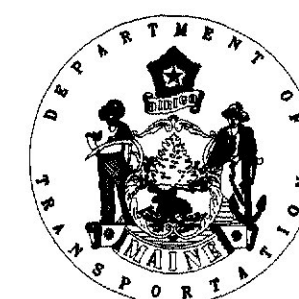


F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	006281.00	1	8

SOUTH BERWICK

# STATE OF MAINE DEPARTMENT OF TRANSPORTATION



## PLANS

# VARNEY'S BRIDGE OVER GREAT WORKS RIVER IN THE TOWN OF SOUTH BERWICK YORK COUNTY PROJECT NO. 006281.00 PROJECT LENGTH 0.10 MILES

### SPECIFICATION

DESIGN: AASHTO Standard Specifications for Highway  
Bridges 1992 with interims 1993 and 1994.

CONTRACT: State of Maine, Department of Transportation,  
Standard Specifications Highways and Bridges,  
Revision of April 1995.

### DESIGN LOADING

LIVE LOAD: H15

### MATERIALS

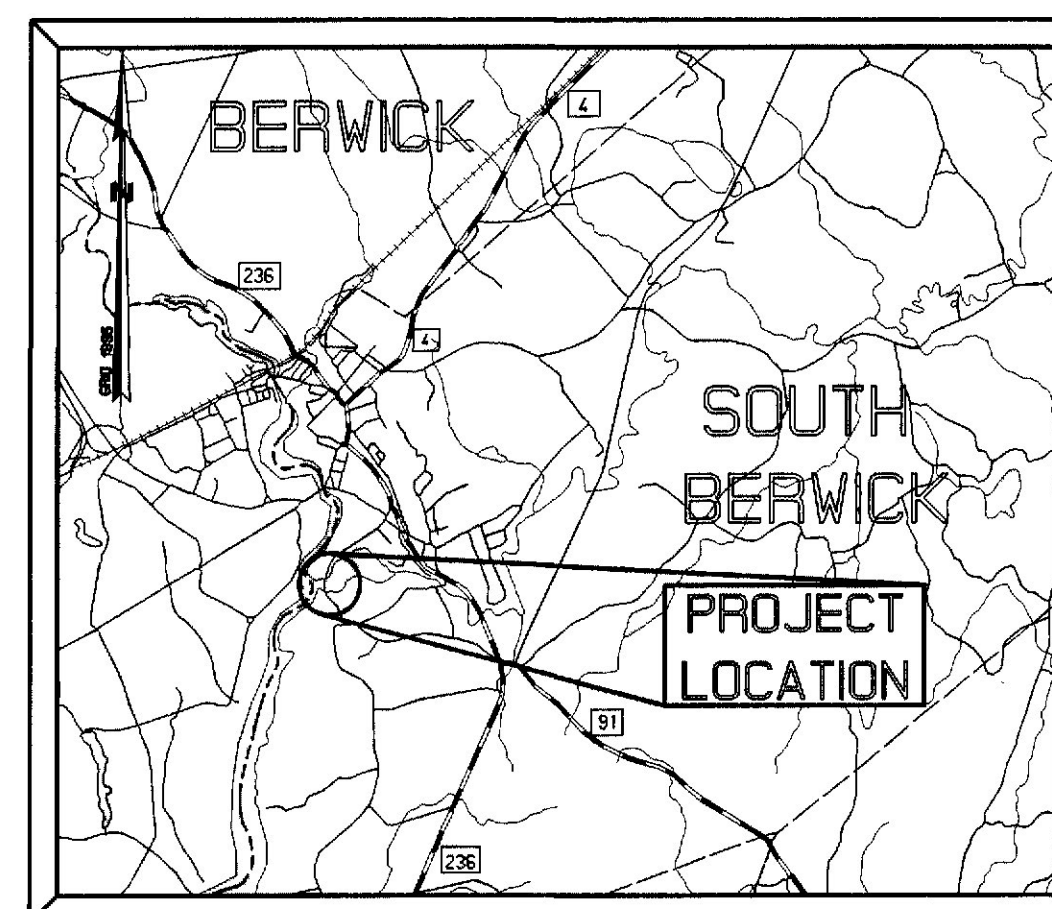
CONCRETE:.....Class A  
REINFORCING STEEL:.....ASTM A615 Grade 60  
STRUCTURAL STEEL:.....ASTM A709, Grade 36

### BASIC DESIGN STRESSES

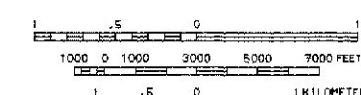
CONCRETE:.....f'c=4,000psi  
REINFORCING STEEL:.....fy=60,000psi  
STRUCTURAL STEEL:.....Fy=36,000psi

## INDEX OF SHEETS

DESCRIPTION	PAGE
Title Sheet	1
Estimated Quantities & Main. of Traffic	2
General Plan & Construction Notes	3
Replacement Pier #6	4
Rehabilitation of Piers	5
Joint Details	6
Standard Details	7 - 8

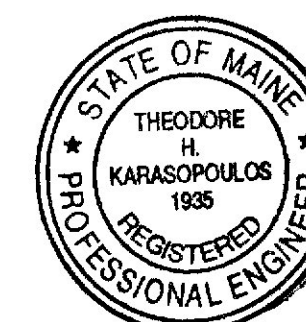


## LOCATION MAP



### NOTE

ALL WORK CONTEMPLATED UNDER THIS CONTRACT TO BE GOVERNED  
BY AND IN CONFORMITY WITH THE STANDARD SPECIFICATIONS  
REVISION OF OCTOBER 1990 AND SUPPLEMENTALS THERETO  
AS MODIFIED ON THE PLANS AND IN THE SPECIAL PROVISIONS.



APPROVED:

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

*Theodore H. Karasopoulos*  
COMMISSIONER  
CHIEF ENGINEER

6/19/95  
DATE  
6/19/95  
DATE

UNITED STATES  
DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

REGION 1

APPROVED:

