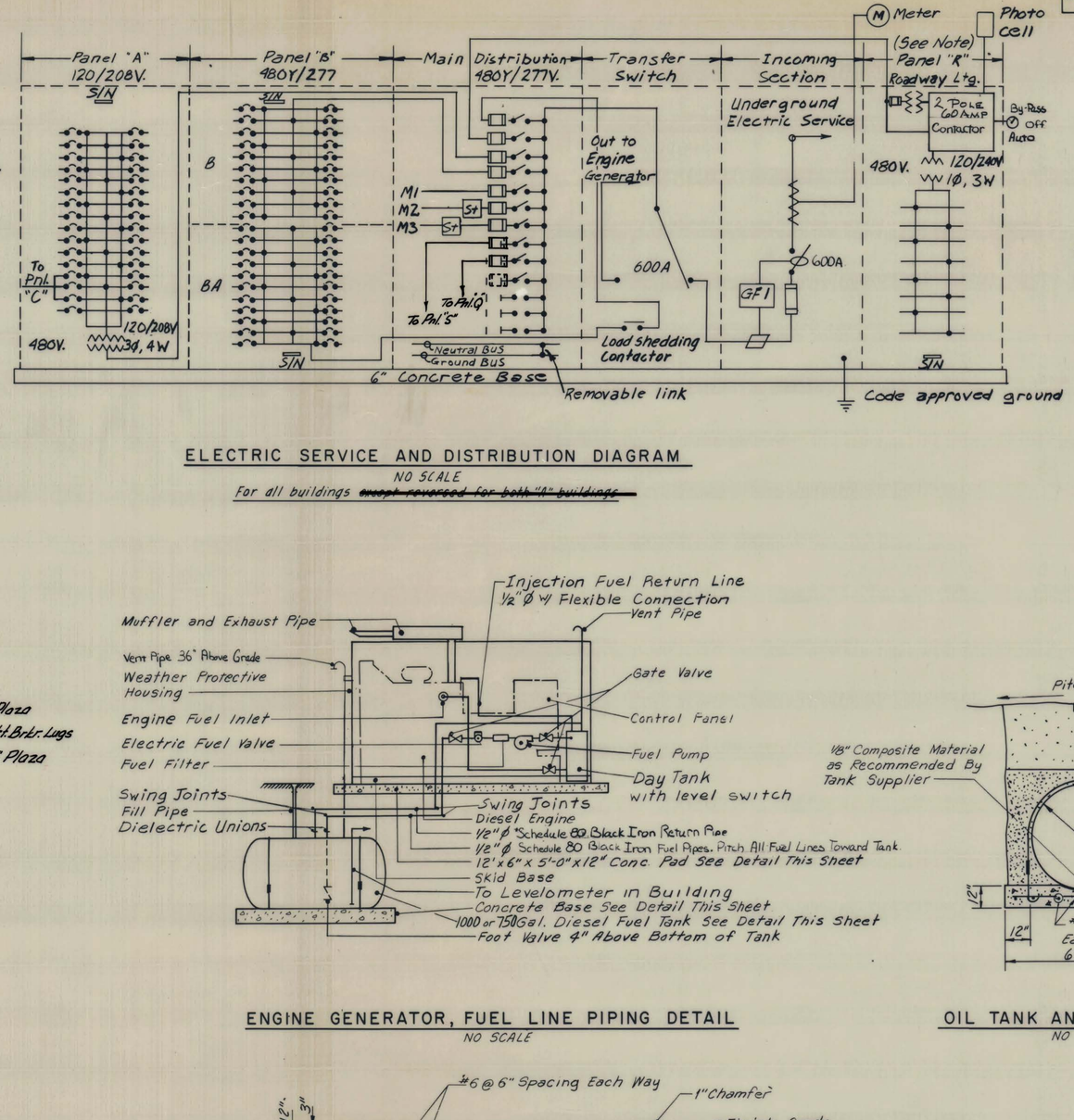
HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. E-7

