F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	1	23

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

BUREAU OF HIGHWAYS

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY
PROJECT NO. OS-J44(1)

AS BUILT - 1979

PROJECT LENGTH 0.080 MILES

CONVENTIONAL SIGNS

COUNTY LINES	TRAVELLED WAY - PROPOSED
TOWN LINES	UNDERGROUND UTILITIES - EXISTING
PROPERTY LINES	UNDERGROUND UTILITIES - PROPOSED
R/W LINES - EXISTING	RAILROAD - SINGLE TRACK
R/W LINES - NEW - ACCESS CONTROL	RAILROAD - DOUBLE TRACK
R/W LINES - NEW - NO ACCESS CONTROL	UTILITY POLE - EXISTING
CULVERT - EXISTING	UTILITY POLE - JOINT OCCUPANCY
CULVERT - PROPOSED	PROPOSED UTILITY POLE - TEMPORARY
CURBING - EXISTING	PROPOSED UTILITY POLE - PERMANENT
CURBING - PROPOSED	TREES (hardwood, softwood)
TRAVELLED WAY - EXISTING	WOODS

SPECIFICATIONS

DESIGN:_____ AASHTO Specifications for Highway Bridges, 1973; and Interim Specifications 1974, 1975, 1976 & 1977.

CONTRACT:_____ State of Maine, State Highway Commission, Standard Specifications, Highways and Bridges, Revision of JUNE 1968.

DESIGN LOADING

LIVE LOADING_____ HS20-44

MATERIALS

CONCRETE:_____ Slab and End Posts - Class AA, All Other - Class A

REINFORCING STEEL:___ ASTM A615, Grade 60

STRUCTURAL STEEL:__ ASTM A588 (Unpainted)

__ High Strength Bolts, ASTM A325, Type III.

BASIC ALLOWABLE STRESSES

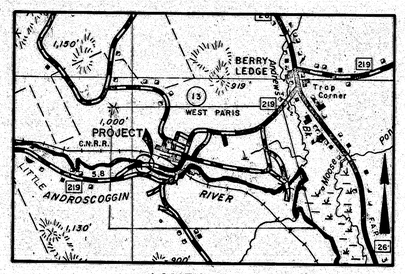
CONCRETE:_____ f_c = 1200 psi. ___ n = 10

REINFORCING STEEL:___ f_s = 24,000 psi.

STRUCTURAL STEEL:___ ASTM A588 ___ f_s = 27,000 psi.

___ ASTM A325 ___ f_v = 13,500 psi.

A hydrologic report of the bridge site is available for the Contractor's reference at the Bridge Design Office in Augusta. The hydrologic report is based on the interpretation by the Department of information obtained for the subject site and no assurance is given that the information or the conclusions of the report will be representative of actual conditions at the time of construction.



LOCATION MAP

.5 0 .5 1 1.5

SCALE OF MILES

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BRIDGE STANDARDS

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NOTE:

ALL WORK CONTEMPLATED UNDER THIS CONTRACT SHALL BE GOVERNED BY AND IN CONFORMITY WITH THE STANDARD SPECIFICATIONS (REVISION OF JUNE 1968) AND SUPPLEMENTS THERETO, EXCEPT AS MODIFIED ON THE PLANS AND IN THE SPECIAL PROVISIONS.

TRAFFIC DATA

A.D.T.	1976	500
A.D.T.	1996	600
D.H.V.		72
T. (%) (DESIGN HOUR)		5
D. (%)		60
18 KIPS	P2.0	9

HYDROLOGIC DATA

DRAINAGE AREA	= 41.78 sq. mi.
DESIGN DISCHARGE (Q50)	= 3700 cfs.
CHECK DISCHARGE (Q100)	= 4300 cfs.
HEADWATER ELEVATION AT (Q50)	= EL. 484.2±
HEADWATER ELEVATION AT (Q100)	= EL. 484.8±
DISCHARGE VELOCITY (Q50)	= 8.6 fps±
DISCHARGE VELOCITY (Q100)	= 9.3 fps±

STATE OF MAINE — RICHARD A. LUETTICH, SR. 1728 — REGISTERED PROFESSIONAL ENGINEER

As Built 1981

APPROVED:

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION — DATE

Roger D. Wall — COMMISSIONER — 4/12/78

Richard A. Luettich — CHIEF ENGINEER AND BUREAU DIRECTOR — 4/12/78

JANUARY 1968

165-52

203-1 2080

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	05-144(1)	2	23

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
201.13	Removing Single Trees, 9" to 24" Tops Only	10	Each
201.14	Removing Single Trees, over 24" to 48" Tops Only	3	Each
201.16	Removing Stubs, 9" to 24" Tops Only	1	Each
201.19	Removing Stumps, 9" to 24"	2	Each
201.20	Removing Stumps, over 24" to 48"	1	Each
202.09	Removal of Existing Superstructure (Retained by Dept.)	Nec.	L.S.
203.20	Common Excavation	340	C.Y.
203.24	Common Borrow	4,000	C.Y.
203.25	Granular Borrow	650	C.Y.
206.081	Struct. Earth Excav. - Abuts, Ret. Walls, Box Culv. & Str. Pl.	175	C.Y.
206.091	Struct. Rock Excav. - Abuts, Ret. Walls, Box Culv. & Str. Pl.	170	C.Y.
206.12	Structural Earth Excavation - Channel	75	C.Y.
304.10	Aggregate Subbase Course-Gravel	1,600	C.Y.
501.212	Steel H-Beam Piles 42 lbs./Ft.	340	L.F.
502.21	Structural Concrete, Abuts and Retaining Walls	165	C.Y.
502.26	Structural Concrete, Roadway & Sidewalk Slabs on Steel Bridges	Nec.	L.S.
503.12	Reinforcing Steel, Fab. & Delivered	29,050	lb.
503.13	Reinforcing Steel, Placing	29,050	lb.
504.70	Structural Steel, Fab. & Delivered	Nec.	L.S.
504.71	Structural Steel, Erection	Nec.	L.S.
505.08	Shear Connectors	Nec.	L.S.
507.08	Bridge Railing	193	L.F.
512.07	French Drains (Stones Only)	17	C.Y.
514.06	Curing Box for Concrete Cylinders	1	Each
515.20	Protective Coating for Concrete Surfaces	420	S.Y.
603.15	12 Inch Culvert Pipe, Option I	14	L.F.
603.17	18 Inch Culvert Pipe, Option I	32	L.F.
606.151	Guard Rail Type 3aa	300	L.F.
606.191	Guard Rail Type 3aa, 15' radius and less	25	L.F.
606.201	Guard Rail Type 3aa, over 15' radius	38	L.F.
606.261	Terminal Ends - Single Rail Type 3aa	4	Each
606.35	Guard Rail Delineator Post	4	Each
606.36	Guard Rail, Removed and Reset	50	L.F.
610.08	Plain Riprap	880	C.Y.
615.07	Loam	130	C.Y.
616.08	Sodding	50	S.Y.
618.14	Seeding, Method Number 2	21	Unit
618.15	Temporary Seeding	10	lb.
619.12	Mulch	21	Unit
629.05	Labor, Straight Time	10	M.Hr.
631.10	Air Compressor (inc. operator)	10	Hour
631.11	Air Tool (inc. operator)	10	Hour
631.12	All Purpose Excavator (including operator)	10	Hour
631.13	Bulldozer (including operator)	10	Hour
631.171	Truck - small (including operator)	10	Hour
631.22	Front End Loader (including operator)	10	Hour
637.07	Sprinkling	25	M.G.
637.08	Calcium Chloride	2.5	Ton
639.09	Field Office, Type B	1	Each
656.50	Baled Hay, in place	10	Each
656.51	Sandbags, in place	10	
657.201	Seed and Application, Method A	16	Unit
659.10	Mobilization	Nec.	L.S.

Notes by L.Hol. 2-78
✓ COH 3-16-78

ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
	Estimated Quantities For Lump Sum Items		
502.26	Structural Concrete, Roadway and Sidewalk on Steel Bridges	96.	C.Y.
504.70	Structural Steel, Fabricated and Delivered	107,000	lb.
504.71	Structural Steel, Placing	107,000	lb.
505.08	Shear Connectors	940	lb.

CONSTRUCTION NOTES

1. Payment for removal of the existing superstructure will be made under Item 202.09. The dismantling of the structural steel shall include the removal of all bolts in the stringer webs. The timber flooring and curbing shall become the property of the contractor.

2. The existing abutments are assumed to be mass concrete, or dry laid stone with structural concrete caps and jackets. The existing abutments shall be entirely removed above Elev. 477.0± and removed to the lower riprap slope line below Elev. 477.0±. Removal of the existing abutments will be paid for under Item 206.091 Structural Rock Excavation - Abutments and Retaining Walls. Removal of all other material necessary for the construction of abutments will be paid for as Structural Earth Excavation — Abutments and Retaining Walls.

3. Granular Borrow placed below elevation 480.00 shall meet the requirements of Subsection 703.19, Material for Underwater Backfill.

4. The channel between the finished riprap slopes shall be excavated to elevation 470.00± and will be paid for under Item 206.12 Structural Earth Excavation - Channel.

5. 12 inches of Aggregate Subbase Course - Gravel shall be placed under all riprap slopes except in cut areas, See also note #9 below.

6. Place a 2 foot wide strip of sod on the side slopes along the top of the riprap. Place 2 inches of loam under the sod.

7. The road will be closed to traffic during construction for a period specified in the Special Provisions.

8. For easements, construction limits and right of way lines refer to Right of Way Map

9. Compaction requirements for Aggregate Subbase Course-Gravel around French Drains and under Riprap are waived.

10. The following 9" to 24" Single Trees, Stubs and Stumps shall be removed:

Sta.	Offset	Description	Tree	Stub	Stump
49+80	36' Lt.	10" Oak	✓		✓
49+99	38' Lt.	12" Oak	✓		✓
50+32	20' Lt.	12" Oak	✓		
50+36	28' Lt.	14" Oak	✓		
50+56	7' Lt.	12" Oak	✓		
50+56	4' Lt.	13"		✓	
50+57	3' Lt.	9" Oak	✓		
50+57	℄	13" Oak	✓		
50+88	8' Rt.	22" Oak	✓		
51+34	16' Rt.	18" Oak	✓		

The following 24" to 48" Single Trees and Stumps shall be removed:

Sta.	Offset	Description	Tree	Stump
50+56	12' Lt.	28" Oak	✓	
50+83	9' Rt.	32" Oak	✓	
51+84	1' Rt.	34" Oak	✓	
51+50	30' Lt.	26"		✓

11. Type 3aa Guard Rail shall be installed across the existing roadway prior to the removal of the existing superstructure to protect traffic. The exact length and location will be determined by the Engineer. This guard rail shall be removed and reset in its final position as shown on the plans. Removing and resetting of guard rail shall be paid for under Item 606.36 Guard Rail, Removed and Reset.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY
ESTIMATED QUANTITES

SHEET 2 OF 23 AUGUSTA, MAINE MAR. 1978

283-4 1060

165-53

F.A.N.H. RES. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	3	23

BENCH MARK #1
V/S in root of 18" Oak
56.5' Lt. Sta. 49+71 ℄ Fut. Const.
Elev. 480.49

Approximate edge of river

Flows

TO WEST PARIS

TO GREEN WOOD

℄ FUTURE CONSTRUCTION

℄ Survey

Sta. 12+42.92 (S)

Common Point: Sta. 15+40 ℄ Survey = Sta. 50+00 ℄ Future Consth.

Begin Transition Sta. 43+25 Transition ℄ Sta. 49+00 Transition ℄

End Transition Sta. 53+50 Transition ℄ Begin Project Sta. 54+50 ℄ Const. "AS BUILT-1979"

End Project Begin Transition

Sta. 54+50 ℄ Const. Sta. 54+50 ℄ Future Construction Transition ℄

P.T. Sta. 56+45.02 ℄ Future Construction

℄ Future Construction

℄ Construction "AS BUILT-1979"

Transition Base Line

200'-0" Transition

125' TRANSITION

93° CC BEARINGS

STA. 50+28.5 ℄ BEARINGS ABUT. #1

STA. 50+28.5 ℄ BEARINGS ABUT. #2

40° SKEW (TYP.)

5-24" Main Oaks

CMP #5

CMP #6

CMP 2

CMP 3

Shed

Pump House

Brick Chimney

9" Slab

Hydrant in hose house (to be removed by others)

Gravel Drive

Gravel Yard

Wood Storage Yard

Garden Plots

Field

Remove Plank Culvert Install 18" Culvert, Option 1

Remove planking ℄ Install 12" Culvert, Option 1

Plank Bridge

4'x8' Plank Culvert

7'-field entrance

Regrade old road to drain, Loam & Seed.

2'Wide Run

18" Oak

24" Oak

Twin 36" Oak

Union Water Co.

Riddins Bridge

S. LITTLE ANDROSCOGGIN RIVER

1 Story Wood Frame Storage Shed

R/W MON.

Match Line

Field

Elev. 484 ±

Curve Data
I = 21°-00' LT.
D = 6°-00'
P.I. = 54+72
T = 176.98'
L = 350.20'
E = 16.27'
R = 954.93'

3' Plain Riprap

Stream bed

1:0"

12" Aggregate Subbase Course-Gravel

P.T. Sta. 54+72

TYPICAL RIPRAP SECTION

FIELD SURVEY NOTES

Stream Bed:
Sandy bottom with numerous rocks.

Stream Characteristics:
Current is slow. Water level is controlled by a dam 800 ft ± Downstream. High water Elev 486 ± (From local resident.) From long time resident, an ice jam occured at bridge in about 1938, and water flooded the road.

Substructure:
Abutments are mass concrete.

Superstructure:
Treated plank deck on (5) steel stringers.
Stringers are in fair condition.

Approaches:
Narrow bituminous treated in fair condition. Alignment is extremely poor.

Utilities:
Central Maine Power Company
West Paris Water District
Oxford County Tel. & Tel. Co.
All utility facilities shall be adjusted by the respective utility unless noted.

50'-00 ℄ Future Const. — Hinge nail in pavement
30'± ℄ Const.
P.C. Sta. 52+95.02 ℄ Const.
P.T. Sta. 56+45.02 ℄ Future Const.

Hub	125' Rt.	Hub	75' Rt.	Hinge nail in pavement: 20' Rt.
Hub	175' Rt.	Hub	125' Rt.	Hub 125' Lt.
Hub	225' Rt.		Sight only Aluminum nail in 5" cherry	Hub 75' Lt.
20d nail in railroad tie	225.47' Rt.			Hub 128' Rt.

Note: All hubs are flush.

LINE TIES FOR ℄ CONSTRUCTION & FUTURE CONSTRUCTION

50 25 0 25 50 75 100
SCALE IN FEET

GENERAL PLAN

MONU. INSTALLED - 1979
P.C. = R/W 45' LT. - 45' RT.
P.T. = SLOPE ℄ - R/W 45' RT.

BRIDGE NUMBER 3460

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY

-REVISED AS BUILT- 2-11-81

GENERAL PLAN

SHEET 3 OF 23 AUGUSTA, MAINE DEC 1975

165-54

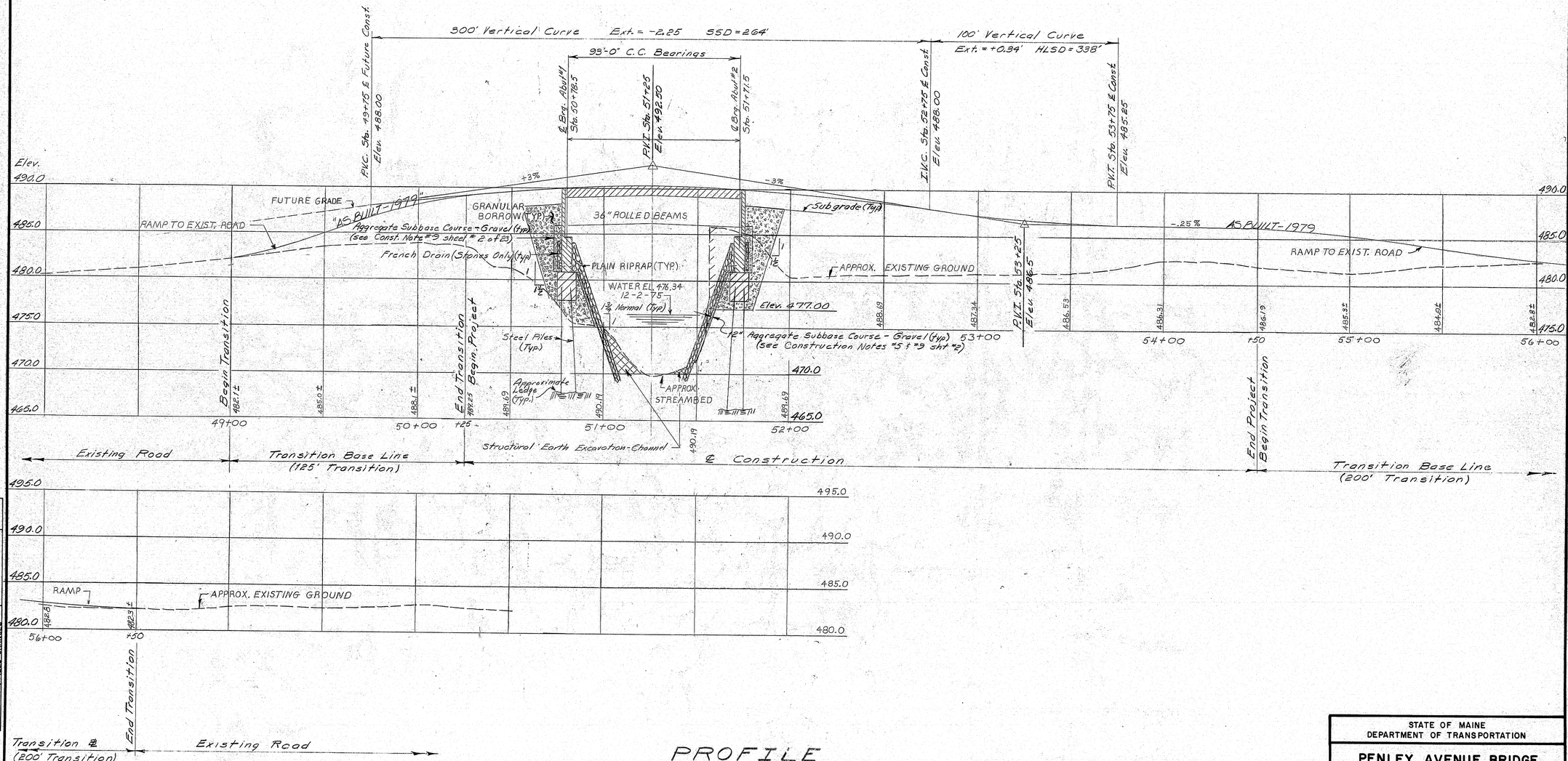
PROJECT DESIGN ENGINEER	BY	DATE
DESIGN - DETAILED	JET	9-22
CHECKED	KVN	8-74
REVISIONS	CNF	
FIELD CHANGES		