DIVISION ADMINISTRATOR

DATE

PROJECT DESIGN ENGINEER	BY <i>D&amp;A</i>	DATE
DESIGN-DETAILED	M. FALLA	4/95
CHECKED		
REVISIONS		
FIELD CHANGES		

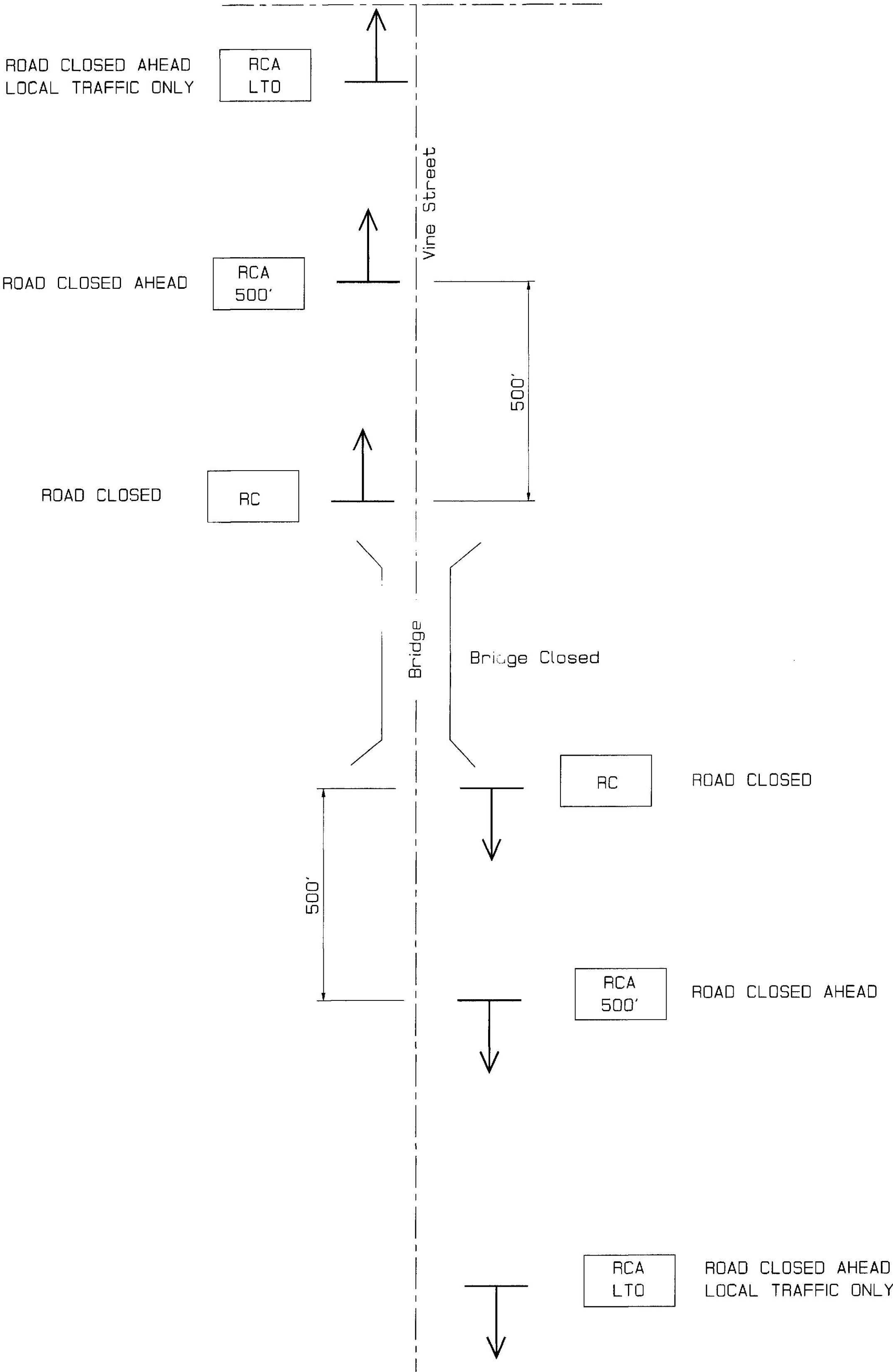
PLANS

15 JUN 95-010020

F.H.V.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	006281.00	2	8

MAINTENANCE OF TRAFFIC

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	QUANTITY	UNIT
202.12	REMOVING EXISTING STRUCTURAL CONCRETE	40	CY
204.41	REHABILITATION OF EXISTING SHOULDERS, PLAN QUANTITY	10	SY
206.11	STRUCTURAL ROCK EXCAVATION - PIERS	5	CY
403.101	HOT BIT. PAVEMENT, GRADING D (SIDEWALKS, DRIVES, SHIMS, ETC.)	5	TON
502.23	STRUCTURAL CONCRETE PIERS	50	CY
503.12	REINFORCING STEEL, FABRICATED AND DELIVERED	4,610	LB
503.13	REINFORCING STEEL, PLACING	4,610	LB
511.07	COFFERDAM,PIER #3	1	LS
511.07	COFFERDAM,PIER #4	1	LS
511.07	COFFERDAM,PIER #5	1	LS
514.06	CURING BOX FOR CONCRETE CYLINDERS	1	EACH
518.21	REHABILITATION OF STRUCTURAL CONCRETE SUBSTRUCTURE	1,350	SF
520.202	EXPANSION DEVICES Self Leveling Joint Seal	3	EACH
524.30	TEMPORARY STRUCTURAL SUPPORT	2	EACH
526.30	TEMPORARY CONCRETE BARRIER, TYPE I	100	LF
606.178	GUARDRAIL BEAM	215	LF
606.25	TERMINAL CONNECTOR	2	EACH
606.265	TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	2	EACH
606.35	GUARDRAIL DELINEATOR POST	2	EACH
606.364	GUARDRAIL REMOVE, MODIFY AND RESET, TYPE 3B	215	LF
606.367	REPLACE UNUSABLE EXISTING GUARDRAIL POSTS	10	EACH
606.59	GUARDRAIL TYPE 3 - 15 FOOT RADIUS AND LESS	30	LF
639.19	FIELD OFFICE TYPE B	1	EACH
639.23	TESTING FACILITIES - CONCRETE	1	LS
652.35	CONSTRUCTION SIGNS	100	SF
652.36	MAINTENANCE OF TRAFFIC CONTROL DEVICES	80	CD
656.50	BALED HAY, IN PLACE	20	EACH
656.51	SANDBAG, IN PLACE	20	EACH
656.632	30 INCH TEMPORARY SILT FENCE	400	LF
659.10	MOBILIZATION	1	LS



PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	M. FALLA	4/95
CHECKED		
REVISIONS		
FIELD CHANGES		

PLANS

05 JULY 95 0-1000.10  
ESTIMATE

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

VARNEY'S BRIDGE  
OVER  
GREAT WORKS RIVER  
IN THE TOWN OF  
SOUTH BERWICK  
YORK COUNTY  
ESTIMATED QUANTITIES &  
MAINTANENCE OF TRAFFIC

SHEET 2 OF 8 AUGUSTA, MAINE JUNE 1995



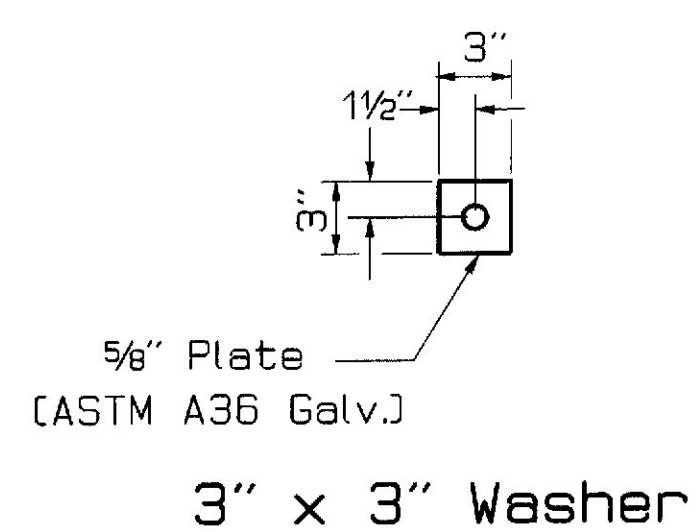


BRIDGE • 3312

Scale 1 = 25

Replace pier #6. Rehabilitate North Abutment and Piers #2 thru #8. Replace joint seal in armored joint over Pier #3. New joint seal at North Abutment and over Pier #6. Replace guardrail connection and guardrail on south end of bridge.

Bridge is currently closed and will be closed to traffic during construction.



PROJECT DESIGN ENGINEER		BY	DATE
DESIGN-DETAILED		M. FALLA	4/95
CHECKED			
REVISED			
FIELD CHANGES			

05JLY95-01.00.10  
DETAILS

Plans of existing bridge are available for the Contractor's reference at the Bridge Design Office in Augusta. These are reproductions of original drawings as prepared for the construction of the bridge and it is very unlikely that the plans will show any construction field changes or any alterations which may have been made to the bridge during its life span.