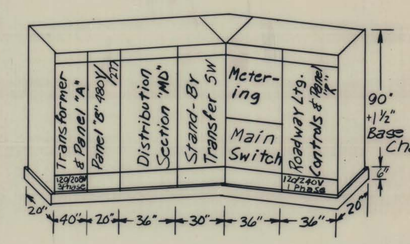
PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10	328 77 9.43	I-77-2(63)9 C-~~3~~ 6	79	RALEIGH ~~FAYETTE KANAWHA~~	134	136



ELECTRIC LINE DIAGRAM
NO SCALE

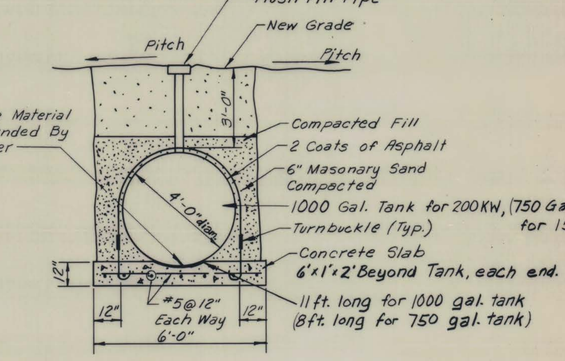


ELECTRIC SERVICE AND DISTRIBUTION DIAGRAM
NO SCALE
For all buildings ~~except reversed for both "A" buildings~~

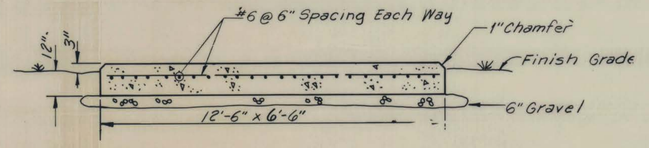


SERVICE SWITCHBOARD FRONT ELEVATION
NO SCALE

ENGINE GENERATOR, FUEL LINE PIPING DETAIL
NO SCALE



OIL TANK AND BASE DETAIL
NO SCALE



ENGINE GENERATOR BASE
NO SCALE

Note:
For details of Panel R see Sheet 67

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

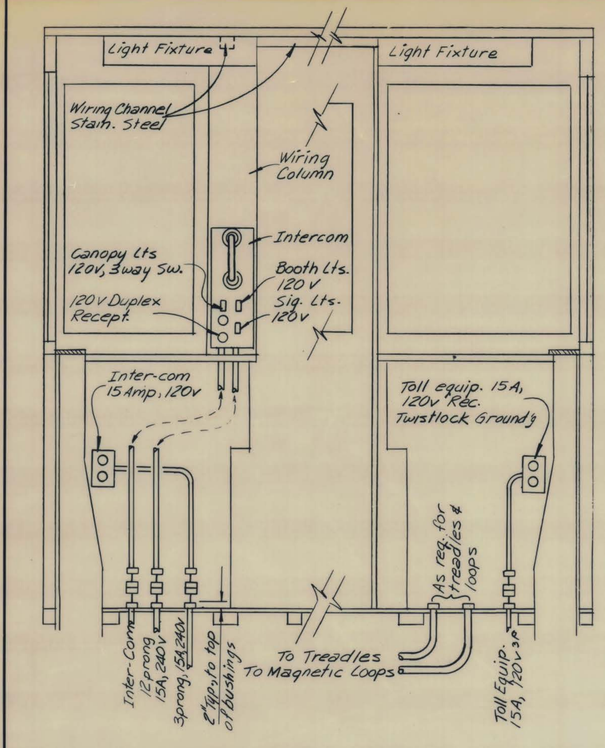
SCALE: Horiz. NONE Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