PLANS

Survey Checked JTF 12-17-75
Survey Plotted JET 1-27-76
Additional Survey LAW 4-8-76

JANUARY 1968

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	4	23



PROFILE

PROJECT DESIGN ENGINEER	JET
PLANS	DESIGN - DETAILED — BY: JET — DATE: 9-78
	CHECKED — BY: RVN — DATE: 3-12-79
	REVISIONS — BY: CDH
	FIELD CHANGES

R.V. 4-19-86
LAW 4-8-76

Survey Checked
Profile Plotted

JANUARY 1969

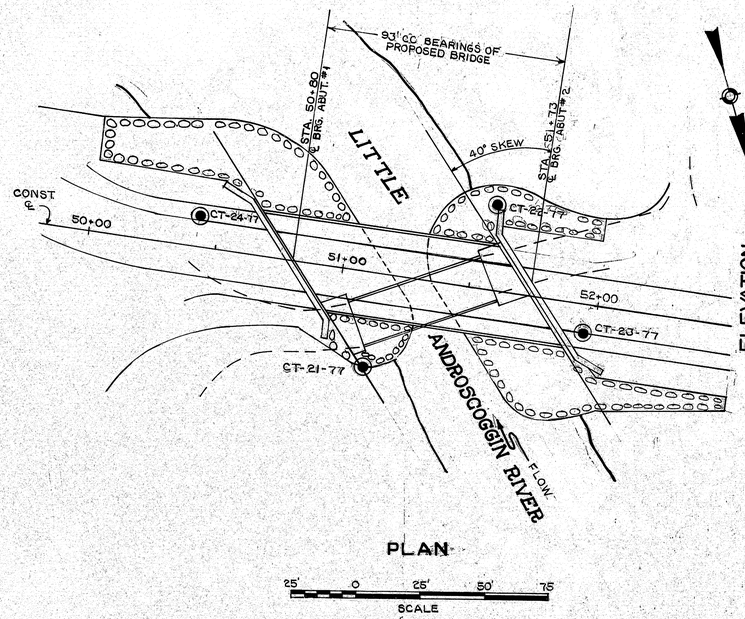
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY
REVISED AS BUILT - D.P.C.S 2-11-81
PROFILE

SHEET 4 OF 23 AUGUSTA, MAINE DEC 1975

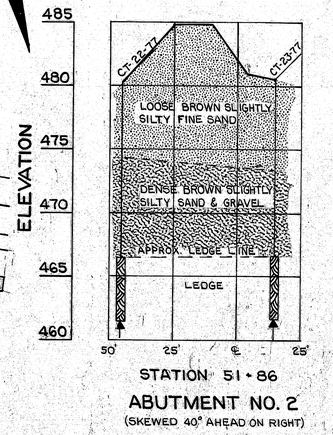
165-55

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	05-J441(1)	5	23



PLAN

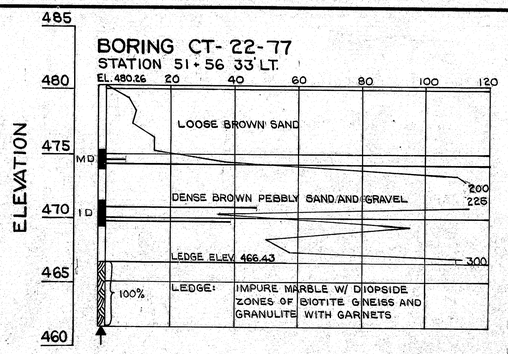
25' 0 25' 50' 75'
SCALE

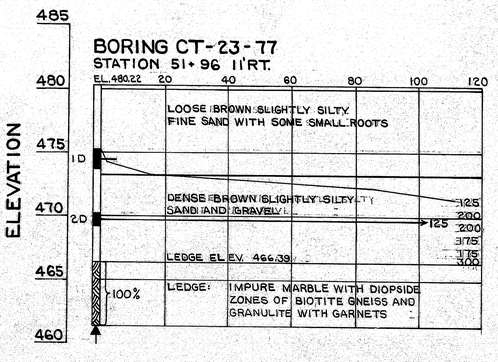


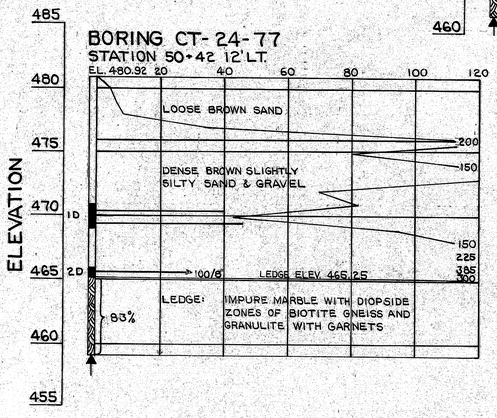
STATION 51+86

ABUTMENT NO. 2

(SKEWED 40° AHEAD ON RIGHT)

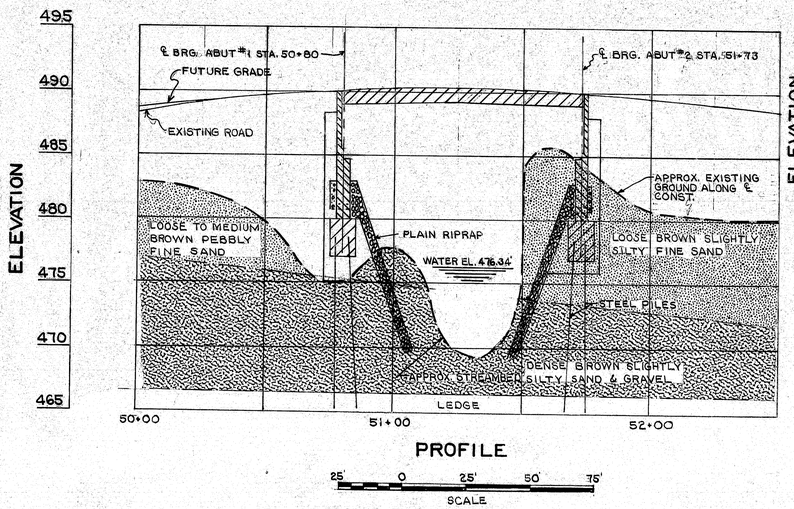






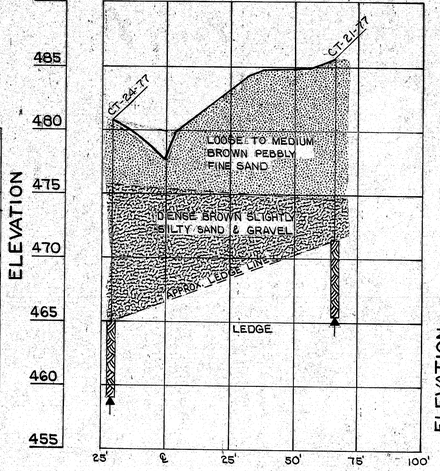
BORING NOTES

Casing size 2½"
All samples and vane are made ahead of casing
N = Number of blows required to drive extra heavy casing one foot with 400 Ft. lbs. of energy per blow
Location of sample or sample attempt
Number and type of dry sample
1D S & H Sampler #1290's
MD Unsuccessful sample attempt and type of sampler
Number of blows required to drive spoon or tubing one foot with 350 ft. lbs. of energy per blow
Bottom of boring (may not be bottom of soil strata)
7% Locations cored by diamond bit and percent recovery of rock



PROFILE

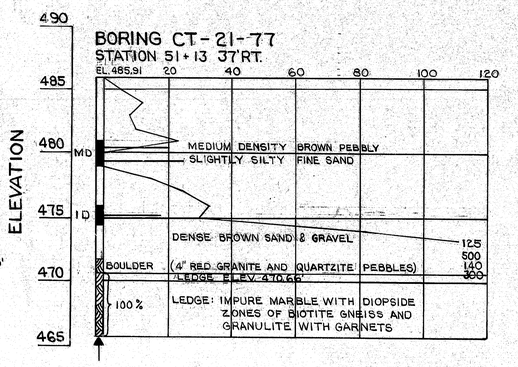
25' 0 25' 50' 75'
SCALE



STATION 50+60

ABUTMENT NO. 1

(SKEWED 40° AHEAD ON RIGHT)



TRANSVERSE SECTIONS

HORIZ. 25' 0 25' 50' 75' 100'
VERT. 5 0 5 10' 15' 20
SCALE

PROJECT DESIGN ENGINEER	JET	BY	DATE
PLANS	DESIGN - DETAILED	CBM	3-12-76
	CHECKED		
	REVISIONS		
	FIELD CHANGES		

JANUARY 1968

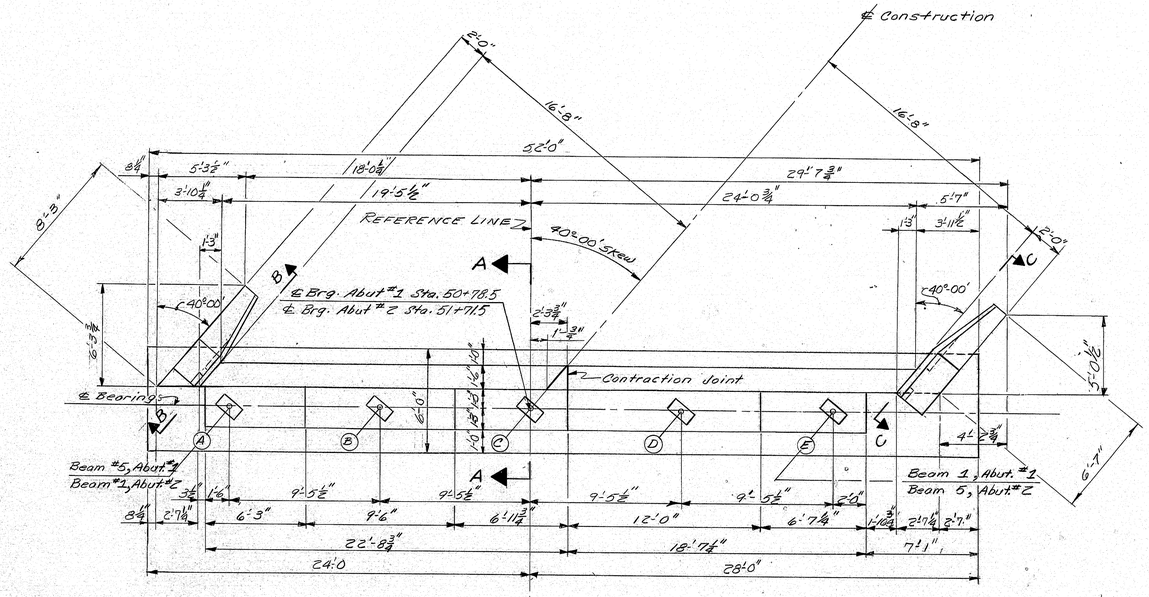
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY
FOUNDATION SURVEY

SHEET 5 OF 23 AUGUSTA, MAINE MAR 1978

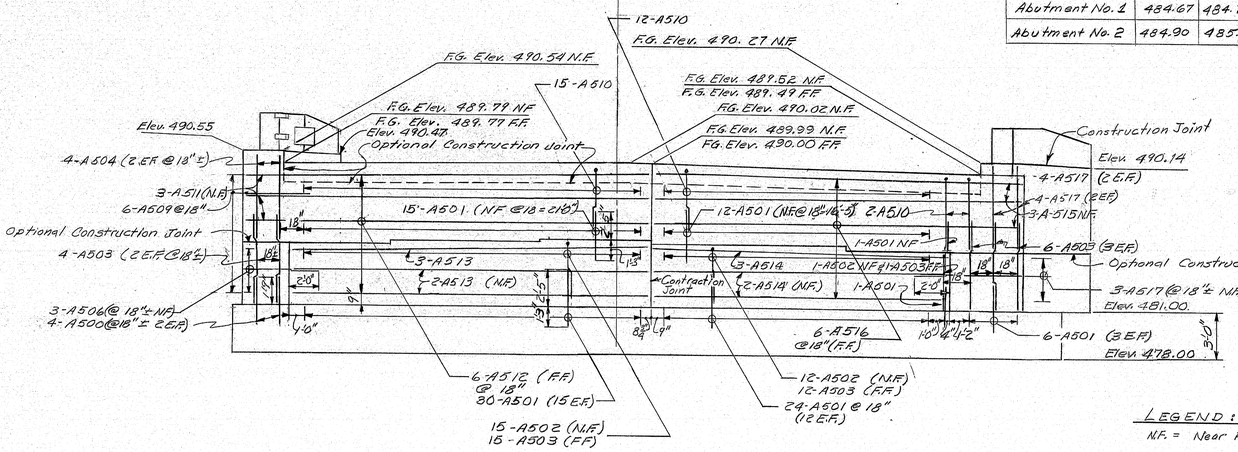
165-56

F.H.W.A. REQ. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	6	23



PLAN ABUTMENT No. 1 & 2

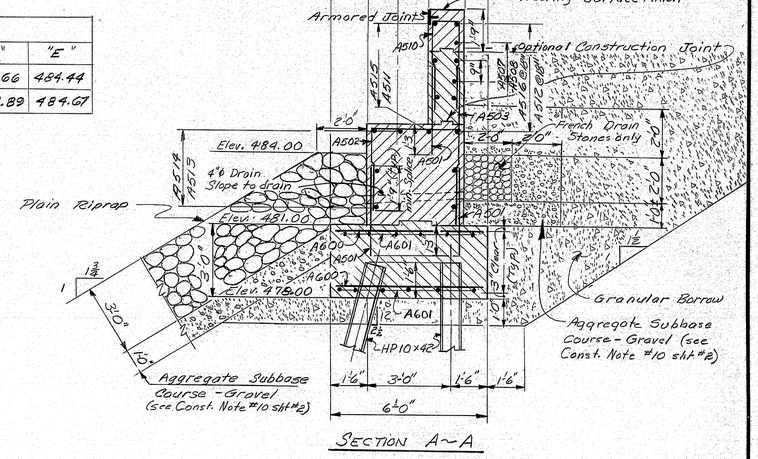
BRIDGE SEAT ELEVATION					
Bridge Seat	"A"	"B"	"C"	"D"	"E"
Abutment No. 1	484.67	484.78	484.88	484.66	484.44
Abutment No. 2	484.90	485.01	485.10	484.89	484.67



ELEVATION ABUTMENT No. 1 & 2

ABUTMENT NOTES

1. Chamfer all exposed edges of concrete a consistent dimension between ¼" and ⅜" inclusive, unless otherwise indicated.
2. Reinforcing steel shall have 2 inches cover unless otherwise indicated.
3. Place reinforcing steel in bridge seats to clear anchor bolts.
4. Break bond at vertical contraction joints by a method approved by the Engineer.
5. Polyvinychloride waterstops as shown on Standard Details BD 104-77 shall be placed in all vertical contraction joints. Waterstops will not be required in horizontal joints.
6. Place 4 inch diameter drains in the breastwall at 20 feet maximum spacing. Exact location to be determined by the Engineer in the field.
7. Welding of reinforcing steel will be allowed in the top 2' of the abutment backwall.
8. Protective coating for concrete surfaces shall be applied to the following areas: Top of abutment backwalls. Exposed surfaces of end post, and curbs.
9. To allow for the adjustment for movement due to dead load deflections of the superstructure, and to aid in the proper alignment of the joint armor, the concrete which anchors the portion of the joint armor in the top of the abutment backwall shall be placed after all superstructure structural slab concrete is in place, unless other methods, which will provide the proper alignment of the joint armor, are approved by the Engineer.