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

VARNEY'S BRIDGE  
OVER  
GREAT WORKS RIVER  
IN THE TOWN OF  
SOUTH BERWICK  
YORK COUNTY

### GENERAL PLAN & CONSTRUCTION NOTES

SHEET 3 OF 8 AUGUSTA, MAINE JUNE 1995



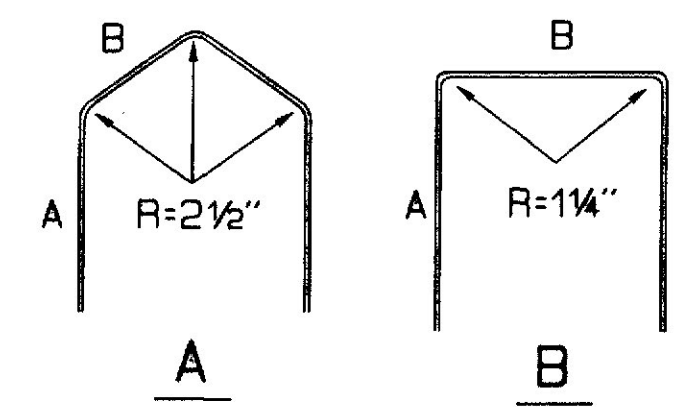
F.N.V.A. REV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	006281.00	4	8

### NOTES

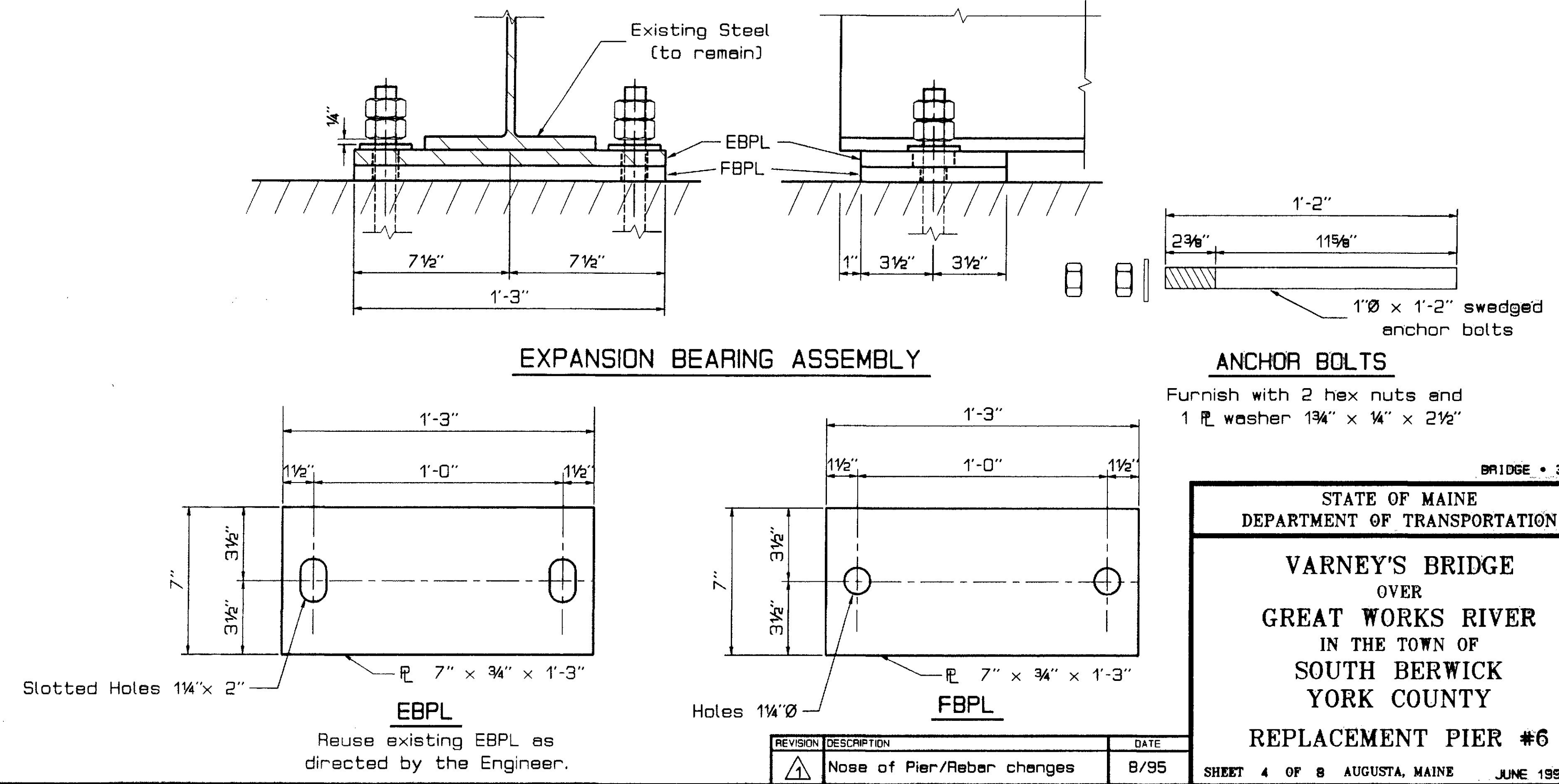
1. All rebar shall have min. 3" cover.
2. Splices of #5 rebar shall be 20" min.
3. All dimensions are center to center of reinforcing bars.
4. All Materials used to anchor reinforcing steel shall be from the MDOT's approved list of Type III Anchors.
5. Expansion Bearing Assembly shall be paid for as incidental to Item 502.23 Structural Concrete Piers.
6. Removal of Pier #6 to limits shown will be paid for under Item 202.12.
7. For anchor bolt details see Standard Details, BD 101-93 Bearing Pedestals.

STRAIGHT BARS				STRAIGHT BARS			
MARK	NO.	LENGTH	LOCATION	MARK	NO.	LENGTH	LOCATION
SH500	8	20'-0"	PIER SHAFT (Hor.)	SV500	18	5'-0"	PIER SHAFT (Vert.)
SH500	8	14'-0"	PIER SHAFT (Hor.)	SV501	4	4'-2"	PIER SHAFT (Vert.)
SH501	4	18'-2"	PIER SHAFT (Hor.)	SV502	6	17'-0"	PIER SHAFT (Vert.)
SH502	4	16'-4"	PIER SHAFT (Hor.)	SV504	16	18'-6"	PIER SHAFT (Vert.)
SH503	4	14'-7"	PIER SHAFT (Hor.)	FV500	17	3'-6"	PIER FOOTING (Vert.)
SH504	4	12'-9"	PIER SHAFT (Hor.)	FV501	2	4'-6"	PIER FOOTING (Vert.)
SH505	2	11'-5"	PIER SHAFT (Hor.)	FV502	18	7'-1"	PIER FOOTING (Vert.)