ELECTRICAL DETAILS & LINE DIAGRAM

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

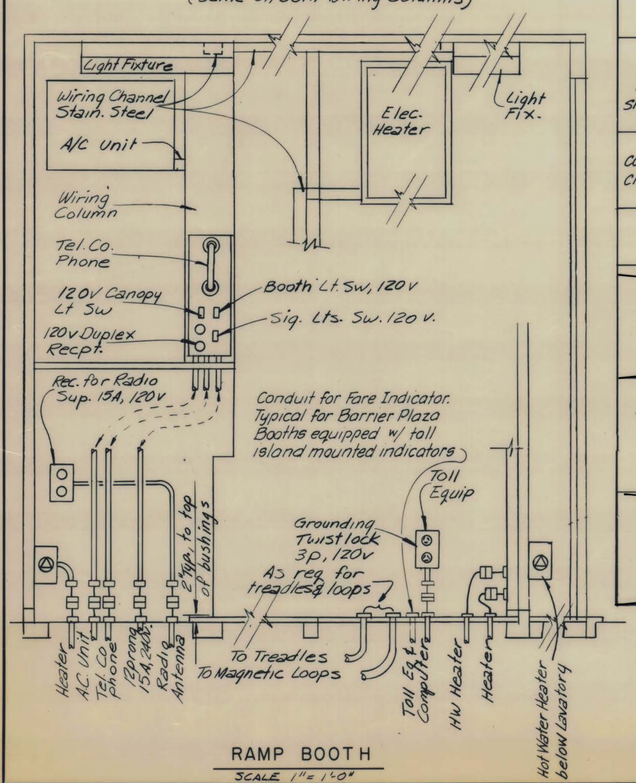
SHEET NO. E-8



DOUBLE BOOTH SECTION

SCALE 1"=1'-0"

(Same on both Wiring Columns)



RAMP BOOTH

SCALE 1"=1'-0"

LIGHTING FIXTURE SCHEDULE

TYPE	LAMPS NO.	LAMPS ORDINARY ABB	DESCRIPTION	MFG.	CATALOG NO.	SHIELDING	FINISH	REMARKS
A	4	F40/CW	2'x4' Troffer, Hinged Door, Parawedge, Flanged	Daybrite	F42A-WF8B04 DIM	Acrylic Louver	Aluminum Trim	2 Lamps Dimmed, 2 Lamps Switched
B	3	F40/CW	2'x4' Troffer, Hinged Door, Prismatic	Daybrite	F32A-WF8B6-4	Acrylic	Aluminum Trim	Flanged
C								
D	2	F40/CW	1'x4' Troffer, Hinged Door, Drop Opal	Daybrite	4F21-743-4	Acrylic	Aluminum Trim	Flanged
E	4	F20/CW	2'x2' Troffer, Hinged Door, Drop Opal	Daybrite	2F42-3732	Acrylic	Aluminum Trim	Flanged
F	2	F40/CW	4' Industrial Reflector, Suspended	Daybrite	R41252-4	None	Porcelain	On 6" Stems Or As Noted
G	2	F40/CW	4' Wall Mtd. Prismatic Cube Louver	Guth	M6703/PB	Acrylic		
H	2	F20/CW	2' Wall Mtd. Prismatic Cube Louver	Guth	M6701	Acrylic		
J	2	T5-8W/CW	2' Under Cabinet Light	Alkco	55116-5	Acrylic	Stainless Stl.	
K	2	75A	Incandescent Wall Mtd. Prismatic	Guth	B 1340	Glass	Cast Alum.	
L	2	60A	Incandescent Clg. Mtd. Prismatic	Holophane	C866-TP-PC	Polycarbonate		
M								
N	1	HV 175/BU Q 150 C4/MC	Metal Halide Outdoor Recessed instant Start Lamp	Guth	HSI-16175F-43LD	Tempered Prismatic Glass		120 VOLT, 16 5/8" sq. x 20" HIGH
P	2	200W 6IN Lt Ctr.	18" sq. Signals, 2 on Canopy Facia X & ↓	G & W Eagle	KB501-X, KB501V	Visor & Lens	Aluminum	120 Volt
R	1	LU 70/BU	Clg. Mtd. High Pressure Sodium Prismatic	Holophane	247-CE-120	Polycarbonate		120 volt in tunnel
S	1	LU 70/BU 100 Q CL/DC	Clg. Mtd. High Pressure Sodium Prismatic with instant start lamp	Holophane	247-CE-120-EM			120 Volt in tunnel
T	1	M3 175/ H08 Q 150 C4/MC	Metal Halide Outdoor Recessed, horizontal					120 V. in Remote Station Canopies
	1		lamp and instant start lamp	Guth	HPI-24175-EM 4C 731-S-15L			Horizontal lamp 10 3/8" Deep, 24 inch Square. Photo Cell for Circuit of Lts. on Service Bldg. Canopies.