SECTION A~A

PROJECT DESIGN ENGINEER	JET	BY	DATE
PLANS	DESIGN - DETAILED	JET	10-77
	CHECKED	CDH	2-78
	REVISIONS		
	FIELD CHANGES		

JANUARY 1968

LEGEND:

N.F. = Near Face
F.F. = Far Face
E.F. = Each Face

REFERENCES:

~ For footing details see sheet No. 7
~ For Bearing Pedestals BD 100-71
~ For pile details and pile notes see sheet No. 7
~ For Armored Joint see BD 104-77
~ For end post details see sheet No. 7
~ For contraction & Construction Joints see BD 104-77
~ For sections "B-B" and "C-C" see sht. No 7
~ For Pile layout see sht. No. 7

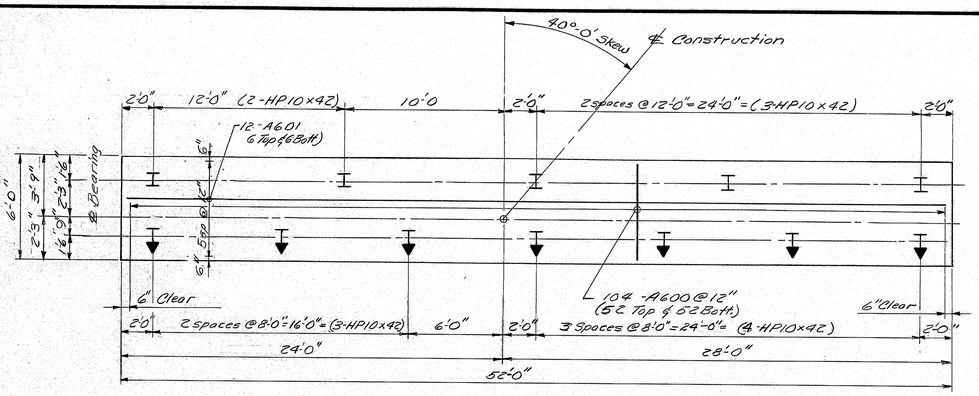
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
AS BUILT - 1979 D. Rice 2-11-81
OXFORD COUNTY
ABUTMENTS

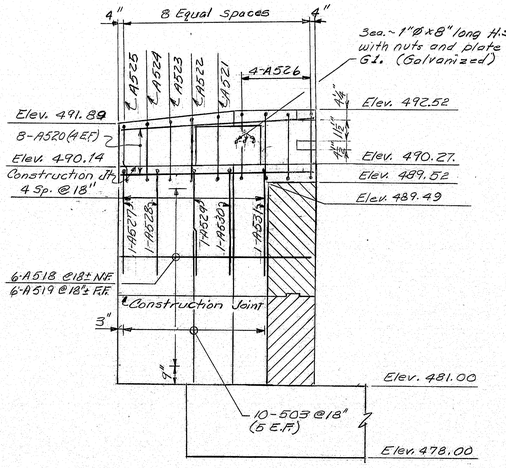
SHEET 6 OF 23 AUGUSTA, MAINE MAR. 1978

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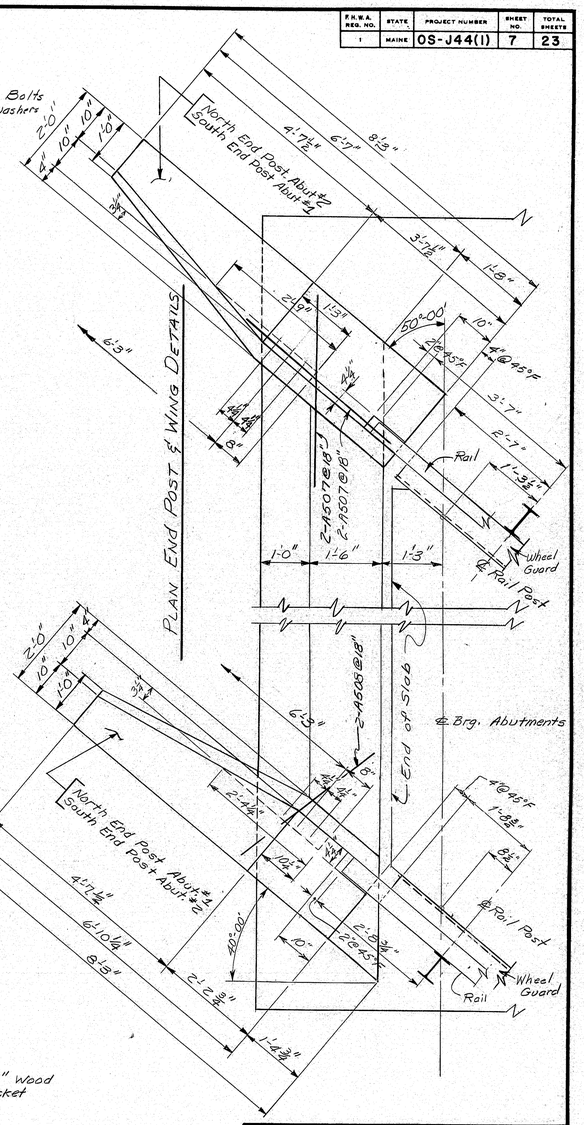
F.H.W.A. REQ. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	0S-J44(1)	7	23



FOOTING PLAN ABUTMENT No. 1 & 2



SECTION C ~ C



~ PILE NOTES ~

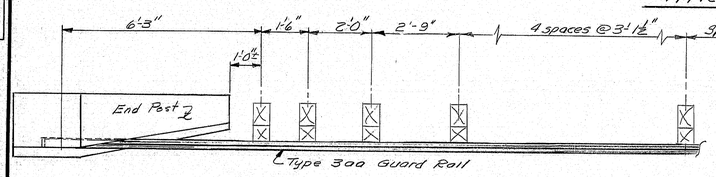
1. Piles shall be driven to ledge or pratical refusal.
2. All piles shall have Pointed Reinforced Pile Tips as shown on Standard Details BD104-77.
3. Alternate types of Pointed Reinforced Pile Tips may be used if they have at least the cross-sectional area of the Pointed Reinforced Pile Tip shown on the plans and are approved by the Engineer.
4. Estimated driven lengths of piles are determined from available soils information with no allowance for uncertain pile penetration.
5. Piles which are embedded into footings a distance of 1'-6" may vary between 1'0" and 2'0" however, payment shall be allowed only for the actual embedment length up to a maximum of 1'-6".
6. Piles marked thus ▶, shall be battered 2½ inches per foot in the direction of the arrow.
7. Maximum pile loads: 54 Tons.
8. Following are pile locations, Number of piles required, size of all piles and estimated driven lengths.
   Abutment #1 7-HP10x42 @ 15' & 5-HP10x42 @ 10'
   Abutment #2 12-HP10x42 @ 15'

~ END POST AND GUARD RAIL NOTES ~

1. End Post Concrete will be paid for under Item No. 502.21
2. Reinforcing steel in end posts will be paid for under Item 503.12 & 503.13
3. Payment for plate G1, Washer & Bolts will be considered incidental to Guard Rail Items, and no separate payment will be made.

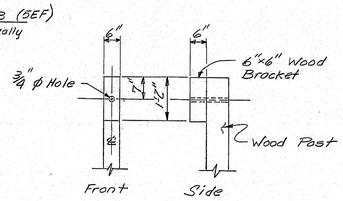
TYPICAL WING DETAIL

SECTION B ~ B



PLAN GUARD RAIL AT END POST

References;
Guard Rail Type 300 ~ see Special Provision Section 606 and Standard Detail @ Aug. 1969



OFFSET BRACKET
TYPE 300 GUARD RAIL

NOTE: Wood bracket, G.R. beam, round washer plate, washer "G" and post shall be bolted with one ⅝" Ø x 16" round head bolt.

PROJECT DESIGN ENGINEER	BY	DATE
PLANS — DESIGN - DETAILED	VET	11-77
CHECKED	RVN	3-16-78
REVISIONS		
FIELD CHANGES		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

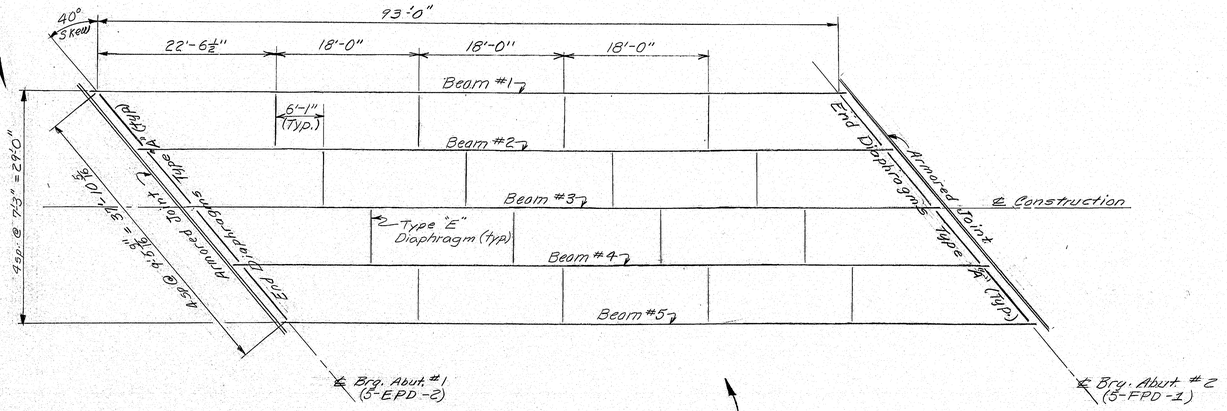
PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
AS BUILT-1979 D.C.S. 2-11-81
OXFORD COUNTY
WING & END POST DETAILS

SHEET 7 OF 23 AUGUSTA, MAINE MAR. 1978

JANUARY 1988

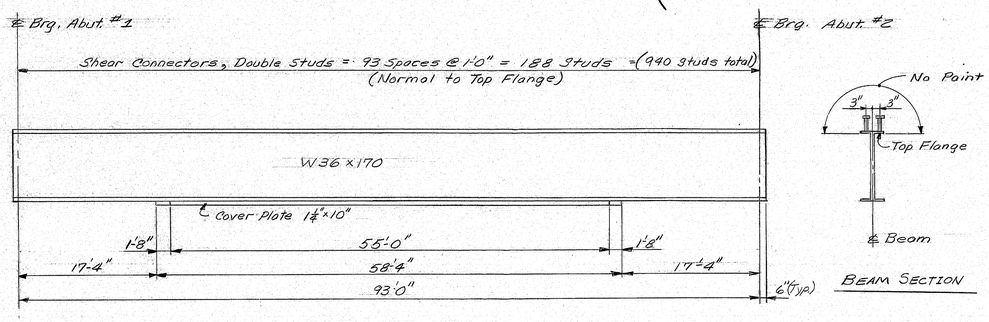
165-58

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	8	23



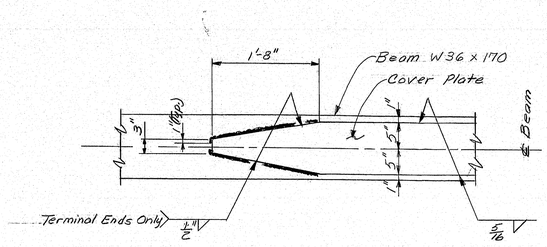
FRAMING PLAN

FLOW

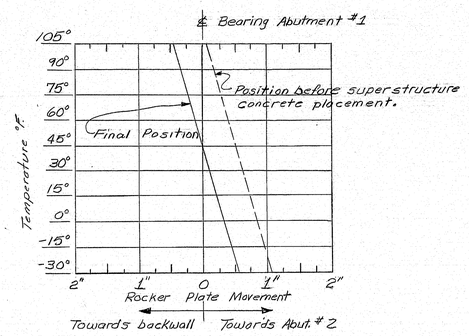


BEAM ELEVATION

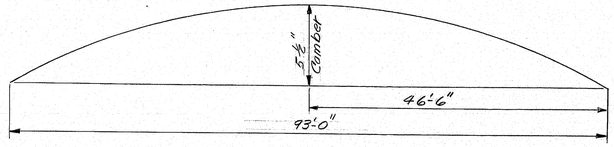
BEAM SECTION



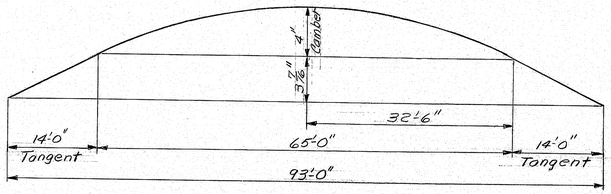
COVER PLATE DETAIL



EXPANSION PEDESTAL SETTING CHART
(After erecting structural steel and before concrete slab is placed.)



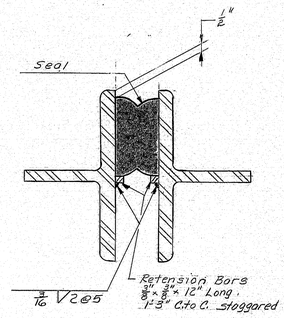
CAMBER BEAMS #1 & #5
(Exterior Beams)



CAMBER BEAMS #2, #3 & #4
(Interior Beams)

STRUCTURAL STEEL NOTES

1. For armored joint details not shown on this sheet see Standard Details BD-104-7.1.
2. Armored joint shall have crown slope of ½"/ft. from ℄ Construction (Adjust for skew).
3. The seals furnished shall have a movement rating of: Abutment #1, M.R. = 1½" & Abutment #2, M.R. = ⅜".
4. The joint opening will vary depending on the dimensions of the seal selected by the Contractor. The joint opening shall be set according to the opening shown on the approved (Armored Joint) shop detail drawings.
5. The seal characteristics shall be submitted to the Engineer for approval, prior to the fabrication of the Armored Joint.
6. Cross frame or diaphram connection plates may be either plumb or normal to the top flange.
7. Camber ordinates, as shown, are computed to compensate for all dead load deflections and for the curvature of the finish grade profile.
8. All structural steel shall be ASTM A588 (unpainted), except as noted. Bolts shall be High Strength ASTM A325, Type III.
9. Basic allowable stresses are: ASTM A588; f_s = 27,000 psi; ASTM A325; f_v = 13,500 psi



SEAL ARRANGEMENT
(In Armored Joints)

Note: Seal shall extend 4" beyond end of armored joints.

REFERENCES

Standard Details BD100-71 Bearing Pedestals
" " BD 109-73 Shear Connectors & Armored Joint details
" " BD 113-72 Diaphragms

For Blocking detail & Bottom of slab Elevations see sheet #9

PROJECT DESIGN ENGINEER	BY	DATE
PLANS — DESIGN-DETAILED	JET	8-77
CHECKED	RWM	2-78
REVISIONS	SBH	2-78
FIELD CHANGES		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY

ASBUILT-1979 D.R.W. 2-11-81

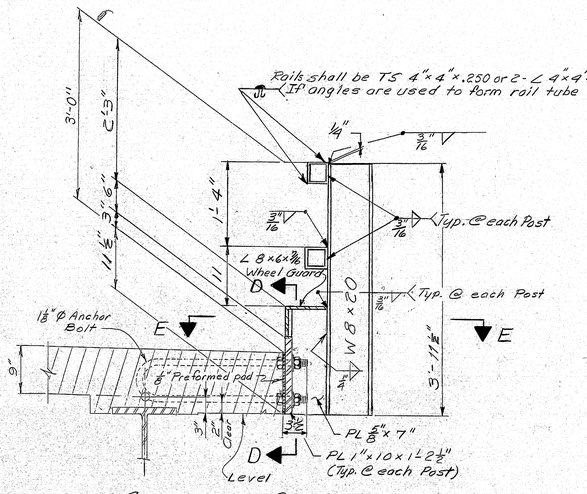
STRUCTURAL STEEL

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JANUARY 1968

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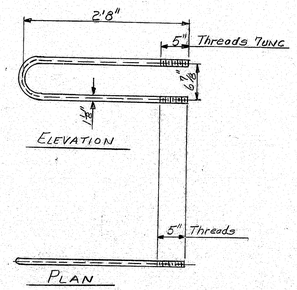
F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	9	23



SECTION C-C

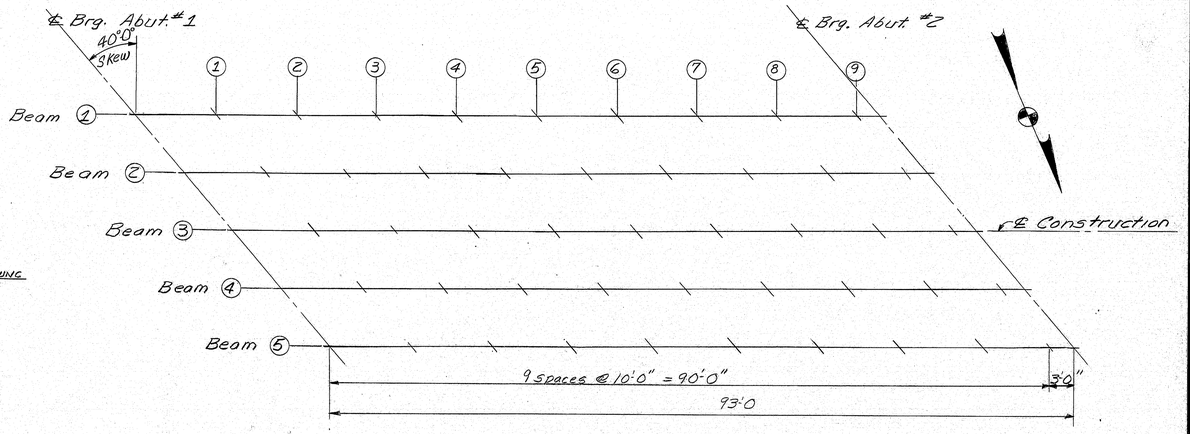
BRIDGE RAILING DETAILS

(See Notes # 4, 5, 6 and 7 Sheet # 10)
(See sheet # 7 for end cuts on wheel guards)



1⅛" ø ANCHOR BOLT

2 Anchor Bolts required each post.
2 Nuts & 2 Standard Washers required each bolt.
Material shall be A.S.T.M. A325.

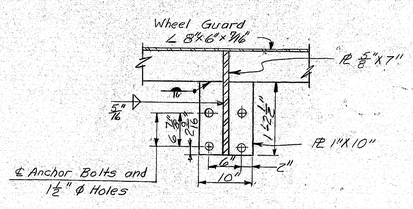


BLOCKING PLAN

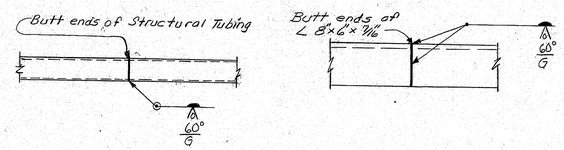
Bottom of Slab Elevation											
Point	Abut #1	1	2	3	4	5	6	7	8	9	Abut #2
Beam #1	488.85	489.05	489.22	489.34	489.42	489.45	489.44	489.37	489.27	489.13	489.08
Beam #2	489.07	489.28	489.44	489.56	489.64	489.66	489.62	489.54	489.41	489.24	489.19
Beam #3	489.28	489.48	489.63	489.74	489.80	489.81	489.76	489.67	489.53	489.34	489.28
Beam #4	489.19	489.36	489.51	489.61	489.65	489.65	489.59	489.48	489.33	489.14	489.07
Beam #5	489.08	489.23	489.35	489.42	489.45	489.44	489.37	489.26	489.11	488.92	488.85

BOTTOM OF SLAB ELEVATION

Note: Bottom of Slab Elevations are adjusted to compensate for the dead load deflection and curvature of the profile grade.