BENT BARS						
MARK	NO.	LENGTH	TYPE	A	B	LOCATION
SB500	4	7'-8"	A	2'-3"	1'-7"	PIER NOSE
SB500	4	16'-4"	A	7'-0"	1'-2"	PIER NOSE
SB501	28	7'-0"	B	2'-3"	2'-6"	PIER SHAFT (Stirrups)
SB502	4	6'-6"	B	2'-3"	2'-0"	PIER SHAFT (Stirrups)
FB500	2	28'-10"	B	12'-2"	4'-6"	PIER FOOTING
FB501	1	26'-6"	B	11'-0"	4'-6"	PIER FOOTING
FB502	1	23'-4"	B	9'-5"	4'-6"	PIER FOOTING
FB503	8	9'-0"	B	2'-3"	4'-6"	PIER FOOTING



### EXPANSION BEARING ASSEMBLY



### ANCHOR BOLTS

Furnish with 2 hex nuts and 1  $\frac{1}{2}$ " washer  $1\frac{1}{4}$ " x  $\frac{1}{4}$ " x 2 $\frac{1}{2}$ "

BRIDGE • 3312

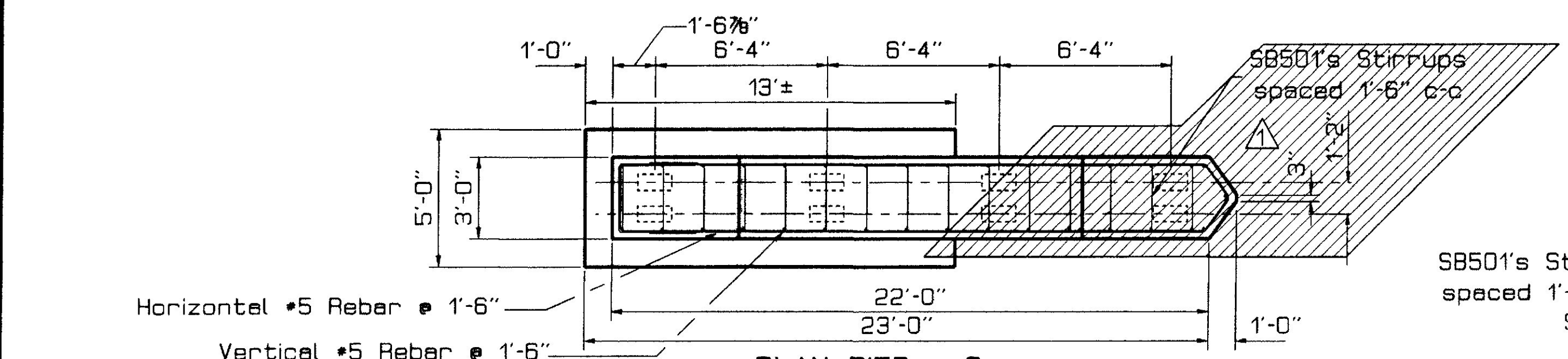
STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**VARNEY'S BRIDGE**  
OVER  
**GREAT WORKS RIVER**  
IN THE TOWN OF  
**SOUTH BERWICK**  
**YORK COUNTY**  
**REPLACEMENT PIER #6**

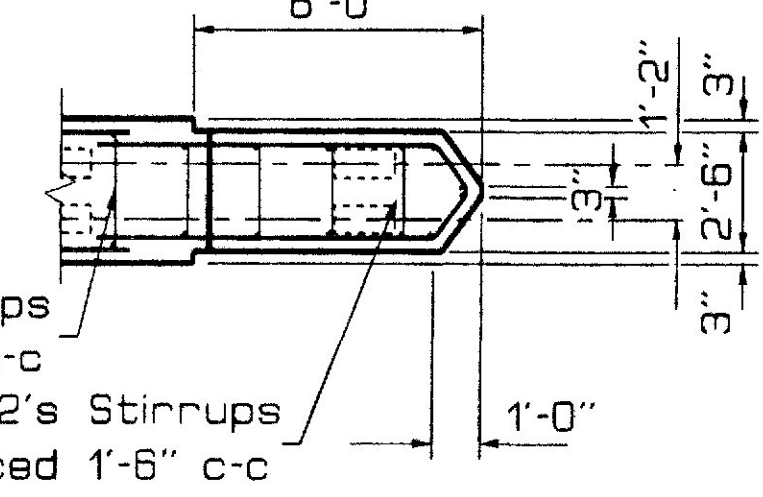
REVISION	DESCRIPTION	DATE
1	Nose of Pier/Rebar changes	8/95