PANELBOARD SCHEDULE

PANEL NO.	BREAKERS AND FUSES TOTAL	POLES	AMPS	ACTIVE	SPARE	MAINS SIZE	MAINS TYPE	MFG.	TYPE	MOUNTING	LOCATION	REMARKS
A	4	1	15	4		225A	LUGS	SEE SPEC.	208Y/120V 3φ 4W S/N	SWBD	BSMT	PLUS 45 KVA TRANSFORMER
	38	1	20	38								
	2	1	30	1								
	1	2	50	1(Kitchenette)								
	1	3	60(To PNL-C)	1								
	6	1	20		5							
B	7	1	15	7		225A	LUGS	SEE SPEC.	480Y/277V 3φ 4W S/N	SWBD	BSMT	
	7	1	20	10								
	2	1	30	2								
	1	1	40	1								
	2	3	40	2								
	4	1			SPACES							
	5	1	20		5							
BA LOAD SHEDDING	1	2	30	1		225A	LUGS	SEE SPEC.	480Y/277V 3φ 4W S/N	SWBD	BSMT	THRU LOAD SHEDDING CONTACTOR
	4	3	15	4								
	2	3	20	2								
	10	1	–	10	SPACES							
C COMPUTER CIRCUITS	1	1	30 (COMPUTER MASTER)			100A	LUGS	SEE SPEC.	208Y/120V 3φ 4W S/N	FLUSH	RECORD RM	SEPERATE GROUND WIRE EACH CIRCUIT
	15	1	15	11	4							
	3	1	20	3								
	1	1	15 (TRICKLE CHARGER)									
R						70A	BRKR	SEE SPEC.	120/240 V 1φ 3W S/N	SWBD	BSMT	SEE RAMP PLAZAS ROADWAY LIGHTING
P	2	1	15	1	1	100A	BRKR	MIDWEST	120/240 V 1φ 3W S/N OUTDOOR METER & PANEL ON POST	OUTDOOR	OUTDOOR	1 LANE MANNED RAMP PLAZA
	6	1	20	4	2							
	2	2	15	2								
	2	2	30	2								
	4	1	–		SPACES							
S & Q	2	1	15	1	1	60A	LUGS	MIDWEST	120/240V 1φ, 3W, S/N WITH 75 KVA TRANSFORMER AND 2P, 20A MAIN BRKR.	OUTDOOR	OUTDOOR	RAMP PLAZAS "B" AND "C"
	3	1	20	2	1							
	1	2	15	1								
	1	2	30	1								
	2	1	–		SPACES							
T	1	1	15	1 (EQUIP.)		60A	BRKR	MIDWEST	DITTO	OUTDOOR	OUTDOOR	1 LANE UNMANNED RAMP PLAZA
	1	1	20	1 (CANOPY LTS.)								
	2	2	15	1 (HTRS & ROAD LTS.)								
	4	1	20		4							

PUBLIC ROADS DIV	STATE DIST NO	STATE PROJECT NO	FEDERAL PROJECT NO	FISCAL YEAR	COUNTY	SHEET NO	TOTAL SHEETS
W. VA.	10 → →	328 77 9.43	I-77-2(63)9 C→4	79	~~MERCER~~, RALEIGH ~~FAYETTE & KANAWHA~~	135	136