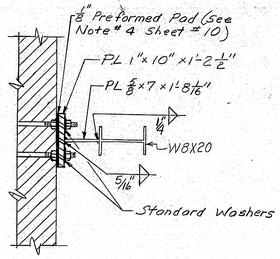


SECTION D-D



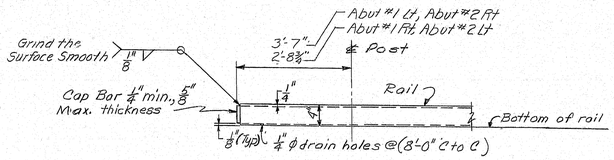
TYPICAL SPLICE DETAILS

Rail & Wheel Guard



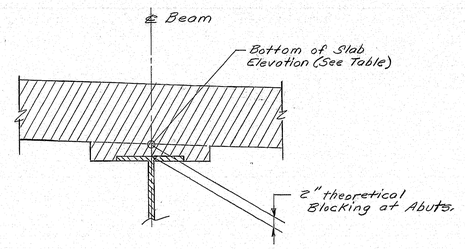
SECTION E-E

Note: Place Reinforcing Steel to clear anchor bolts.



Note: Rail ends shall be Plugged with plate as shown above.

END OF RAIL DETAIL



BLOCKING DETAIL

Do not use for setting forms

PROJECT DESIGN ENGINEER	BY	DATE
PLANS — DESIGN DETAILED	JET	8-77
CHECKED	EVM	8-78
REVISIONS	CDH	
FIELD CHANGES		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY

AS BUILT - 1979 D. Bjk 2-1980

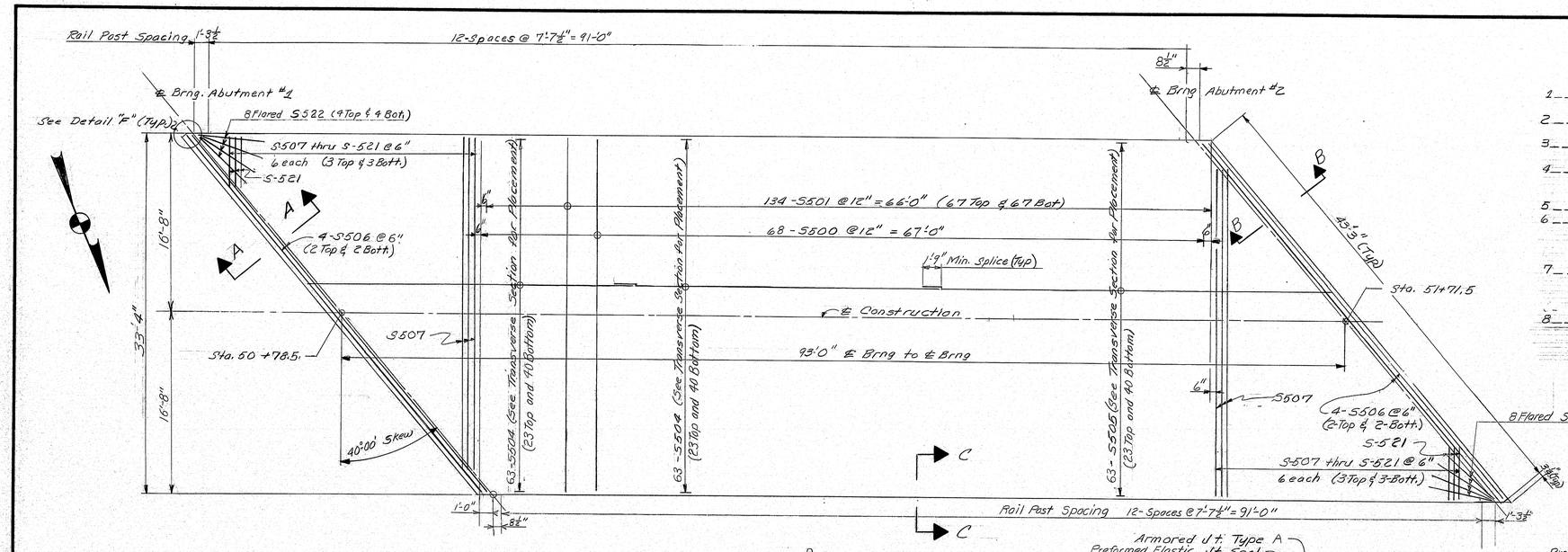
BLOCKING & RAIL DETAILS

SHEET 9 OF 23 AUGUSTA, MAINE MAR. 1978

JANUARY 1968

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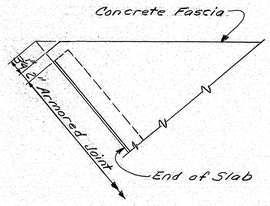
F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	10	23



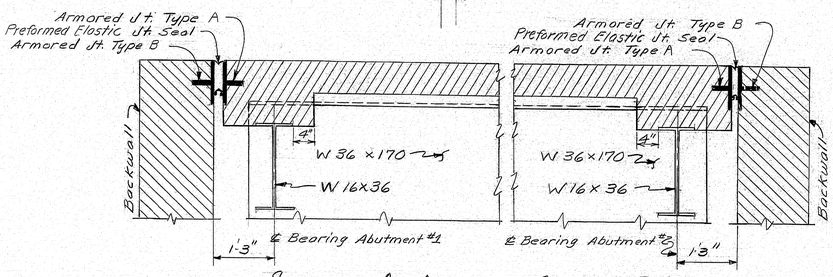
PLAN

SUPERSTRUCTURE NOTES

1. Chamfer all exposed edges of concrete a consistent dimension between ¾" and 1½" inclusive, unless otherwise indicated.
2. Reinforcing steel shall have a minimum cover of 2" unless otherwise indicated.
3. Reinforcing steel splices not shown on the plans, shall be a minimum of 1'-9".
4. More than 1 preformed pad may be used as necessary to align posts correctly and payment for such pads will be considered incidental to Bridge Railing, Item 517.08.
5. Bridge Railing shall be A.S.T.M. A588.
6. The materials, fabrication, handling and erection of Bridge Railing shall be in accordance with sections 504 and 717.3 except no impact test will be required.
7. There shall be a minimum of 15'-0" between butt welds in the rolling and wheel guards. The butt welds where used shall be at least 12" from ℄ of the posts.
8. Protective Coating For Concrete Surfaces, Item 515.20, shall be applied to the concrete wearing surface and slab fascia down to the drip notch.

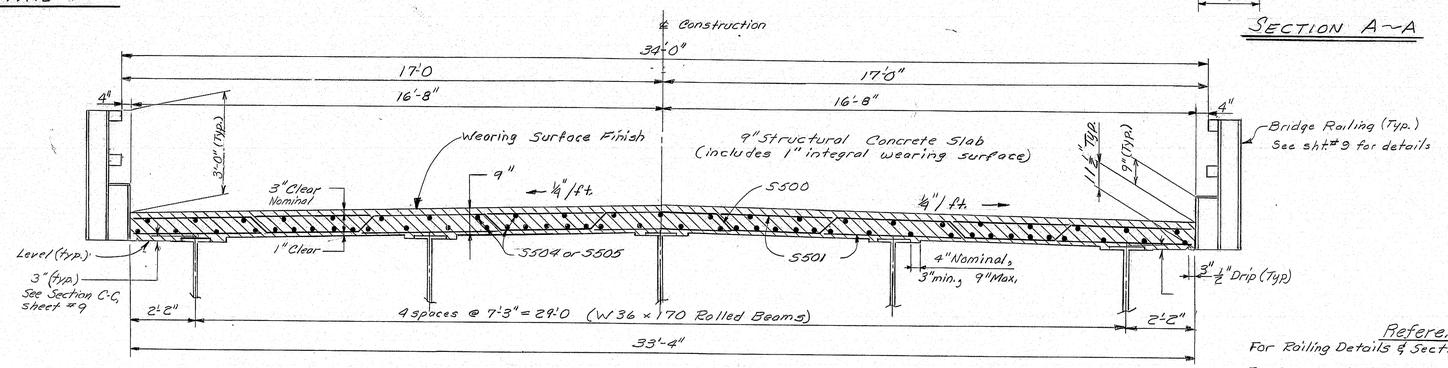


DETAIL "F"



SECTION A-A

SECTION B-B



TRANSVERSE SECTION

References

For Railing Details & Section C-C see sheet #9

For Armored Joint details (BD104-77) See sheet #22 and Sheet #8

For Reinforcing steel see sheet #11

PROJECT DESIGN ENGINEER	BY	DATE
PLANS	DESIGN - DETAILED JET	8-77
	CHECKED RVM	3-78
	REVISED	
	FIELD CHANGES	

JANUARY 1968

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
AS BUILT-1979 D.Bib 2-1-81
OXFORD COUNTY
SUPERSTRUCTURE SLAB

SHEET 10 OF 23 AUGUSTA, MAINE MAR. 1978

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REINFORCING STEEL SCHEDULE

STRAIGHT BARS

MARK	NO.	LENGTH	LOCATION
			ABUTMENTS
A500	8	3'-0"	Dowel
A501	200	3'-8	"
A503	116	6'-0"	Backwall
A504	8	5'-7"	"
A506	6	4'-8"	"
A507	8	4'-0"	Wings
A508	4	3'-6"	"
A511	6	25'-3"	Backwall
A512	12	24'-0"	"
A513	10	22'-5"	Breastwall
A514	10	18'-3"	"
A515	6	22'-10"	Backwall
A516	12	24'-1"	"
A517	6	6'-6"	"
A518	12	7'-8"	Wing
A519	12	6'-6"	"
A520	16	7'-11"	End Post
A532	28	6'-5"	Wing
A538	16	6'-6"	End Post
A600	208	5'-3"	Footing
A601	28	51'-6"	"

MARK	NO.	LENGTH	LOCATION
			SUPERSTRUCTURE
S501	134	33'-0"	Slab Transverse
S502	67	38'-2"	" "
S504	126	30'-0"	Slab Longitudinal
S505	63	38'-0"	" "
S506	8	43'-0"	Slab Ends
S507	12	31'-0"	Slab
S508	12	29'-2"	
S509	12	27'-4"	
S510	12	25'-6"	
S511	12	23'-7"	
S512	12	21'-10"	
S513	12	20'-2"	
S514	12	18'-2"	
S515	12	16'-4"	
S516	12	14'-5"	
S517	12	12'-8"	
S518	12	10'-8"	
S519	12	8'-10"	
S520	12	7'-2"	
S521	12	5'-0"	
S522	16	6'-0"	Slab

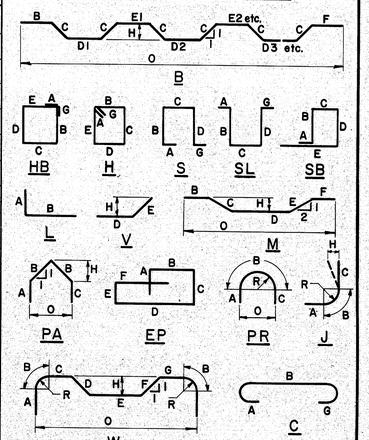
BENT BARS

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION
							SUPERSTRUCTURE							
S500	68	34'-9"	B		3'-8 3/4"	7"	2'-11 1/2"	3'-5 1/2"	3'-8 3/4"		5"	33'-0"		Slab Transverse
						x 8	x 4	x 3						
							ABUTMENTS							
A502	58	6'-11"	L	3'-8"	3'-3"									Breastwall
A509	12	9'-3"	Z	4'-0"	1'-3"	4'-0								Backwall
A510	58	10'-0"	S		4'-5"	1'-2"	4'-5"							Backwall
A521	2	7'-8"	H	4"	1'-2"	2'-4"	1'-2"	2'-4"		4"				End Post
A522	2	7'-4"	H	4"	1'-0"	2'-4"	1'-0"	2'-4"		4"				" "
A523	2	7'-4"	H	4"	11"	2'-5"	11"	2'-5"		4"				" "
A524	2	7'-4"	H	4"	10"	2'-6"	10"	2'-6"		4"				" "
A525	2	7'-4"	H	4"	9"	2'-7"	9"	2'-7"		4"				" "
A526	8	8'-0	H	4"	1'-0"	2'-8"	1'-0	2'-8		4"				" "
A527	2	9'-9"	S		4'-6"	9"	4'-6"							Wing
A528	2	10'-0"	S		4'-6"	1'-0"	4'-6"							"
A529	2	10'-2"	S		4'-6"	1'-2"	4'-6"							"
A530	2	10'-4"	S		4'-6"	1'-4"	4'-6"							"
A531	2	10'-5"	S		4'-6"	1'-5"	4'-6"							"
A533	2	10'-4"	S		4'-6"	1'-4"	4'-6"							Wing
A534	2	10'-2"	S		4'-6"	1'-2"	4'-6"							"
A535	2	10'-0"	S		4'-6"	1'-0	4'-6"							"
A536	2	9'-9"	S		4'-6"	9"	4'-6"							"
A537	2	9'-8"	S		4'-6"	8"	4'-6"							"
A539	2	8'-2"	H	4"	1'-2"	2'-7"	1'-2"	2'-7"		4"				End Post
A540	2	7'-6"	H	4"	1'-0"	2'-5"	1'-0"	2'-5"		4"				" "
A541	2	6'-8"	H	4"	9"	2'-3"	9"	2'-3"		4"				" "
A542	2	6'-3"	H	4"	8 1/2"	2'-1"	8 1/2"	2'-1"		4"				" "
A543	6	8'-4"	H	4"	1'-0"	2'-10"	1'-0"	2'-10"		4"				" "

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	G	H	O	R	LOCATION

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	OS-J44(1)	11	23

TYPE-BENDING DIAGRAMS



All dimensions are out to out of reinf. bar.

Bending details and hooks shall conform to the recommendations of ACI Standard 315-65.

Reinforcing Bar: ASTM A615 Grade 60

GENERAL NOTES

1. First digit(s) following the letter of the Mark indicates size of reinf. bar.
   Mark (A502) bar size - #5
   Mark (P1001) bar size - #10
   Mark (S603) bar size - #6
2. Letter of Marks A, P & S locates bars of Abutments, Piers, and Superstructure parts respectively.
3. The number of bars in Abutments are for both Abutments. Use one half the number for each Abutment.

PLANS	BY	DATE
DESIGN - DETAIL	RWN	12-77
CHECKED	CDM	3-16-78
REVISIONS		
FIELD CHANGES		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

PENLEY AVENUE BRIDGE
OVER
LITTLE ANDROSCOGGIN RIVER
IN THE TOWN OF
WEST PARIS
OXFORD COUNTY

REINFORCING STEEL SCHEDULE

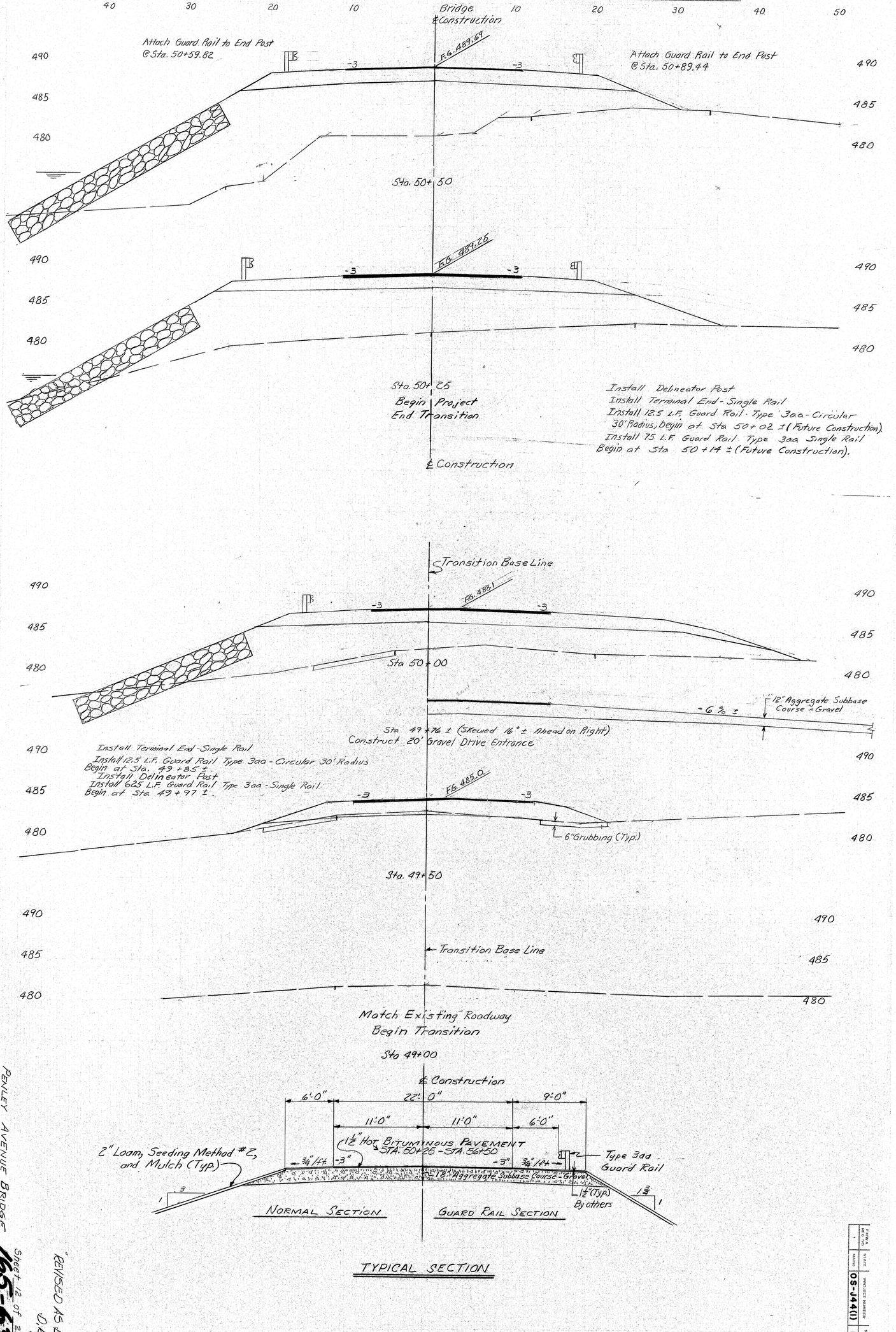
SHEET 11 OF 23 AUGUSTA, MAINE MAR. 1978

11

165-62

ORIGINAL SURVEY		BY	DATE
	SURVEYED		
	PLOTTED	RVN	9-77
NOTE BOOK	TEMPLATE	RVN	9-77
	AREAS		
NO.	AREAS CHECKED	CPH	3-16-78