SHEET 4 OF 8 AUGUSTA, MAINE JUNE 1995

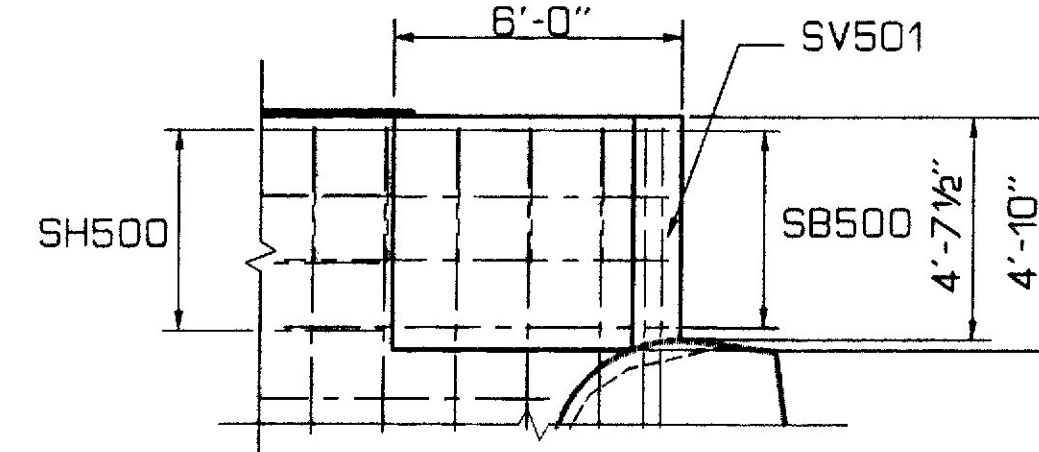
### PLAN PIER # 6



### Plan view of Nose changes

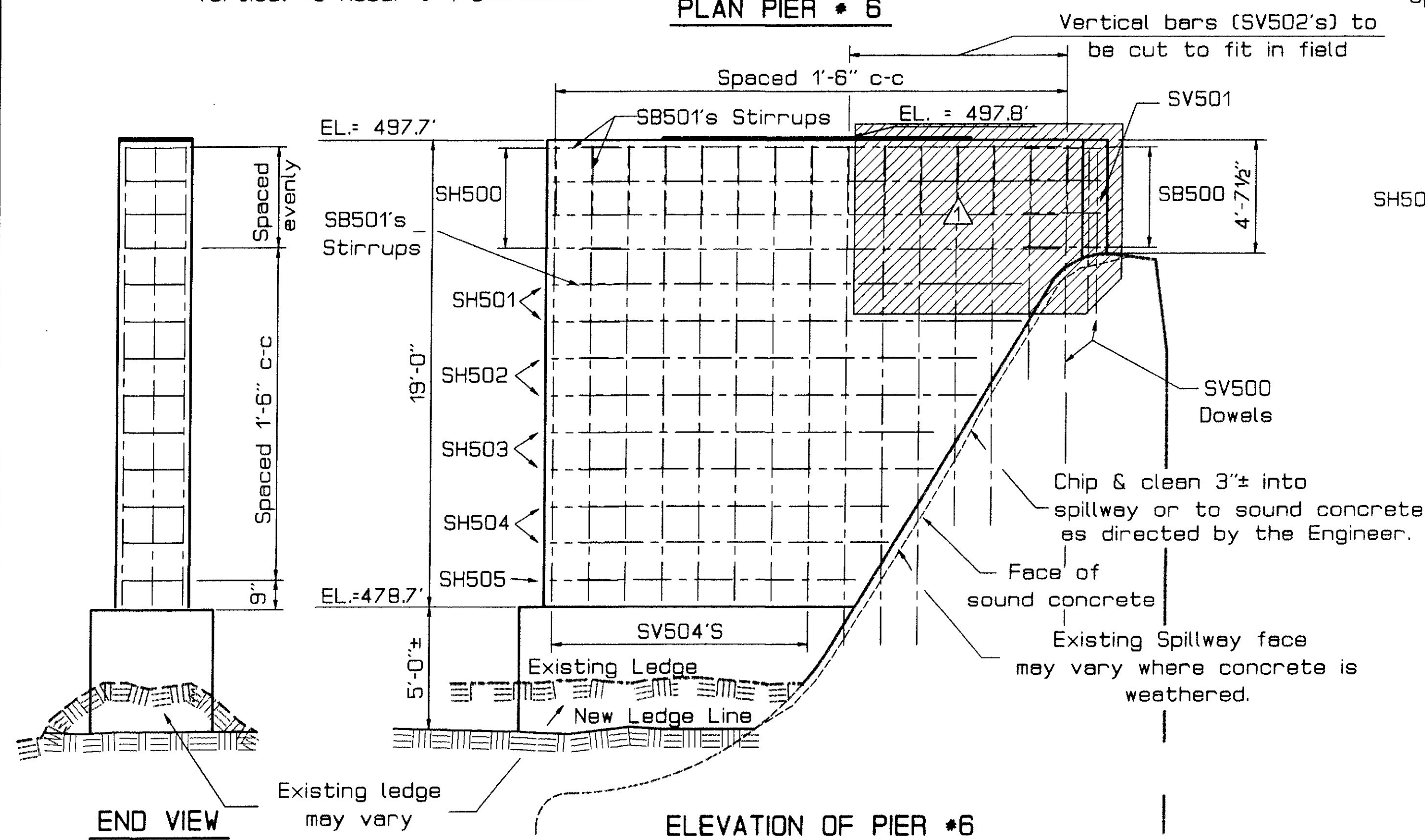


### Elevation view of Nose changes

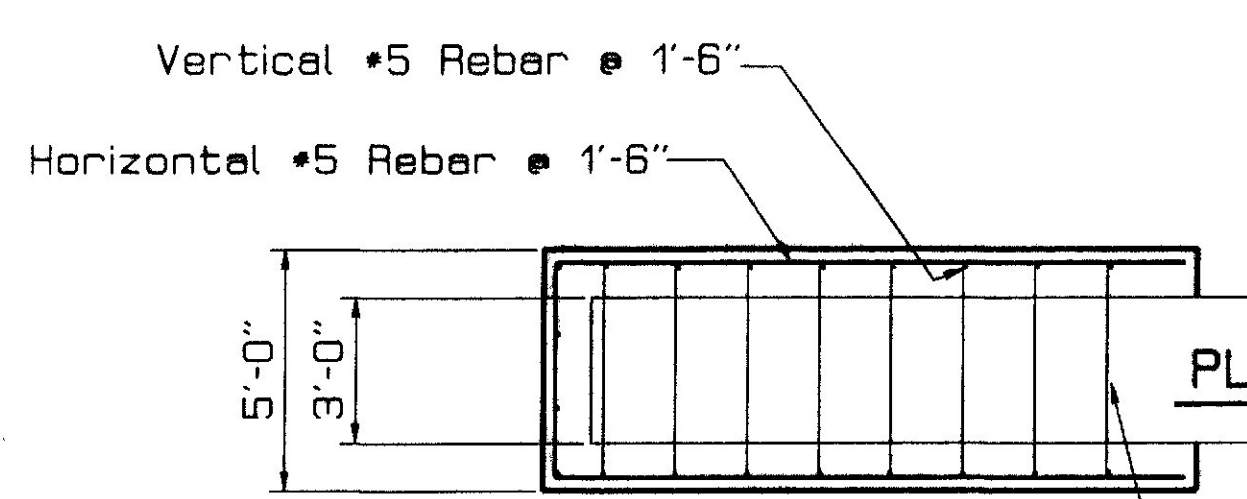


### ELEVATION OF PIER #6

(Rebar layout for shaft)  
Embedment for SV500's into existing dam = 2'-0"

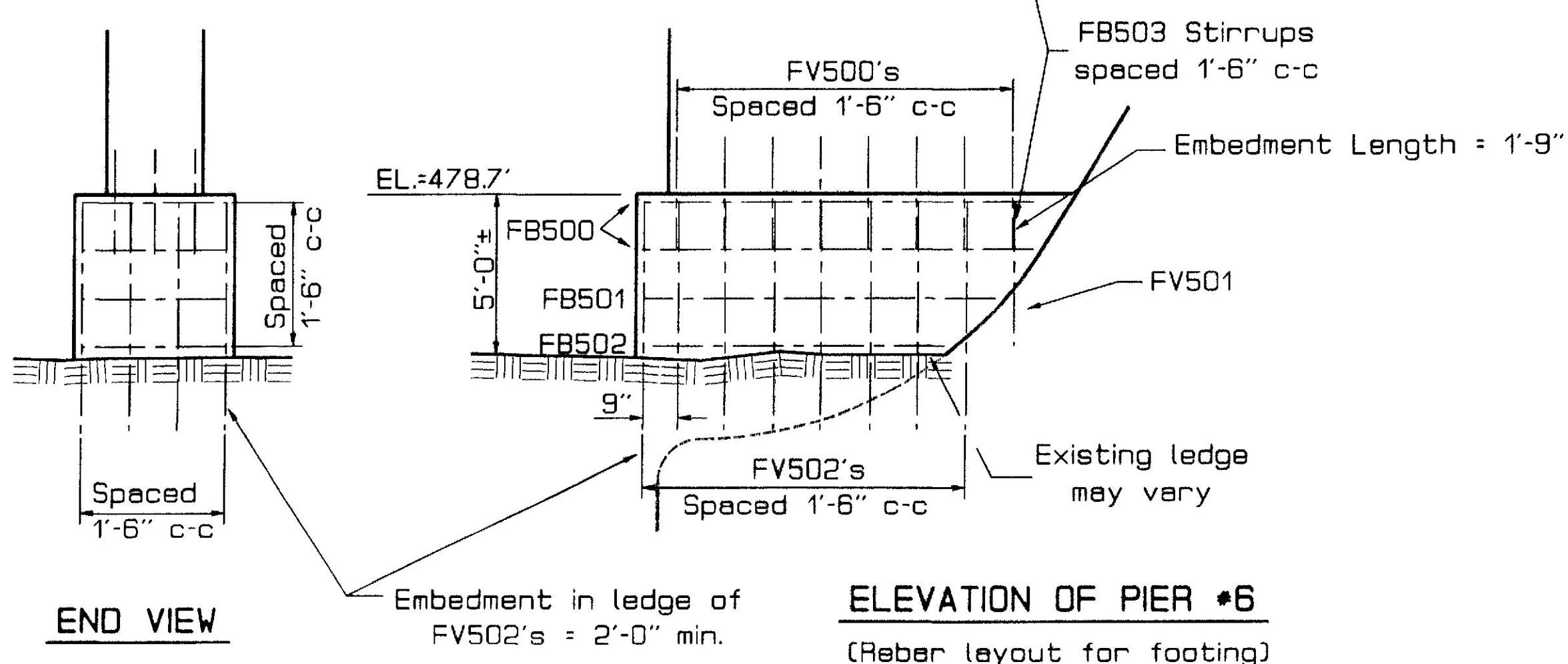


### PLAN VIEW OF FOOTING



### ELEVATION OF PIER #6

(Rebar layout for footing)