ELECTRICAL SYMBOLS

	2'x4' Fluorescent Fixture
	2'x2' Fluorescent Fixture
	Fluorescent Fixture
	Incandescent or H.I.D. Lamp Ceiling Fixture
	Wall Mounted Incandescent or H.I.D. Lamp Fixture
	Recessed Incandescent or H.I.D. Lamp Fixture
	Duplex Grounding Receptacle
	Switch and receptacle in same outlet box
	Single pole switch; switch with pilot light
	Three way switch
	Four way switch
	Motor Outlet
	Special Purpose Outlet
	Connected switched circuit
	Connected branch circuit
A1	Home run to panel indicated with circuit as numbered
	Telephone Outlet
	Clock Outlet
	Intercom Station; IM Intercom Master; IP Inter. Power Supply
T	Thermostat
	Fused disconnect switch, number indicates switch amperes
S	Switch for motor
VSS	Variable speed switch

ST	Starter	RC	Refrig. Compressor
WP	Weatherproof	ACC	Air Condit. Condenser
AFF	Above finished floor	ACU	Air Condit. Unit
EWC	Electric Water Cooler		
EDH	Electric Duct Heater		
EWH	Electric Wall Heater		
PRV	Power Roof Ventilator		
CC	Collection Control Computer		
T →	Treadle Outlet box. Line with arrow indicates Conduit for Control Wiring		
→	Loop Detector Cable in Concrete. Line with arrow same as for Treadle		
UH	Unit Heater		

TOLL BOOTH OUTLET SCHEDULE

OUTLET FLUSH IN FLOOR MALE	F'MALE	POLE	AMPS	VOLTS	LOAD TYPE	KW	VOLTS	BOOTH TYPE 1 MAN PLAZA	2 MAN PLAZA	MANNED RAMP	REMARKS
X		4	20	240	HEATER	4	240			X	
X		3	20	120	AIR CONDIT.	2	120			X	
X		SEE TEL. CO.		LOW	SEE TEL. CO.	–	–	1 ST BOOTH		X	
X		CANNON TYPE		LOW	INTERCOM	–	–	X	X		
					CANOPY LT SW	8 MAX	120	X	3 WAY SW'S	X	
X		12	15	120	BOOTH LTS & SW	3 MAX	120	X	X	X	
					SIGNAL LT SW	0.2	120	X			
X		3	15	120	RADIO & INT.						TO DUPLEX RECPT.
					COM. SUPPLY	0.5	120	X	X	X	BELOW COUNTER
X					RADIO ANT.	OUTLET HOLE		1 ST BOOTH		X	BUSHED FLOOR HOLE
X		3	15	120	TOLL EQUIP.						
					SUPPLY	1.6	120	X	X	X	TO TWIST LOCK RECPT.
X		4	20	240	TLT. RM. HTR.	4.0	240			X	
X		3	15	120	H. WTR. HTR.	1.0	120			X	
–		EMPTY			TREADLE &			X	X	X	3/4" COND. TO OUTLETS IN
–		EMPTY			LOOP OUTLETS			X	X	X	SLAB FR. FLOOR HOLES
~~X~~		~~4~~		~~240~~	~~PANEL~~					(UNMANNED RAMP)	

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. NONE Vert. DATE: JULY, 1978