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



TYPICAL SECTION

PENLEY AVENUE BRIDGE

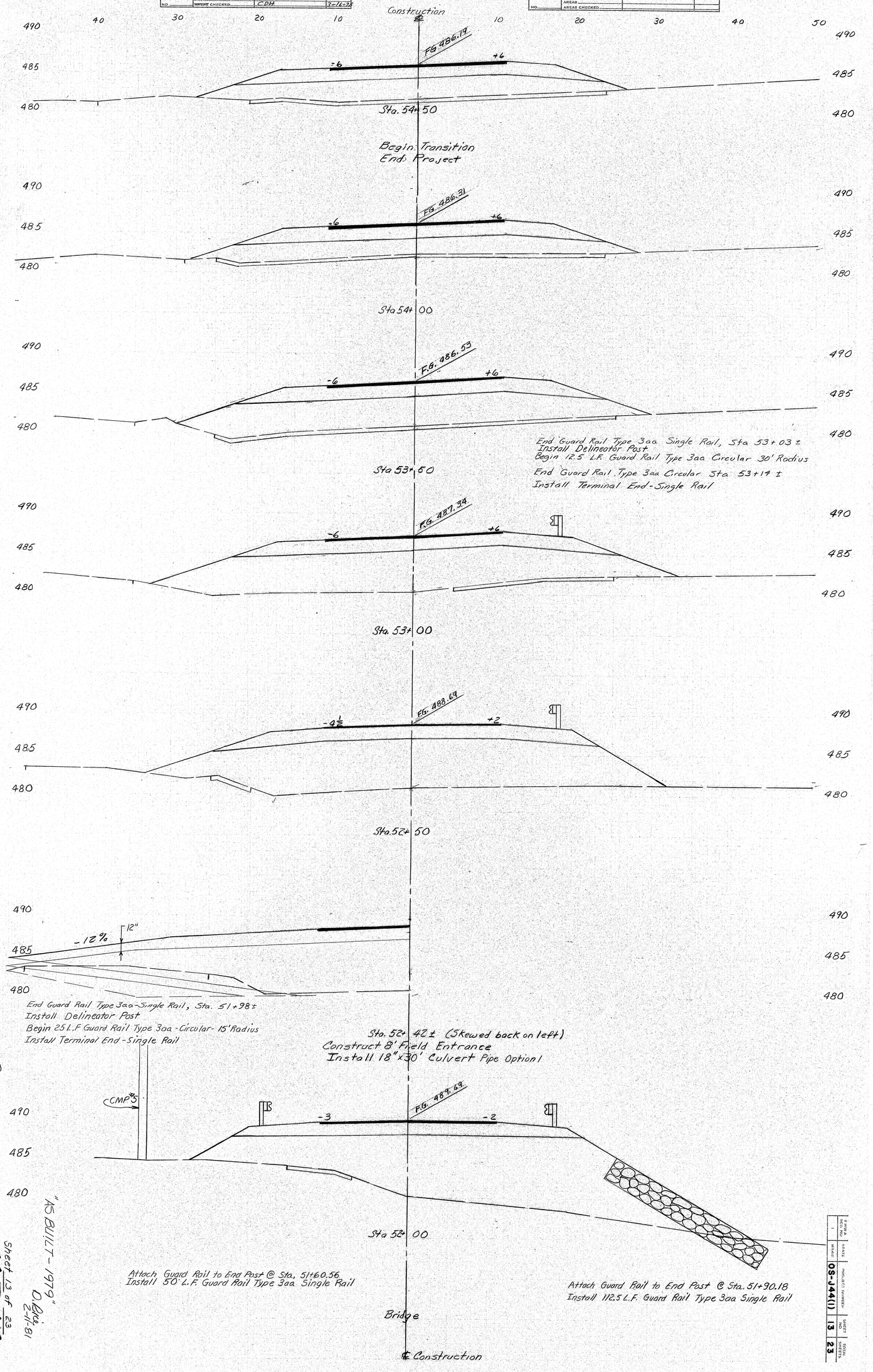
"REVISED AS BUILT"
D. Ellis
2-4-81

Sheet 12 of 23 Sheets
165-63

FAP NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	WASH.	OS-J44(1)	12	23

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
NO	PLOTTED	RVN	9-22
	TEMPLATE	RVN	9-23
	AREAS		
	AREAS CHECKED	CDH	3-16-24

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



PENLEY AVENUE BRIDGE

"AS BUILT - 1979"
O. Eng. 241-81

Sheet 13 of 23

165-61

PROJECT NO.	STATE	PROJECT NUMBER	SHEET NO	TOTAL SHEETS
1	OHIO	08-044(1)	13	23

ORIGINAL SURVEY		BY	DATE
NOTE BOOK	SURVEYED		
	PLOTTED	RVN	9-77
NO.	TEMPLATE	RVN	9-77
	AREAS		
	~~PAGES~~ CHECKED	CDH	3-16-78

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

40 30 20 10 0 10 20 30 40 50

Transition Base Line

490
485
480

F.G. 482.0 ±

Sta. 56+50
End Transition
Match Existing Roadway

-3 F.G. 482.8 0

Sta. 56+00

-4½" F.G. 483.0 +3"

Sta. 55+50
Transition Base Line

℄ Construction

-6 F.G. 485.3 +6

Sta 55+00

PENLEY AVENUE BRIDGE

"AS BUILT-1978"
D. Byrd

Sheet 14 of 23

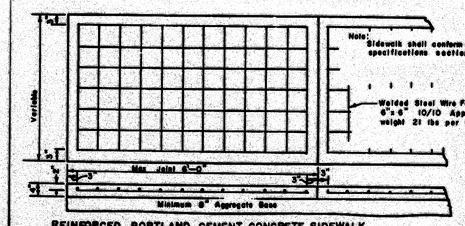
165-46

-6 -12.7%

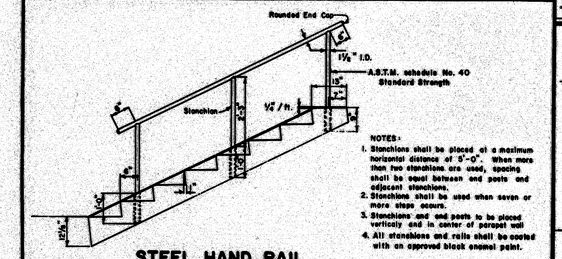
Sta. 54+88 ±
Construct 8' Field Entrance

℄ Construction

FHWA SHEET NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
	WVNF	OS-J44(1)	14	23



REINFORCED PORTLAND CEMENT CONCRETE SIDEWALK

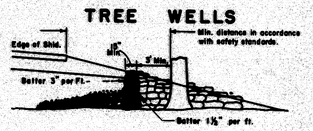


NOTES:
1. Stanchions shall be placed at a maximum horizontal distance of 5'-0". When more than two stanchions are used, spacing shall be equal between end posts and adjacent stanchions.
2. Stanchions shall be used when seven or more steps occure.
3. Stanchions and end posts to be placed vertically and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

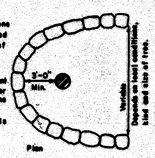
STEEL HAND RAIL

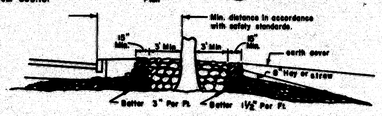
5-A

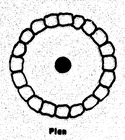
TREE WELLS



NOTES:
1. Selected ledge excavation, crushed stone or other porous material shall be used to fill around the old ground area of the tree from the tree wall to the perimeter of the branches.
2. An 8" layer of hay or straw to prevent infiltration of fines shall be placed over the rock fill except in areas under the roadway and shoulders.
3. If drainage away from the tree well is necessary, underdrain outlet pipe shall be used, and will be paid for under item 608.10.



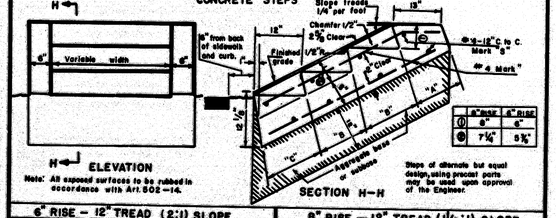




To be paid for under item
610.09 Hand laid riprap.
608.10 6" Underdrain Outlet

5-E

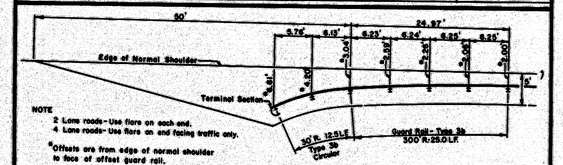
CONCRETE STEPS



	a" RISE	c" RISE
①	8"	8"
②	7 1/2"	9 1/2"

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

6" RISE – 12" TREAD (2:1) SLOPE			8" RISE – 12" TREAD (1½:1) SLOPE		
REINFORCING STEEL					
Mark	Size	Number / Length (Each)	Mark	Size	Number / Length (Each)
R	#4 .668 lbs. per ft.	2 Each parapet / 1 Each ft. of width / 11"+ For "A" +13.4 For each "B" +12" For "C"	R	#4 .668 lbs. per ft.	2 Each parapet / 1 Each ft. of width / 11" For "A" +16.75" For each "B" +12" For "C"
S	#4 .668 lbs. per ft.	2 For "A" / 2 For each "B" / 2 For "C" / 4 Each parapet + 12" per ft. of width	S	#4 .668 lbs. per ft.	2 For "A" / 2 For each "B" / 2 For "C" / 4 Each parapet + 12" per ft. of width
CONCRETE CLASS "A"					
Section	Steps per ft. of width	Parapet each wall	Section	Steps per ft. of width	Parapet each wall
"A" Header	.030 cu. yds.	.018 cu. yds.	"A" Header	.039 cu. yds.	.018 cu. yds.
"B" Each later step	.030 cu. yds.	.020 cu. yds.	"B" Each later step	.035 cu. yds.	.024 cu. yds.
"C" Footer	.030 cu. yds.	.020 cu. yds.	"C" Footer	.035 cu. yds.	.024 cu. yds.

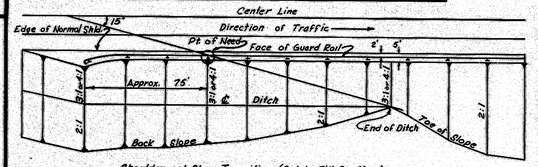


NOTE
2 Lane roads - Use flare on each end.
4 Lane roads - Use flare on end facing traffic only.
*Offsets are from edge of normal shoulder to face of offset guard rail.

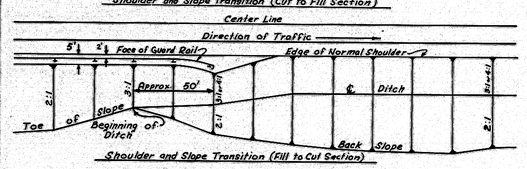
GUARD RAIL END TRANSITION

5-B

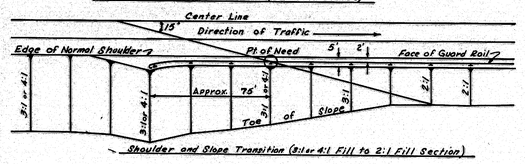
GUARD RAIL END SLOPE TRANSITIONS



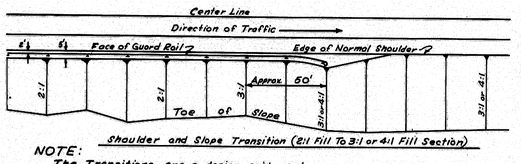
Shoulder and Slope Transition (Cut to Fill Section)



Shoulder and Slope Transition (Fill to Cut Section)



Shoulder and Slope Transition (3:1 or 4:1 Fill to 2:1 Fill Section)

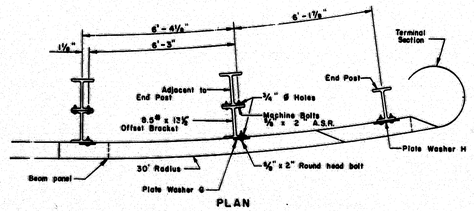


Shoulder and Slope Transition (2:1 Fill To 3:1 or 4:1 Fill Section)

NOTE:
The Transitions are a design guide only.
These slope Transitions shall be used with Beam Type Guard Rail.

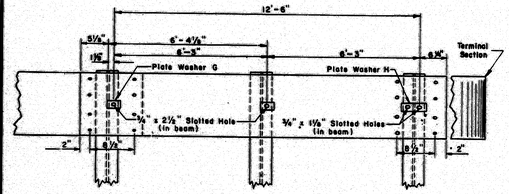
5-F

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



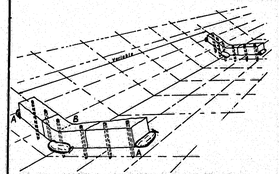
To be used in all locations except on the end away from traffic on 4 lane divided.

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

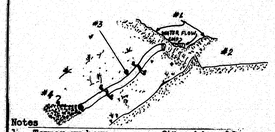


5-C

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	0S-T44(1)	17	25



EROSION CHECK for DITCH

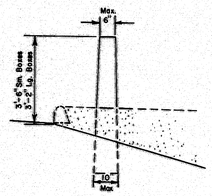


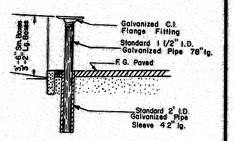
Notes
1. Temporary berms approx. 2½"± wide x 12"± high (Compacted with wheel or track)
2. Crescent shaped berm length as required to contain surface drainage & direct into end section.
3. Collapsible pipe or equal.
4. Discharge in drainage ditch, on stabilized area or on dumped stone as designated by Engineer.

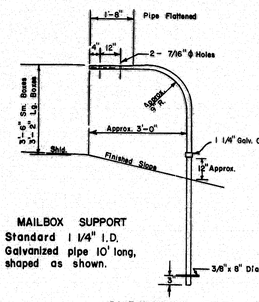
TEMPORARY BERM and SLOPE DRAIN

TEMPORARY EROSION CONTROL

5-D





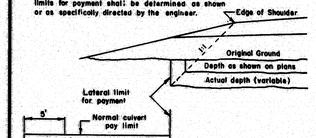


5-G

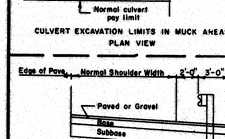
MUCK EXCAVATION

PAYMENT LIMITS

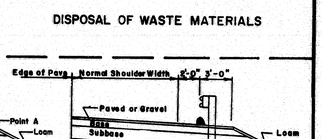
NOTE:
When muck is excavated to a depth greater or less than what is shown on the plans, the vertical limits for payment shall be determined as shown or as specifically directed by the engineer.



When directed by the engineer, waste material shall be used in this area, except that waste shall not be placed in fills designed with slopes of 2:1 or less. No additional payment will be made for this work.



CULVERT EXCAVATION LIMITS IN MUCK AREAS
PLAN VIEW



DISPOSAL OF WASTE MATERIALS



PAVED OR GRAVEL GUARD RAIL SHOULDER
PAVED GUARD RAIL SHOULDER WITH CURB
Point A = Normal Slope Break

LOCATION OF GUARD RAIL

5-H

PLATE H	11-3-77

REVISIONS	
Plate 5-A	12-24-69
PLATE 5B	1-27-71
PLATE 5 H	5-12-71
PLATE 5B	1-19-72
PLATE 5G	6-7-72
PLATE 5D	6-7-72
PLATE 5D+C	10-22-74
PLATE A,B,F,H	3-18-75
PLATE 5 H	6-26-75
PLATE G	10-14-75

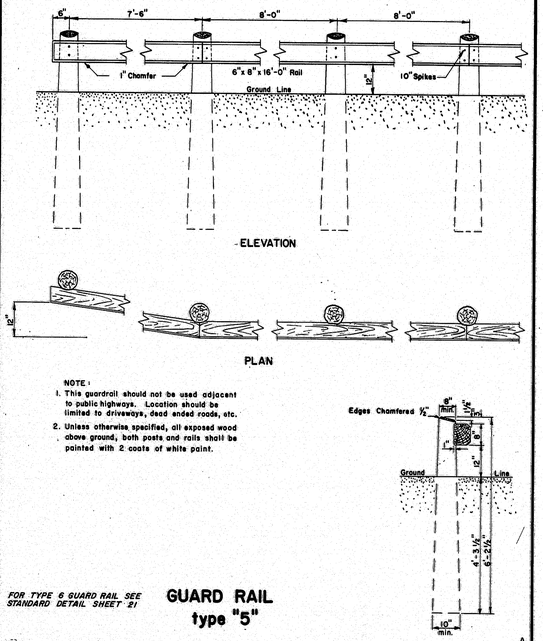
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AUGUSTA, MAINE

STANDARD DETAILS

GUARD RAIL, MUCK EXCAVATION
CONCRETE STEPS & SIDEWALK
GUYING TREES
TREE WELLS, EROSION CONTROL,
MAILBOX SUPPORTS.