15AUG95-0100.30 PIER#6

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	D. Andler	4/95
CHECKED	M. FALLA	4/95
REVISIONS		
FIELD CHANGES		



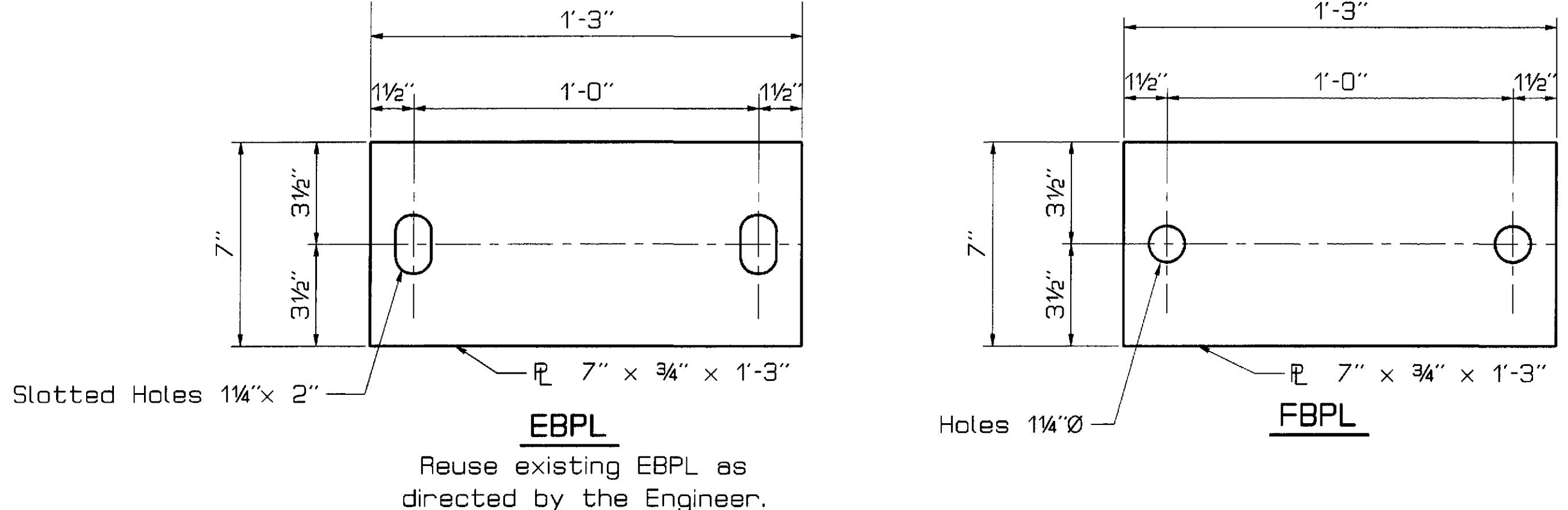
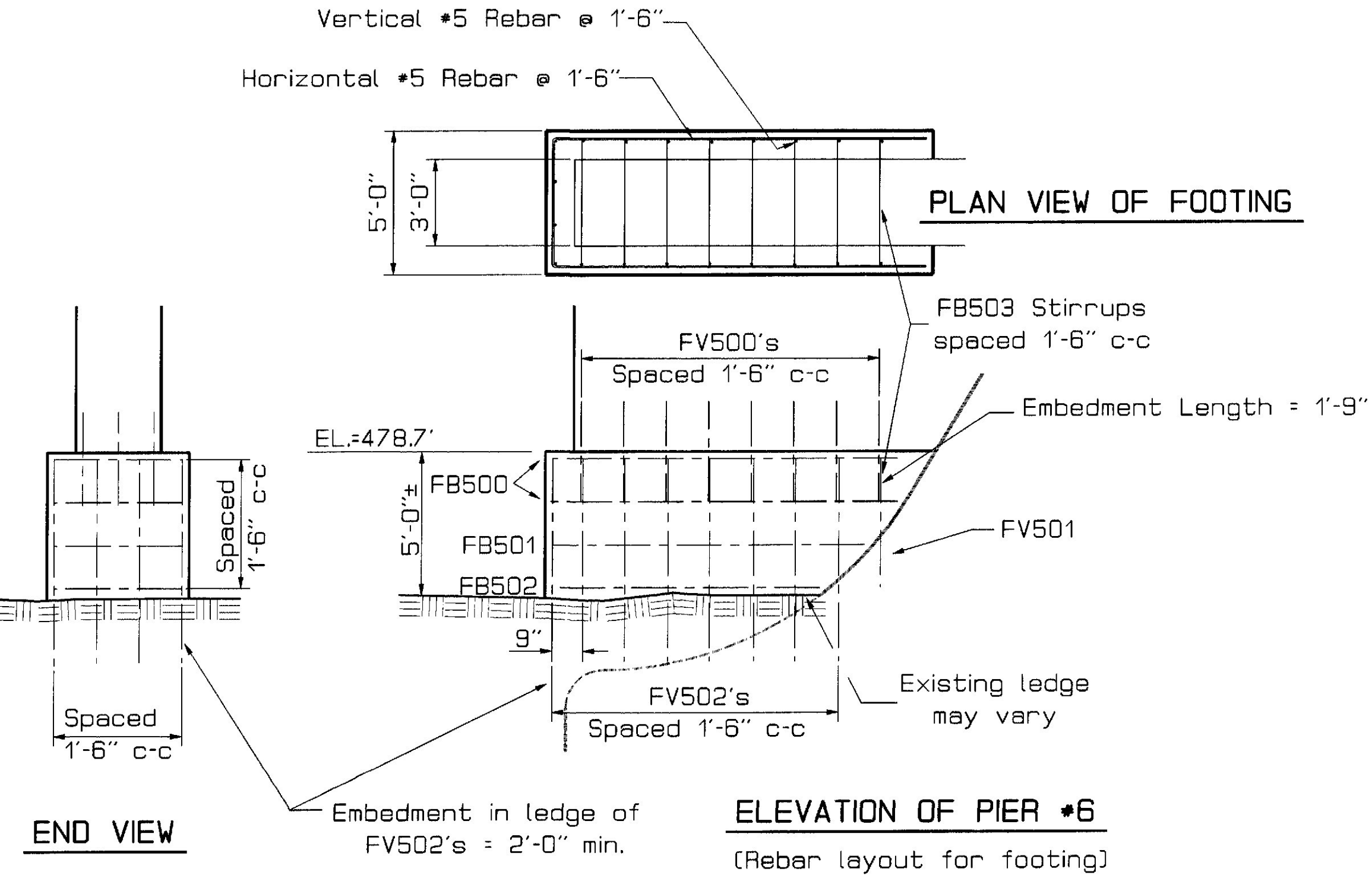
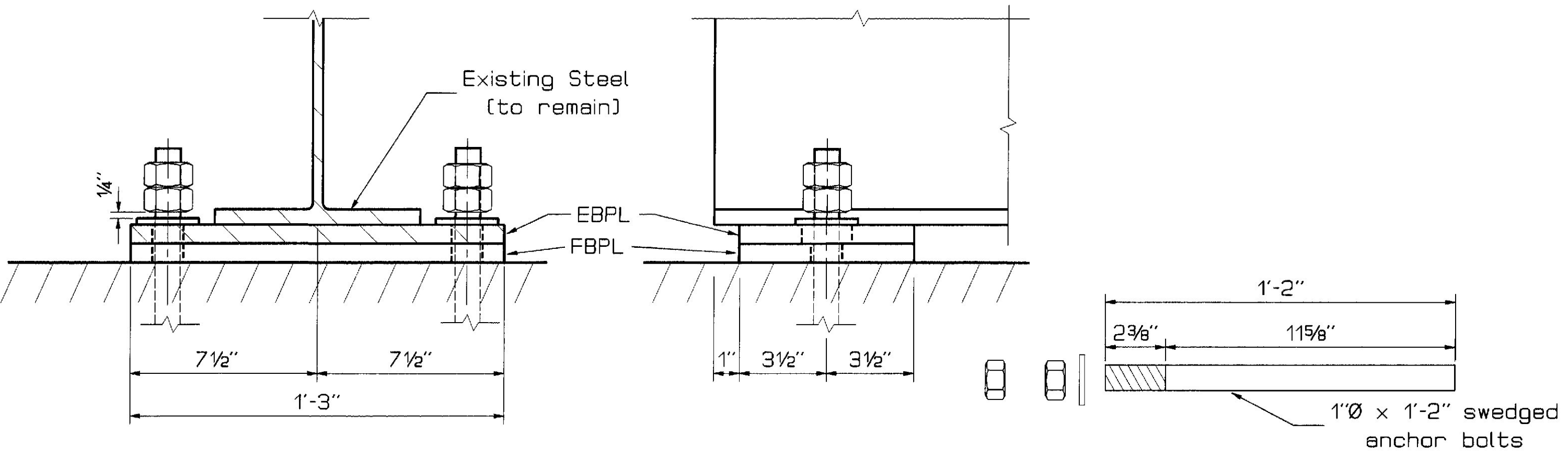
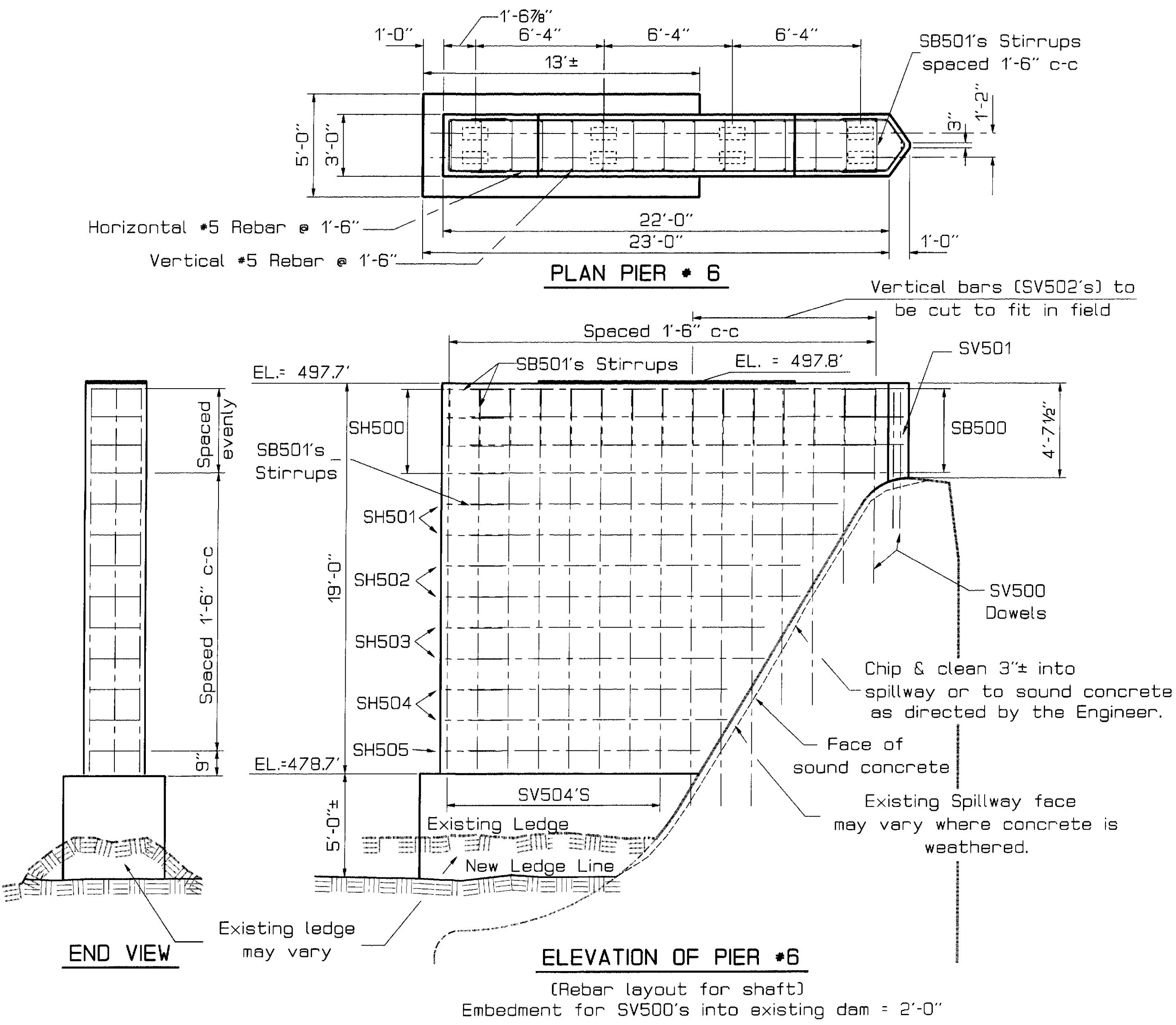
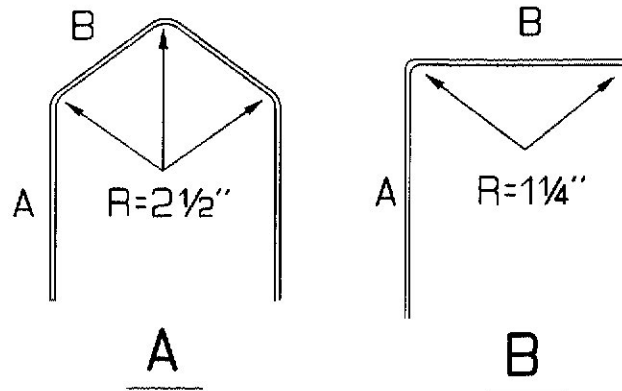
F.H.V.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	006281.00	4	8