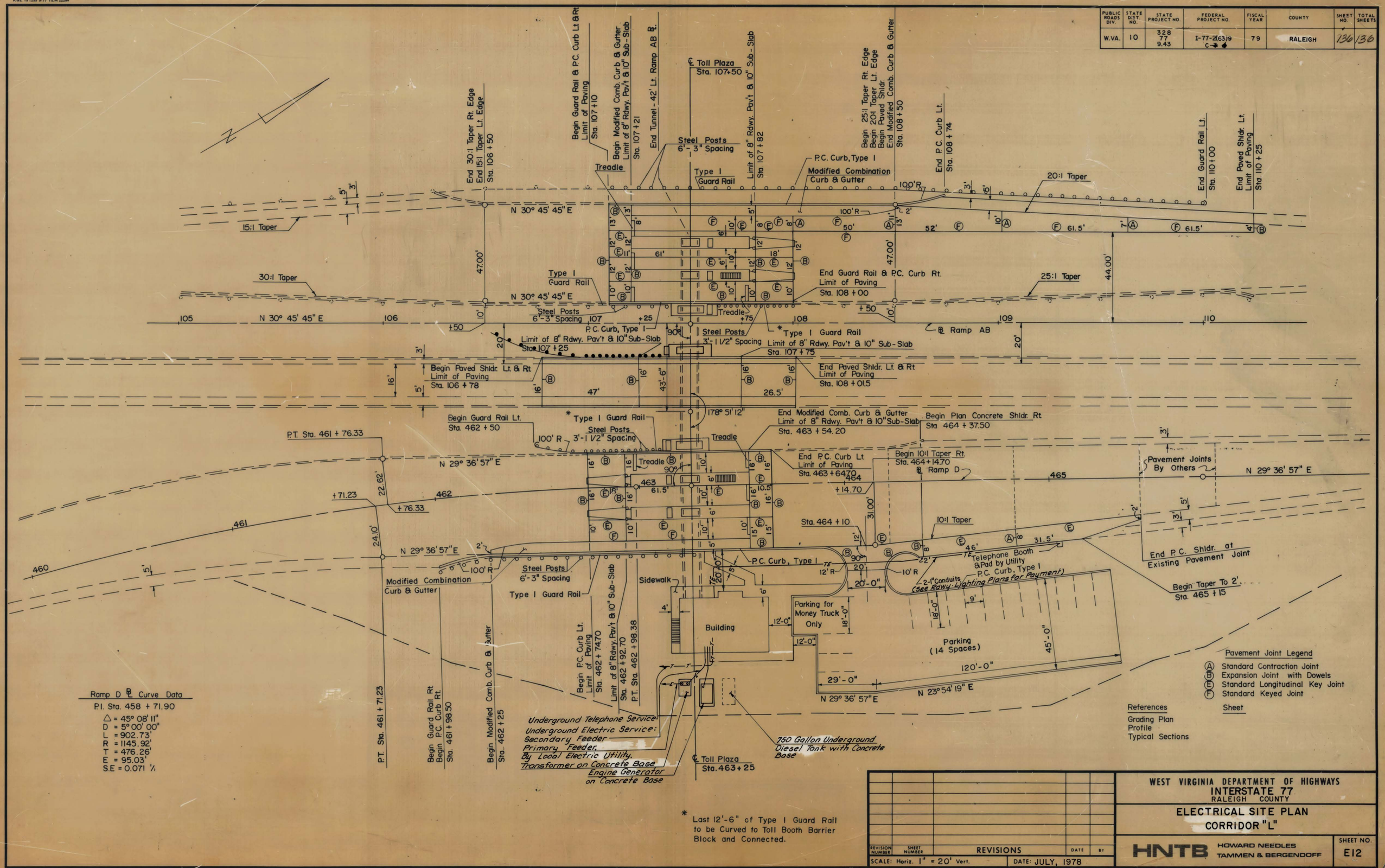
WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
~~MERCER~~, RALEIGH, ~~FAYETTE & KANAWHA~~ COUNTIES

ELECTRICAL SCHEDULES

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. E-9

PUBLIC ROADS DIV.	STATE DIST. NO.	STATE PROJECT NO.	FEDERAL PROJECT NO.	FISCAL YEAR	COUNTY	SHEET NO.	TOTAL SHEETS
W.VA.	10	328 77 9.43	I-77-2(63)9 C-7	79	RALEIGH	136	136



* Last 12'-6" of Type I Guard Rail to be Curved to Toll Booth Barrier Block and Connected.

REVISION NUMBER	SHEET NUMBER	REVISIONS	DATE	BY

SCALE: Horiz. 1" = 20' Vert. DATE: JULY, 1978

WEST VIRGINIA DEPARTMENT OF HIGHWAYS
INTERSTATE 77
RALEIGH COUNTY

ELECTRICAL SITE PLAN
CORRIDOR "L"

HNTB HOWARD NEEDLES TAMMEN & BERGENDOFF

SHEET NO. E12