AUG. 1969 (5)

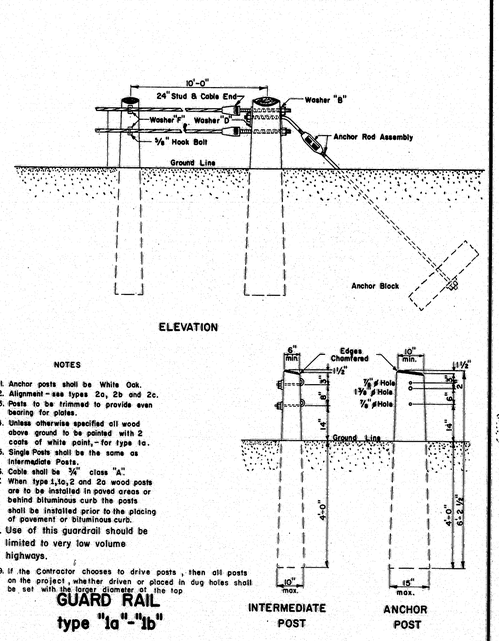
165-66



FOR TYPE 6 GUARD RAIL SEE STANDARD DETAIL SHEET 21

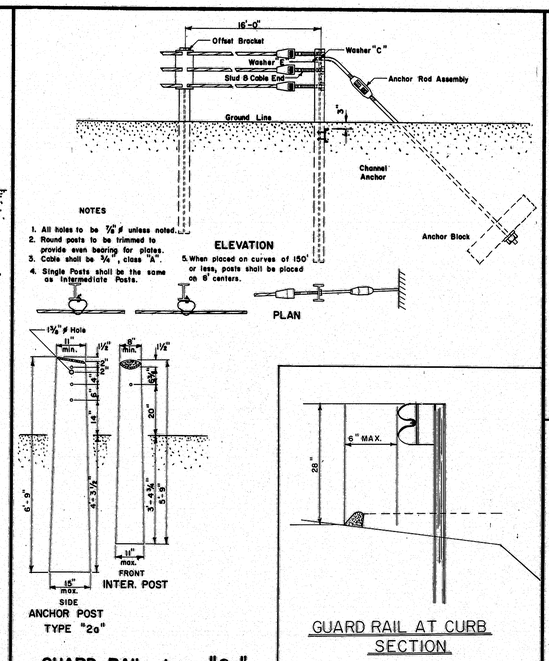
GUARD RAIL type "5"

A



GUARD RAIL type "1a"-"1b"

B



GUARD RAIL type "2a"

C

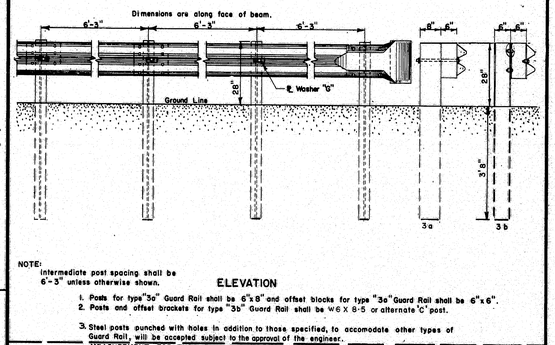
GUARD RAIL AT CURB SECTION

C

FOR BEAM TYPE GUARD RAIL

Beam Type Guard Rail set on radius of 150' or less to be Circular.

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	05-T44(1)	18	23

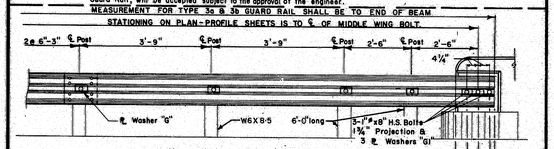


NOTE:
Intermediate post spacing shall be 6'-3" unless otherwise shown.

ELEVATION

1. Posts for type "3a" Guard Rail shall be 6"x8" and offset blocks for type "3a" Guard Rail shall be 6"x6".
2. Posts and offset brackets for type "3b" Guard Rail shall be W6X8.5 or alternate "C" post.
3. Steel posts punched with holes in addition to those specified, to accomodate other types of Guard Rail, will be accepted subject to the approval of the engineer.

MEASUREMENT FOR TYPE 3a & 3b GUARD RAIL SHALL BE TO END OF BEAM



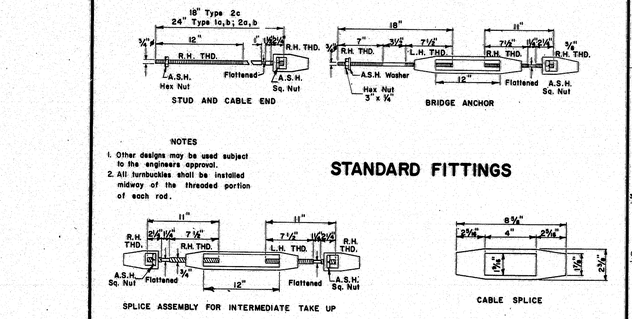
GUARD RAIL ATTACHMENT TO CONCRETE END POST AT BRIDGE END

1¼"ø Holes in Washer "G"
⅞"ø Holes in Beam

NOTES:
1. Where Bridge expansion is required at Connection, it will be detailed on the Construction Plans.
2. Guard Rail shall be connected to the structure as shown. Payment for the connection to the structure and additional posts shall be incidental to the Guard Rail Item.
3. Splice holes in Guard Rail Beam that are not used in connection, to be plugged with button head bolts, or omitted.

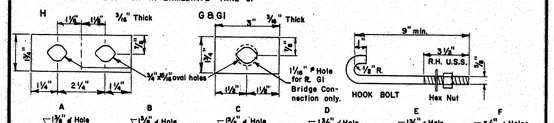
GUARD RAIL type "3a" & "3b"

D



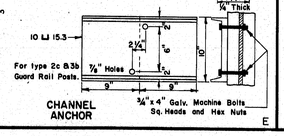
NOTES
1. Other designs may be used subject to the engineers approval.
2. All turnbuckles shall be installed midway of the threaded portion of each rod.

STANDARD FITTINGS



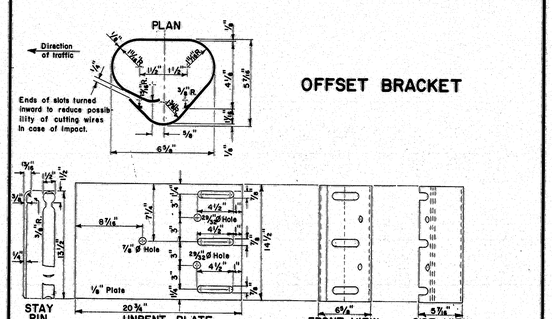
NOTES
1. All holes to be ⅞" ø unless otherwise noted.
2. Holes shall be drilled or punched before galvanizing.

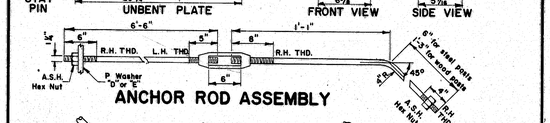
PLATE WASHERS

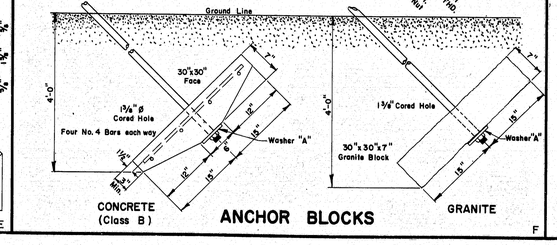


CHANNEL ANCHOR

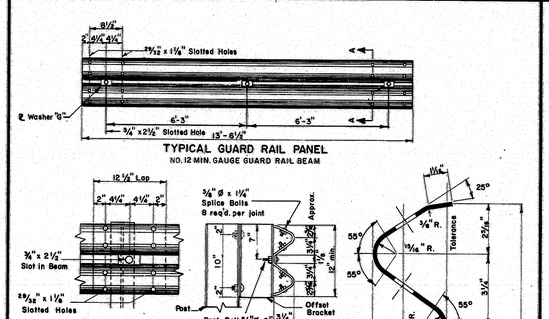
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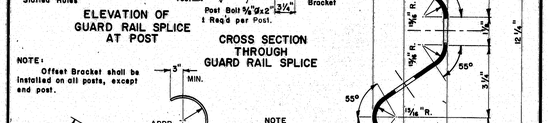




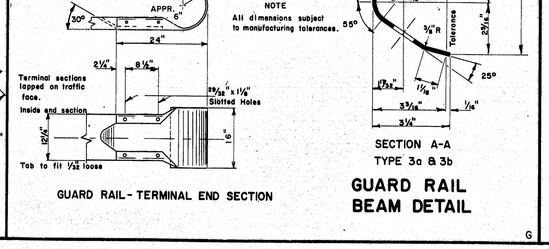


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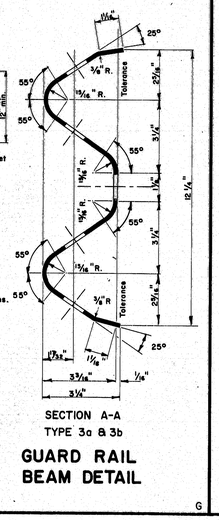




NOTE:
Offset Bracket shall be installed on all posts, except end post.

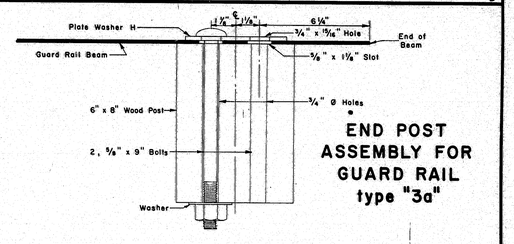


NOTE
All dimensions subject to manufacturing tolerances.



GUARD RAIL BEAM DETAIL

G



H

REVISIONS	
PLATE 'D'	11-22-71
— 11 —	2-17-72
PLATES C,D,G,H	10-22-74
PLATE 'C'	10-14-75
PLATE 'D'	8-17-76

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AUGUSTA, MAINE

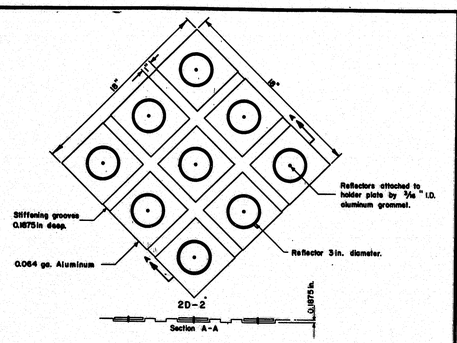
STANDARD DETAILS

GUARD RAILS, ANCHOR ASSEMBLIES, PLATE WASHERS and STANDARD FITTINGS

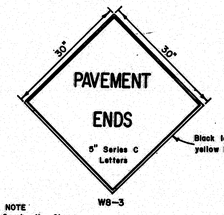
AUG. 1969

6

165-67



HAZARD MARKER



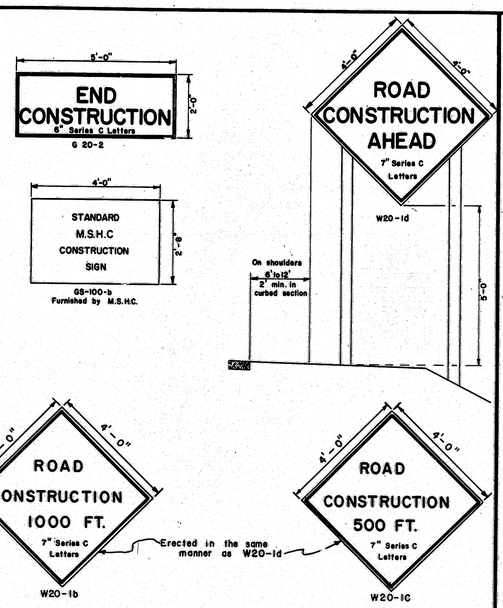
NOTE

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

GENERAL NOTE
Construction Signs

i. Sign Borders: All signs shall have borders conforming to the sizes and spacing as shown below:
- a. 30"x30" Sign - ¾" Border, ½" Space from sign edge.
- b. 2' x 5' Sign - ⅝" Border, ⅝" Space from sign edge.
- c. 3' x 4' / Sign - ¾" Border, ½" Space from sign edge.
- d. 4' x 4' Sign - 1¼" Border, ¾" Space from sign edge.

A



CONSTRUCTION SIGNS

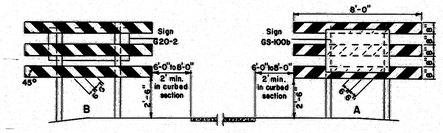
B

GENERAL NOTES - BARRICADES

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

NOTES - PORTABLE BARRICADES
1. Lumber sizes for portable barricades shall be 2" x 8" except posts which shall be 4" x 4" (nominal sizes).
2. The detour sign shall be an oversized M4-10 sign with a demountable "DETOUR" message which shall be made of screened reflective sheeting on 3/4" plywood, masonite, sheet steel or sheet aluminum.
3. Hazard markers shall be attached to the barricade with a bolt assembly of steel cadmium plated 5/16" bolt, lock washer and vandal resistant nuts.
4. When two W1-6 signs are required, R11-2, R11-3, or R11-4 signs shall be omitted.
5. Flashing lights housings shall be mounted to permit rotating in a vertical axis to allow for adjustment to face oncoming traffic.
6. Location of electric service and meter to be determined after the power source has been located.

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

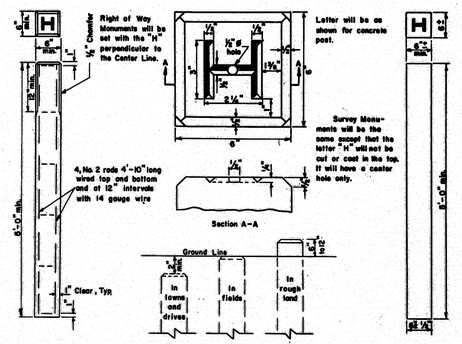


WING BARRICADES

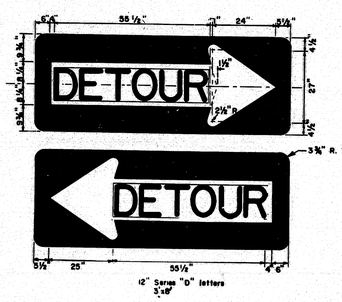
C

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	05-7940(1)	19	23

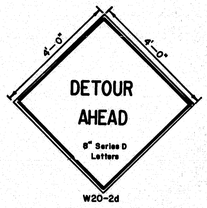
RIGHT OF WAY & SURVEY MONUMENTS



D

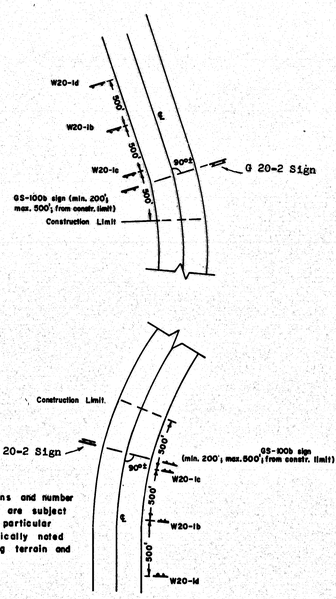


DETOUR SIGN
M 4-(L)



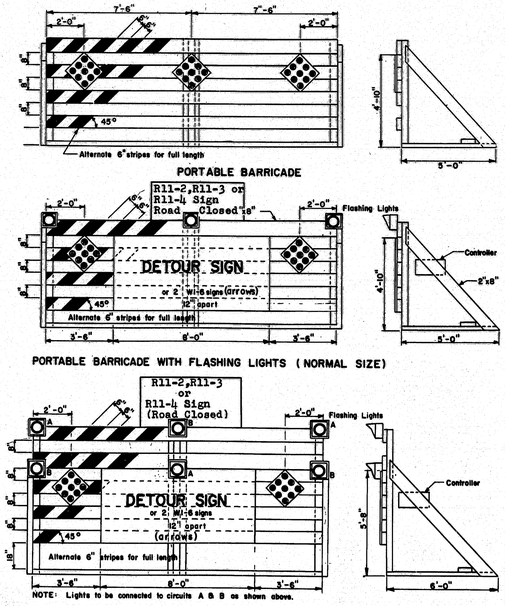
E

STANDARD SIGN LOCATIONS



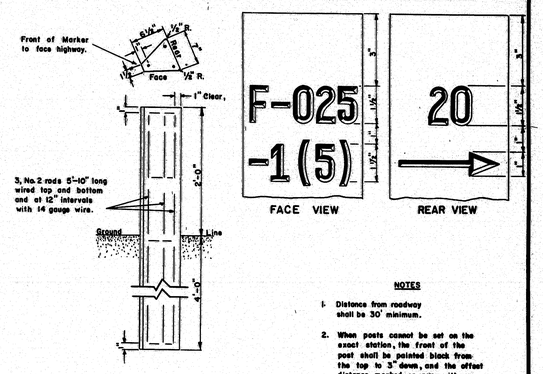
NOTE:
Standard locations and number of signs required are subject to variation on particular projects if specifically noted due to surrounding terrain and land use.

F



BARRICADES

G



NOTES

1. Distance from roadway shall be 30' minimum.
2. When posts cannot be set on the exact station, the front of the post shall be painted black from the top to 3" down, and the offset distance marked on rear with an arrow pointing in direction of beginning or end of project.
3. All markings to be ¼" deep and ⅝" wide.