NOTES

1. All rebar shall have min. 3" cover.
2. Splices of #5 rebar shall be 20" min.
3. All dimensions are center to center of reinforcing bars.
4. All Materials used to anchor reinforcing steel shall be from the MDOT's approved list of Type III Anchors.
5. Expansion Bearing Assembly shall be paid for as incidental to Item 502.23 Structural Concrete Piers.
6. Removal of Pier #6 to limits shown will be paid for under Item 202.12.
7. For anchor bolt details see Standard Details, BD 101-93 Bearing Pedestals.

STRAIGHT BARS				STRAIGHT BARS			
MARK	NO.	LENGTH	LOCATION	MARK	NO.	LENGTH	LOCATION
SH500	8	20'-0"	PIER SHAFT (Hor.)	SV502	6	17'-0"	PIER SHAFT (Vert.)
SH501	4	18'-2"	PIER SHAFT (Hor.)	SV504	16	18'-6"	PIER SHAFT (Vert.)
SH502	4	16'-4"	PIER SHAFT (Hor.)	FV500	17	3'-6"	PIER FOOTING (Vert.)
SH503	4	14'-7"	PIER SHAFT (Hor.)	FV501	2	4'-6"	PIER FOOTING (Vert.)
SH504	4	12'-9"	PIER SHAFT (Hor.)	FV502		7'-1"	PIER FOOTING (Vert.)
SH505	2	11'-5"	PIER SHAFT (Hor.)				
SV500	18	5'-0"	PIER SHAFT (Vert.)				
SV501	4	4'-2"	PIER SHAFT (Vert.)				