PROJECT MARKERS

H

REVISION	
PLATE B	12-21-70
PLATES B, E & G	12-15-71
PLATE C	10-12-72
PLATES C & G	3-25-76

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AUGUSTA, MAINE

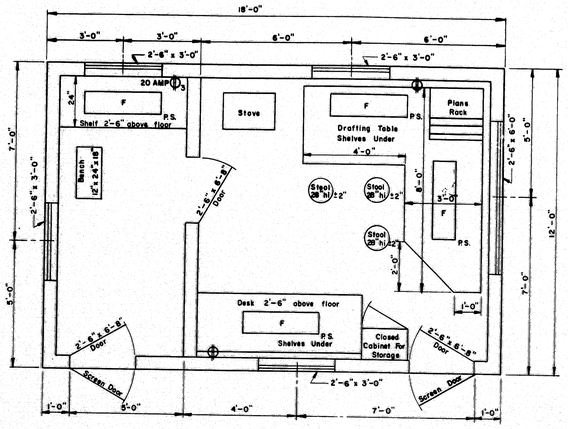
BARRICADES
WARNING SIGNS
MONUMENTS
PROJECT MARKERS

AUG. 1969

11

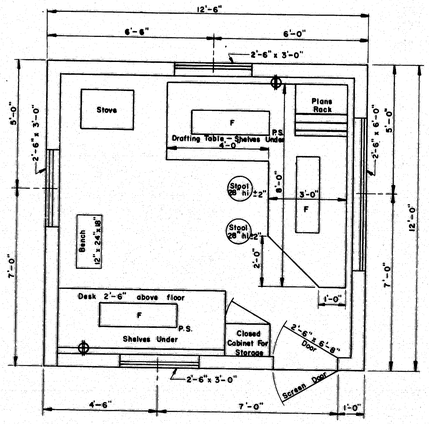
165-68

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	05-J44(1)	20	23



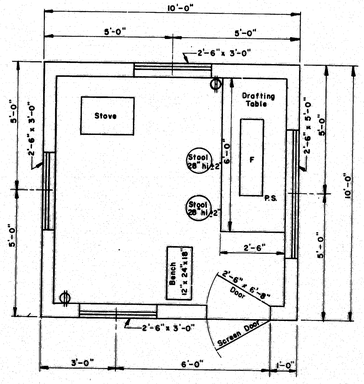
FLOOR PLAN
TYPE "A"

A



FLOOR PLAN
TYPE "B"

B

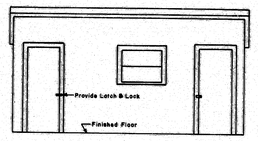


FLOOR PLAN
TYPE "C"

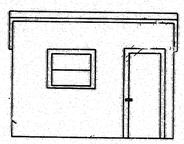
C

GENERAL NOTES

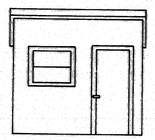
1. Drafting table shall be 3'-6" high at front edge and placed 2" from studs to allow prints to hang down behind table when in use.
2. Shelves under desk shall be constructed to received 11½" x 14" x 25" transfiles.
3. Windows shall be double hung.
4. Stovepipe shall not be in direct contact with combustible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



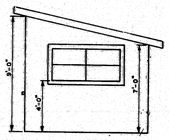
FRONT ELEVATION
TYPE "A"



FRONT ELEVATION
TYPE "B"



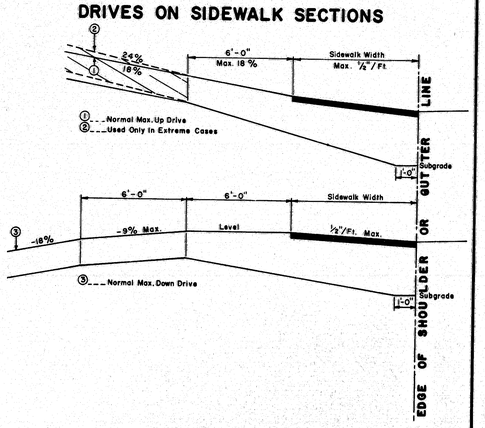
FRONT ELEVATION
TYPE "C"



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

F

DRIVES ON SIDEWALK SECTIONS

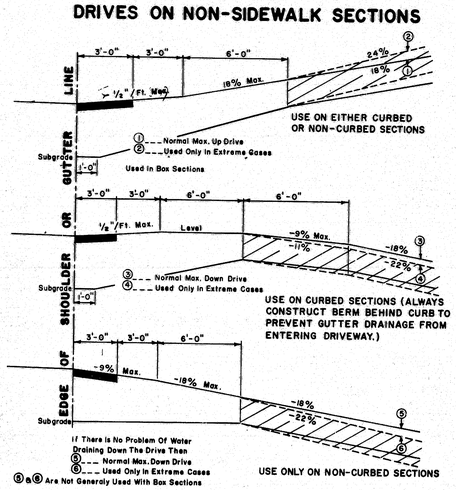


GENERAL NOTES
1. The sidewalk width shall be paved in all cases.
2. All residential or commercial drives 10% and over shall be paved.

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

D

DRIVES ON NON-SIDEWALK SECTIONS



⑤ & ⑥ Are Not Generaly Used With Box Sections

GENERAL NOTES
1. The first 3' shown as pavement shall be paved only when abutting a paved area.
2. All residential or commercial drives 10% and over shall be paved.

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

E

REVISIONS	
PLATE 'D' & 'E'	3-16-73

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
AUGUSTA, MAINE

STANDARD DETAILS

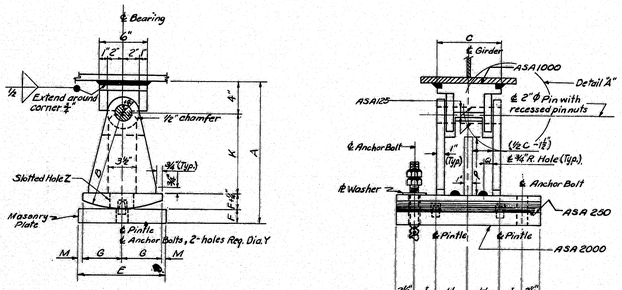
DRIVEWAY DETAILS
FIELD OFFICES
TESTING LABORATORY

AUG. 1969

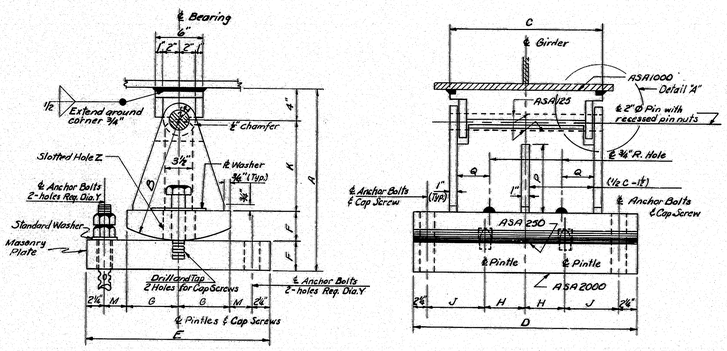
12

165-69

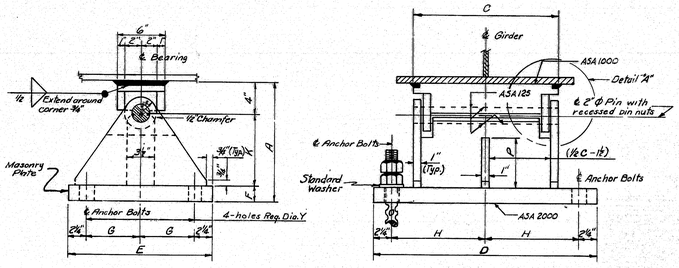
B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	0ST44(1)	21	23



EXPANSION PEDESTAL — EPD

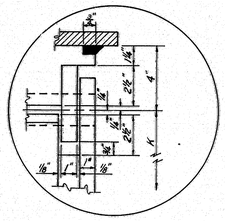


EXPANSION PEDESTAL — EPE

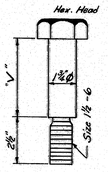


FIXED PEDESTAL — FPD

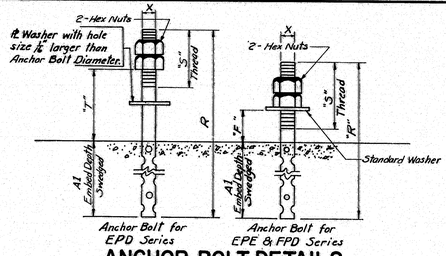
MARK	LOAD	A	B	C	D	E	F	G	H	J	K	M	P	Q	R	S	T		V	X-Anchor Bolt Diameter	Y-Masonry Plate Hole Size	Number Anchor Bolts Required	Z-Slotted Hole for Anchor Bolts or Cap Screws	℄ Washer Size for Anchor Bolts or Cap Screws	A1 Embedment Depth	MARK
EPD-1	100ᴷ	1'-2⅜"	9"	8"	1'-6"	8"	1⅜"	3½"	4"	2½"	7"	½"	–	3"	1'-4½"	3"	4½"		–	1"	1⅛"	2	3"×1⅜"	3"×5"×½"	10"	EPD-1
EPD-2	100ᴷ	1'-2⅜"	9"	8"	1'-6"	9"	1⅜"	4"	4"	2½"	7"	½"	–	3"	1'-4½"	3"	4½"		–	1"	1⅛"	2	3"×1⅜"	3"×5"×½"	10"	EPD-2
EPD-3	100ᴷ	1'-2⅜"	9"	8"	1'-6"	10"	1⅜"	4½"	4"	2½"	7"	½"	–	3"	1'-4½"	3"	4½"		–	1"	1⅛"	2	3"×1⅜"	3"×5"×½"	10"	EPD-3
EPD-4	100ᴷ	1'-3⅜"	1'-0"	8"	1'-6"	11"	1⅜"	5"	4"	2½"	10"	½"	–	3"	1'-2"	3"	4½"		–	1"	1⅛"	2	3"×1⅜"	3"×5"×½"	10"	EPD-4
EPD-5	200ᴷ	1'-9⅜"	1'-3"	10"	1'-8"	1'-0"	2½"	5½"	4"	3½"	1'-0½"	½"	–	4"	2'-0¾"	4"	6½"		–	1½"	1⅝"	2	4"×1⅜"	4"×7"×½"	1'-3"	EPD-5
EPD-6	200ᴷ	1'-9⅜"	1'-3"	10"	1'-8"	1'-1"	2½"	6"	4"	3½"	1'-0½"	½"	–	4"	2'-1"	4"	6½"		–	1½"	1⅝"	2	4"×1⅜"	4"×7"×½"	1'-3"	EPD-6
EPD-7	200ᴷ	1'-9⅜"	1'-3"	10"	1'-8"	1'-2"	2½"	6⅝"	4"	3½"	1'-0½"	½"	–	4"	2'-1"	4"	6½"		–	1¼"	1⅜"	2	4"×1⅜"	4"×7"×½"	1'-3"	EPD-7
EPD-8	200ᴷ	1'-9⅜"	1'-3"	10"	1'-8"	1'-3"	2½"	7"	4"	3⅜"	1'-0½"	½"	–	4"	2'-1"	4"	6⅝"		–	1½"	1⅝"	2	4"×1⅜"	4"×7"×½"	1'-3"	EPD-8
EPD-9	300ᴷ	1'-10"	1'-3"	1'-2"	2'-0"	1'-4"	3"	7⅛"	5"	4½"	11⅜"	½"	–	6"	2'-2½"	4"	8"		–	1¼"	1⅜"	2	5"×1⅜"	4"×8"×½"	1'-3"	EPD-9
EPD-10	400ᴷ	1'-10½"	1'-3"	1'-6"	2'-4"	1'-6"	3½"	8½"	6"	5⅜"	11½"	½"	8⅜"	3⅜"	2'-3"	4"	8⅝"		–	1¼"	1⅜"	2	5"×1⅜"	4"×8"×½"	1'-3"	EPD-10
EPE-1	200ᴷ	1'-10"	1'-3"	10"	1'-7"	1'-6"	3"	4"	4"	3½"	1'-0"	2⅜"	–	4"	1'-10"	4½"	–		4"	1½"	1⅝"	4	3⅝"×1⅜"	3½"×4½"×½"	1'-3"	EPE-1
EPE-2	200ᴷ	1'-10"	1'-3"	11"	1'-8"	1'-9"	3"	5½"	4½"	3½"	1'-0"	2⅜"	–	4½"	1'-10"	4½"	–		4"	1½"	1⅝"	4	4"×1⅜"	3½"×5½"×½"	1'-3"	EPE-2
EPE-3	200ᴷ	1'-10"	1'-3"	11"	1'-8"	1'-10"	3"	6"	4½"	3½"	1'-0"	2⅜"	–	4½"	1'-10"	4½"	–		4½"	1½"	1⅝"	4	4"×1⅜"	3½"×5½"×½"	1'-3"	EPE-3
EPE-4	200ᴷ	1'-10"	1'-3"	11"	1'-8"	2'-0"	3"	7"	4½"	3½"	1'-0"	2⅜"	–	4½"	1'-10"	4½"	–		4½"	1½"	1⅝"	4	4½"×1⅜"	3½"×6"×½"	1'-3"	EPE-4
EPE-5	200ᴷ	1'-10"	1'-3"	11"	1'-8"	2'-0"	3"	7"	4½"	3½"	1'-0"	2⅜"	–	4½"	1'-10"	4½"	–		4⅝"	1½"	1⅝"	4	4½"×1⅜"	3½"×6"×½"	1'-3"	EPE-5
EPE-6	300ᴷ	1'-10"	1'-3"	1'-2"	1'-11"	1'-6"	3"	4"	5"	4½"	1'-0"	2⅜"	–	6"	1'-10"	4½"	–		4"	1½"	1⅝"	4	2⅜"×1⅜"	3½"×4½"×½"	1'-3"	EPE-6
EPE-7	300ᴷ	1'-10⅛"	1'-3"	1'-2"	1'-11"	1'-8"	3⅛"	5"	5"	4½"	11⅜"	2⅜"	–	6"	1'-10"	4½"	–		4"	1½"	1⅝"	4	3"×1⅜"	3½"×5"×½"	1'-3"	EPE-7
EPE-8	300ᴷ	1'-10⅛"	1'-3"	1'-2"	1'-11"	1'-10"	3⅛"	6"	5"	4½"	11⅜"	2⅜"	–	6"	1'-10½"	4½"	–		4½"	1½"	1⅝"	4	4½"×1⅜"	3½"×6"×½"	1'-3"	EPE-8
EPE-9	300ᴷ	1'-10⅛"	1'-3"	1'-2"	1'-11"	2'-0"	3½"	7"	5"	4½"	11⅜"	2⅜"	–	6"	1'-10½"	4½"	–		4½"	1½"	1⅝"	4	5"×1⅜"	3½"×6½"×½"	1'-3"	EPE-9
EPE-10	300ᴷ	1'-10⅛"	1'-3"	1'-2"	1'-11"	2'-3"	3⅜"	8"	5"	4½"	11¼"	3½"	–	6"	1'-10½"	4½"	–		5½"	1½"	1⅝"	4	5"×1⅜"	3½"×7"×½"	1'-3"	EPE-10
EPE-11	400ᴷ	1'-10½"	1'-3"	1'-7"	2'-4"	1'-7"	3½"	4½"	5"	6⅜"	11⅞"	2⅜"	9"	4"	1'-10"	4½"	–		4"	1½"	1⅝"	4	4"×1⅜"	3½"×5"×½"	1'-3"	EPE-11
EPE-12	400ᴷ	1'-10⅜"	1'-3"	1'-7"	2'-4"	1'-11"	3⅜"	6⅛"	5"	6⅜"	11½"	2⅜"	8⅛"	4"	1'-10½"	4½"	–		5"	1½"	1⅝"	4	5"×1⅜"	3½"×6"×½"	1'-3"	EPE-12
EPE-13	400ᴷ	1'-11"	1'-3"	1'-7"	2'-4"	2'-4"	4"	6⅛"	5"	6⅜"	11"	3½"	8⅛"	4"	1'-11"	4½"	–		6⅛"	1½"	1⅝"	4	6⅛"×1⅜"	3½"×8"×½"	1'-3"	EPE-13
EPE-14	600ᴷ	2'-1⅜"	1'-6"	1'-11"	3'-0"	1'-10"	3⅜"	6"	7"	8⅜"	1'-2⅛"	2⅜"	11⅛"	5"	1'-10½"	4½"	–		4⅝"	1½"	1⅝"	4	4½"×1⅜"	4"×3½"×½"	1'-3"	EPE-14
EPE-15	600ᴷ	2'-2⅛"	1'-6"	1'-11"	3'-0"	2'-3"	4⅛"	9"	7"	8⅜"	1'-1⅜"	3½"	11"	5"	1'-11"	4½"	–		6⅜"	1½"	1⅝"	4	6½"×1⅜"	4"×8"×½"	1'-3"	EPE-15
EPE-16	800ᴷ	2'-2"	1'-6"	2'-6"	3'-10"	1'-11"	4"	6⅛"	10"	10⅜"	1'-2"	2⅜"	11⅛"	6⅜"	1'-11"	4½"	–		5"	1½"	1⅝"	4	4½"×1⅜"	4"×6"×½"	1'-3"	EPE-16
EPE-17	800ᴷ	2'-2⅛"	1'-6"	2'-6"	3'-10"	2'-5"	4⅛"	9"	10"	10⅜"	1'-1⅛"	3½"	10⅜"	6⅜"	1'-11½"	4½"	–		6⅝"	1½"	1⅝"	4	6½"×1⅜"	4"×8½"×¼"	1'-3"	EPE-17
FPD-1	100ᴷ	1'-0"	–	8"	1'-6"	9"	2"	2½"	6½"	–	6"	–	–	–	1'-3"	2½"	–		–	1"	1⅛"	4	–	Standard	10"	FPD-1
FPD-2	200ᴷ	1'-0"	–	10"	1'-8"	1'-2"	2"	4⅜"	7⅜"	–	6"	–	–	–	1'-8"	4"	–		–	1½"	1⅝"	4	–	Standard	1'-3"	FPD-2
FPD-3	300ᴷ	1'-0"	–	1'-2"	2'-0"	1'-4"	2"	5⅜"	9⅜"	–	6"	–	–	–	1'-8"	4"	–		–	1½"	1⅝"	4	–	Standard	1'-3"	FPD-3
FPD-4	400ᴷ	1'-3"	–	1'-6"	2'-4"	1'-6"	2"	6⅜"	11⅜"	–	9"	–	6⅛"	–	1'-8"	4"	–		–	1½"	1⅝"	4	–	Standard	1'-3"	FPD-4
FPD-5	600ᴷ	1'-3"	–	1'-11"	3'-0"	1'-10"	3"	8⅜"	1'-3⅜"	–	8"	–	3½"	–	1'-9"	4"	–		–	1½"	1⅝"	4	–	Standard	1'-3"	FPD-5
FPD-6	800ᴷ	1'-3"	–	2'-6"	3'-10"	1'-11"	3"	9⅛"	1'-8⅜"	–	8"	–	5⅛"	–	1'-9"	4"	–		–	1⅝"	1⅝"	4	–	Standard	1'-3"	FPD-6



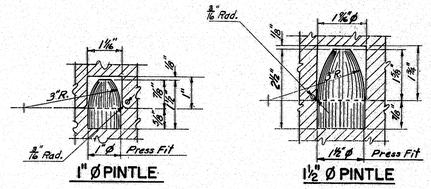
DETAIL "A"



CAP SCREW DETAIL



ANCHOR BOLT DETAILS



PINTLE DETAILS

NOTE:
Use 1" Ø Pintles with 1" Ø Anchor Bolts & 1⅛" Ø Pintles with 1⅛" Ø Anchor Bolts.

GENERAL NOTES:

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

Fabricate pedestals with ½" fillet welds. The diameter of the pin hole shall not exceed that of the pin by more than ⅛ inch.

Pedestals EPD-1 thru EPD-9 and EPE-1 thru EPE-10 have no center stiffeners and have only one drainage hole.

Pedestals EPD10 and EPE-11 thru EPE-17 have a center stiffener and have two drainage holes.

Pedestals FPD-1 thru FPD-3 have no center stiffeners and have no drainage holes.

Pedestals FPD-4 thru FPD-6 have a center stiffener and no drainage holes.

B DESIGN SPECIFICATIONS

AASHTO Standard Specifications for Highway Bridges 1973, Interims 1974, '75, '76

B A.S.T.M. STEEL CLASSIFICATION

(When structural steel is specified to be unpainted)
All structural steel including anchor bolts and 2" ℄ pins shall be A588 unpainted.
(When structural steel is specified to be painted)
All structural steel including anchor bolts shall be A36 except the following: 2" ℄ pin - A36, A668, Class D or A108, Grade 1016-1030 inclusive.

	REVISIONS	DATE
C	Revised Dimension "E" EPE-4	1-9-76
B	Change Specifications & Steel Classification	3-1-77
A	Charpy V-Notch tests are not required	2-5-75

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

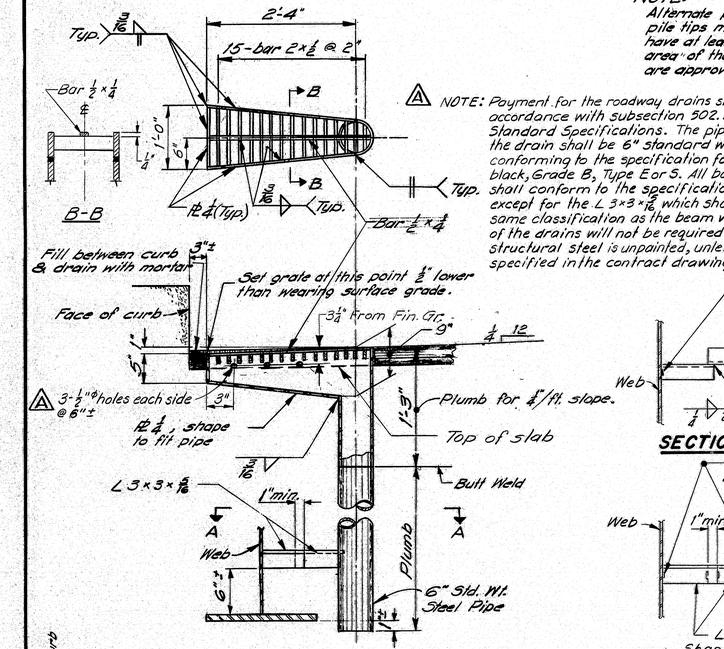
STANDARD DETAILS
(BD 100-71)

BEARING PEDESTALS

JULY 1971

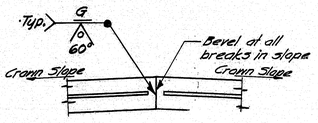
165-70

B.R.R. DIV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
I	MAINE	05-J44(1)	22	23



DRAIN

HALF PLAN
Curb to curb



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

HALF PLAN
Fascia to Fascia

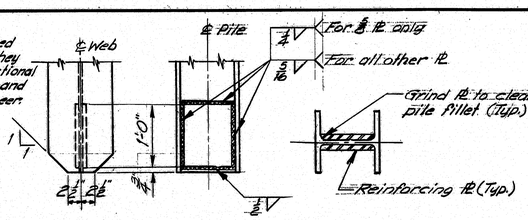
NOTE

1. Type A Armored Joint Units are intended to be used for attachment to superstructures. Type B Armored Joint Units are intended to be used for attachment to abutments. At armored joints over piers, two (2) Type A Armored Joint Units shall be used.
2. When more elements than two (2) are required by the design details, the elements of both units shall be field welded together in the same manner as shown in Section F-F.
3. Armored Joints to be paid for as Structural Steel.
4. All structural steel shall be A36. When structural steel is specified to be unpainted, the armored joint shall receive three coats of shop paint, on exposed areas of flanges below seal retention bars.

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

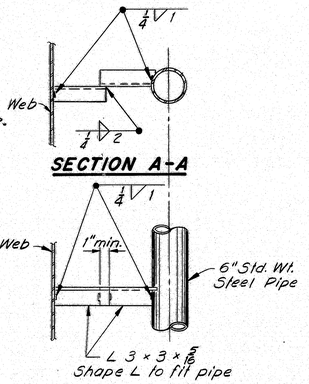
NOTE: Alternate pointed reinforced pile tips may be used if they have at least the cross-sectional area of the pile tip shown, and are approved by the Engineer.

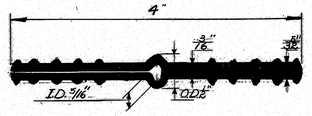
△ NOTE: Payment for the roadway drains shall be in accordance with subsection 502.20 of the Standard Specifications. The pipe portion of the drain shall be 6" standard weight pipe conforming to the specification for ASTM A53, black, Grade B, Type E or S. All bars and plates shall conform to the specification for ASTM A36 except for the L 3×3×⅜ which shall be of the same classification as the beam web. Painting of the drains will not be required when the structural steel is unpainted, unless otherwise specified in the contract drawings.



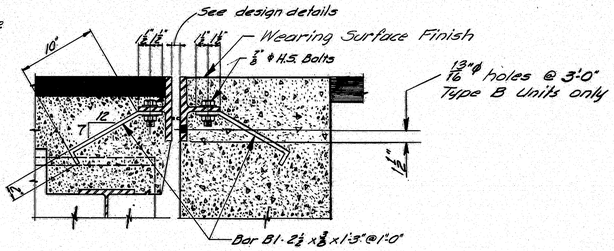
POINTED REINFORCED PILE TIP
Note: Plates may be shop or field welded

STEEL HP BEARING PILES	
PILE SIZE	REINF. Pl. SIZE
HP 10 × 42	8¾ × ⅝ × 1'-0"
HP 10 × 57	8¾ × ⅝ × 1'-0"
HP 12 × 53	10¾ × ⅝ × 1'-0"
HP 12 × 74	10¾ × ⅝ × 1'-0"
HP 14 × 73	12½ × ⅞ × 1'-0"
HP 14 × 89	12½ × 1 × 1'-0"



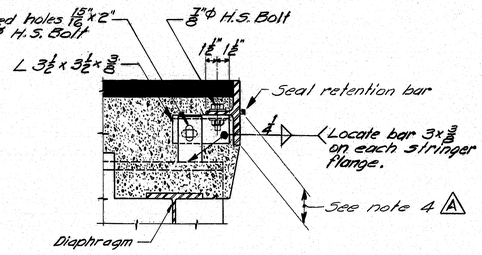


POLYVINYLCHLORIDE WATERSTOP

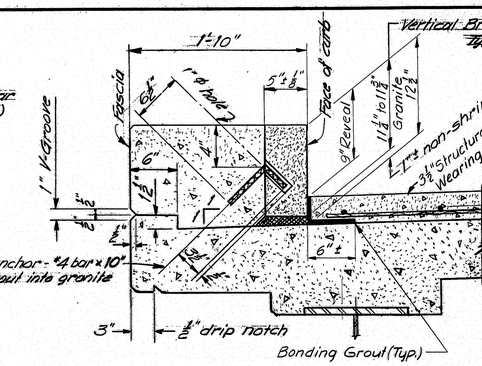


ARMORED JOINT UNIT TYPE A — ARMORED JOINT UNIT TYPE B

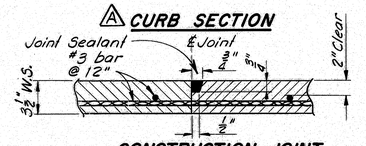
SECTION D-D



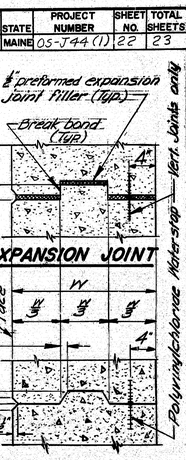
SECTION E-E
Showing Adjustment Device Armored Joint Unit Type A only. After Unit is in final position weld ⅜ bar to angle with ¼ fillet



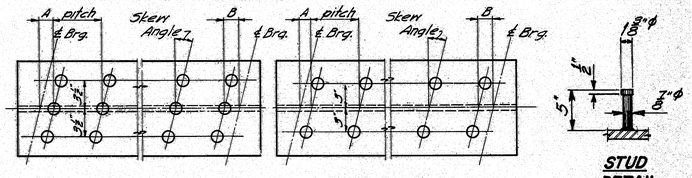
CURB SECTION



CONSTRUCTION JOINT



CONSTRUCTION & CONTRACTION JOINTS



TRIPLE STUDS — DOUBLE STUDS — STUD DETAIL

NOTE

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

SHEAR CONNECTORS

NOTE Use only those items called for on design details. In case of conflict between these Standard Details and design details, the requirements of the design details shall be followed.

	REVISIONS	DATE
	Added holes and note to roadway drain.	3-1-77
△	Add Note 4 to Armored Joint notes.	
	Eliminate Hot Bit. Pav't.	
	Change curb and granite widths and added a concrete wearing surface	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

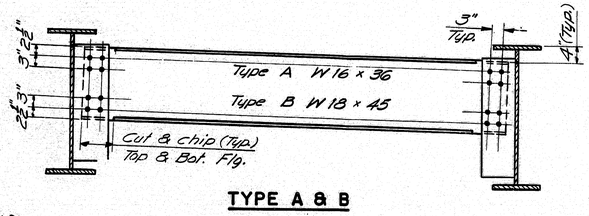
STANDARD DETAILS
(BD 104-77)
ARMORED JOINT, DRAIN
SHEAR CONNECTORS
MISC. STRUCTURAL DETAILS

SHEET 22 OF 23 AUGUSTA, ME. FEB. 1977

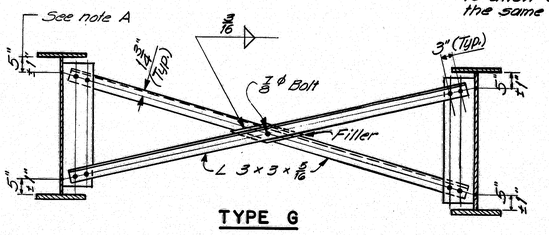
165-71

F.H.W.A. DES. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	05-J44(1)	23	23

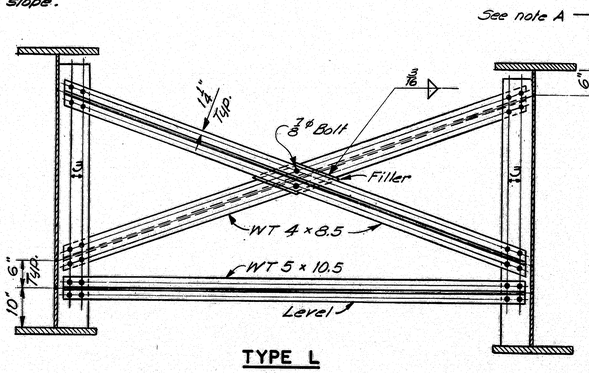
NOTE A This dimension may be varied (±1") to allow a series of diagonals to have the same slope.



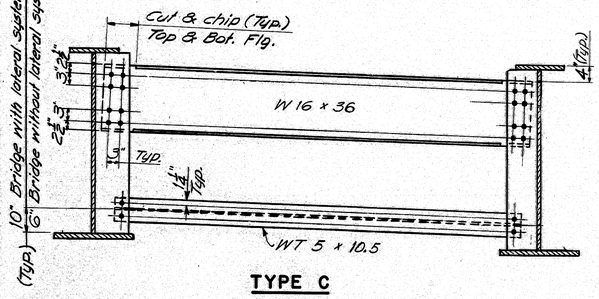
TYPE A & B



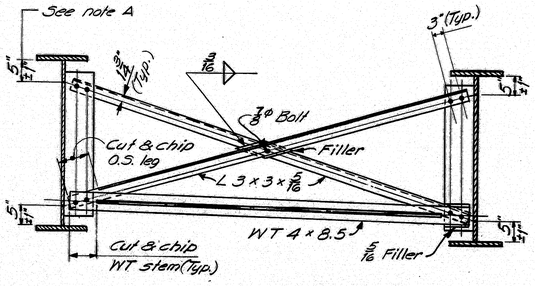
TYPE G



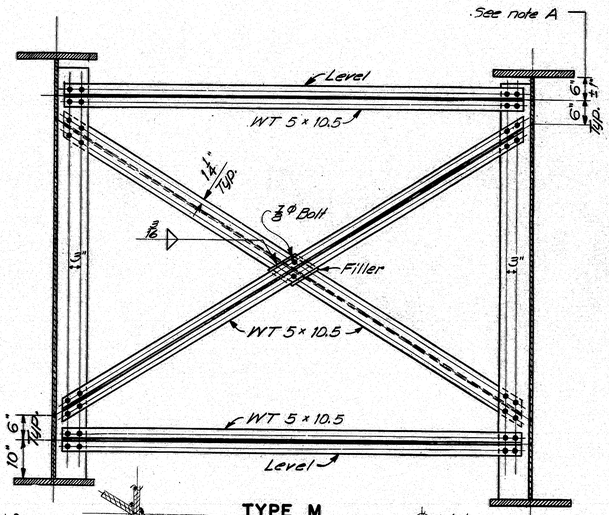
TYPE L



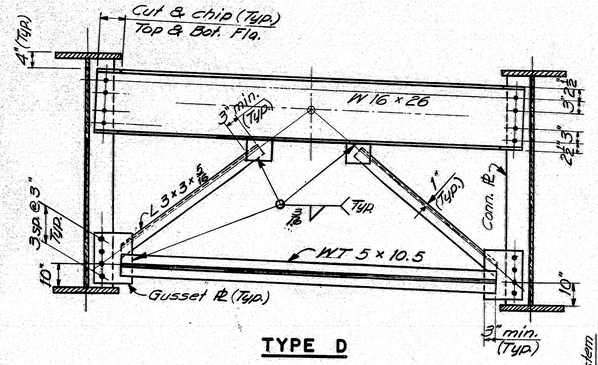
TYPE C



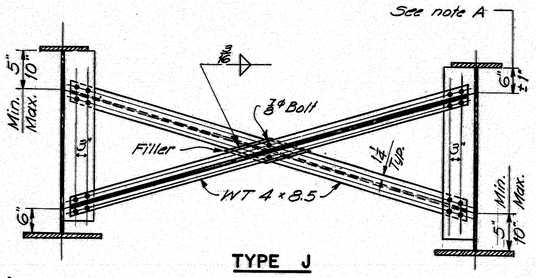
TYPE H



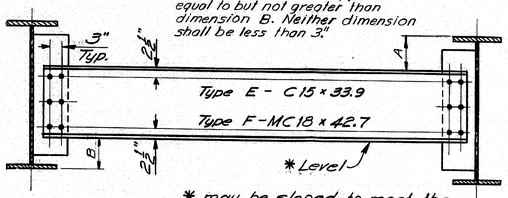
TYPE M



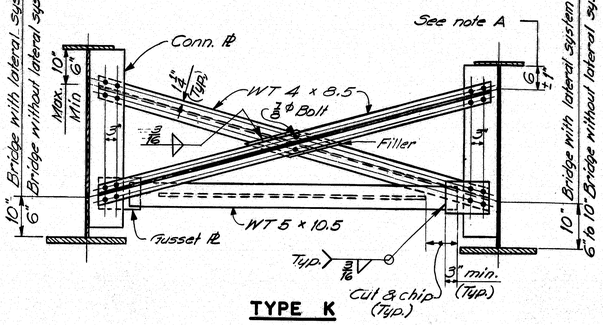
TYPE D



TYPE J



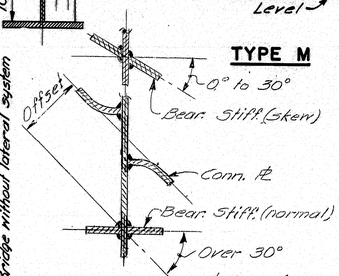
TYPE E & F



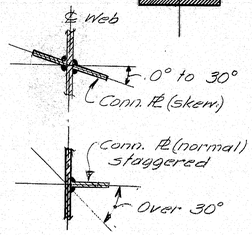
TYPE K

FABRICATION NOTES

1. For location and type of cross-frame or diaphragm see design details.
2. △ All bolts shall be ⅞" ϕ H.S. bolts.
3. Holes for ⅞" ϕ H.S. bolts shall be 15/16" ϕ and Edge distances shall be 1½" minimum unless otherwise shown.
4. Connection plates and gusset plates shall have a minimum thickness of ⅜" and shall have sufficient width to provide erection clearances. When bearing stiffeners or intermediate stiffeners are used as connection plates, the plate size will be given on the design details.
5. △ Connection plates shall be fastened to beam and girder webs by fillet weld both sides.
   0° to 30° skew - Skew Conn. Pl.
   Over 30° skew - Conn. Pl. normal (Stagger*)
   See Detail B
6. The skew angle is the angle between the connection plate and a line normal to the beam.
7. △ Bearing Stiffeners shall be used as connection plates when the skew is 30° or less.
   0° to 30° skew - Skew Stiffener
   Over 30° skew - Stiffener normal
   Use bent connection plates.
   See Detail A
8. All fillet weld sizes shall be the minimum for the thickness of metal being joined according to AWS Specifications for Welded Highway & Railway Bridges.
9. Connection plates on welded beams and girders shall extend to the top flange in areas where the top flange is always in compression or when used as a bearing stiffener or intermediate stiff.
10. Connection plates shall extend to the bottom flange when used as a bearing stiffener, at points where lateral bracing is attached & on welded beams and girders in areas where the bottom flange is always in compression.
11. When a conn. plate is extended to a flange it shall be a paint tight fit except as otherwise indicated on design details.
12. Conn. plates shall be 2½" clear from flanges, except as indicated by Notes 7 & 8.
13. Use only those items called for on the design details. In case of conflict between these standard details and the design details, the design details shall be followed.



△ DETAIL A



DETAIL B △

ASTM STEEL CLASSIFICATION △

(When structural steel is specified to be unpainted)
All structural steel shall be A 588 unpainted or A 242 unpainted

(When structural steel is specified to be painted)
All structural steel shall be A 36.

PLANS	DESIGN - DETAILED	BY	DATE
	CHECKED		
	REVISIONS		
	FIELD CHANGES		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

STANDARD DETAILS
(BD 113 - 72)

DIAPHRAGMS & CROSSFRAMES

△ REVISED MAR. 1, 1977

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