BENT BARS						
MARK	NO.	LENGTH	TYPE	A	B	LOCATION
SB500	4	7'-8"	A	2'-3"	1'-7"	PIER NOSE
SB501	28	7'-0"	B	2'-3"	2'-6"	PIER SHAFT (Stirrups)
FB500	2	28'-10"	B	12'-2"	4'-6"	PIER FOOTING
FB501	1	26'-6"	B	11'-0"	4'-6"	PIER FOOTING
FB502	1	23'-4"	B	9'-5"	4'-6"	PIER FOOTING
FB503	8	9'-0"	B	2'-3"	4'-6"	PIER FOOTING



PROJECT DESIGN ENGINEER	DATE
BY M. FALLA	4/95
DESIGN-DETAILED	CHECKED
REVISIONS	REVISIONS
FIELD CHANGES	FIELD CHANGES

05 JUL 1995-0100.10  
PIER #6

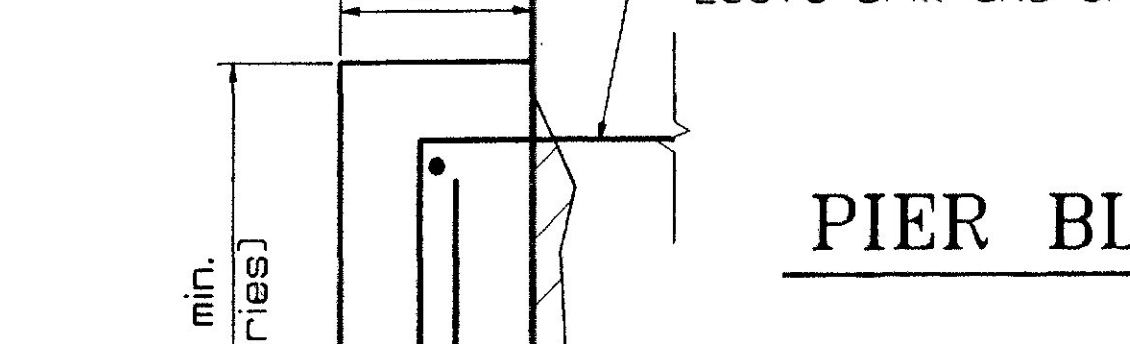
BRIDGE • 3312

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**VARNEY'S BRIDGE  
OVER  
GREAT WORKS RIVER  
IN THE TOWN OF  
SOUTH BERWICK  
YORK COUNTY  
REPLACEMENT PIER #6**

SHEET 4 OF 8 AUGUSTA, MAINE JUNE 1995





The diagram illustrates the construction of a pier block. It shows a cross-section of an existing pier and a new pier block being added. The existing pier is on the left, and the new pier block is on the right. The new pier block is 8 inches wide and has a minimum height of 2 feet. The pier block is constructed using L501's Drill and Grout 12" and S501's or S502's Drill & Grout 1'-6". The pier block is placed against the existing pier, and the gap between them is filled with concrete. The pier block is also placed against an existing dam, and the gap between them is filled with concrete. The pier block is placed against the dam, and the gap between them is filled with concrete. The pier block is placed against the dam, and the gap between them is filled with concrete.

Existing Pier

8"

L501's Drill and Grout 12"

2' min.  
[varies]

Existing Dam

to  
then

Chip end clean 3"± into spillway or to sound concrete as directed by the Engineer

S501's or S502's Drill & Grout 1'-6"

**PIER BLOCK**

## PIER BLOCKING

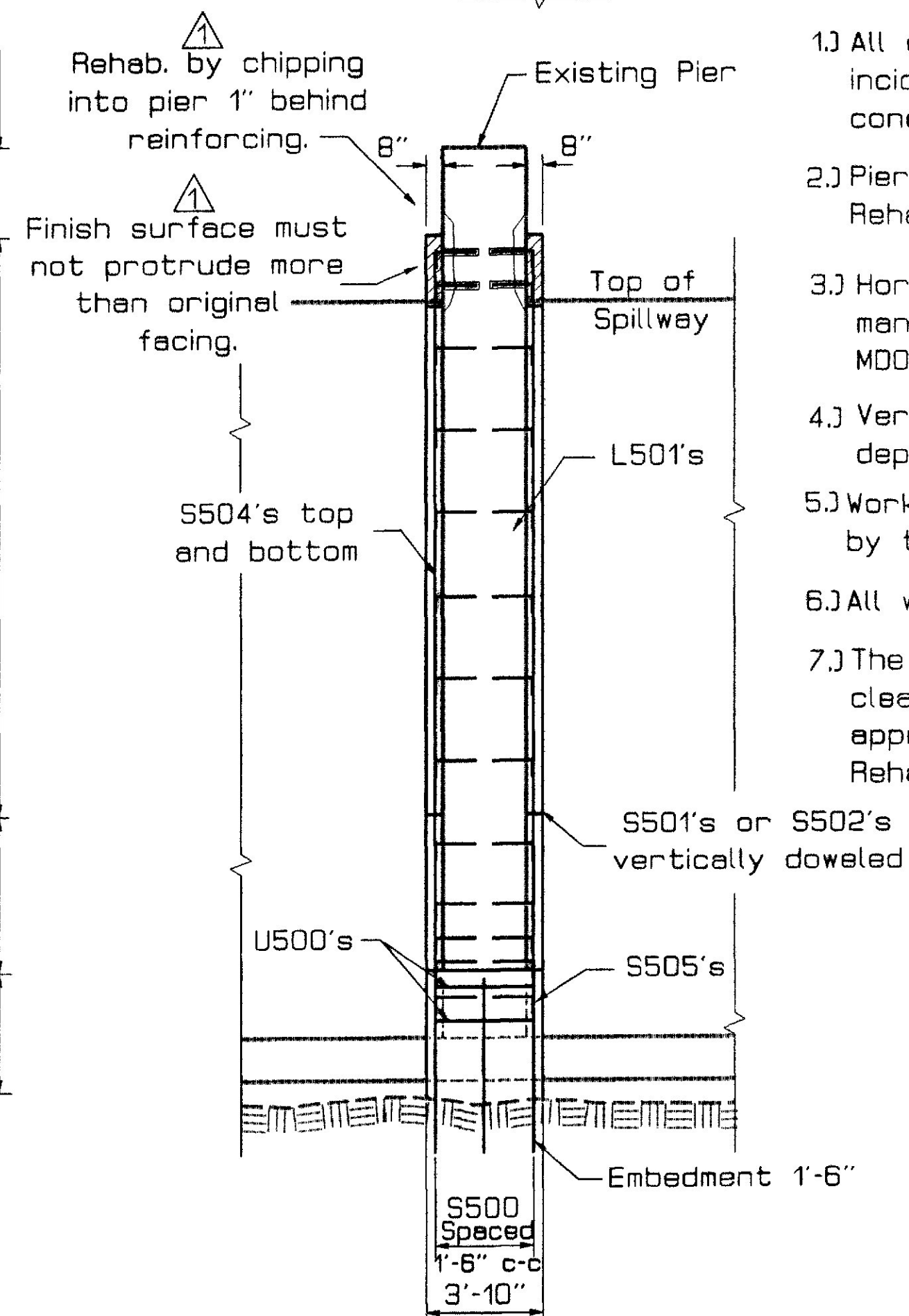
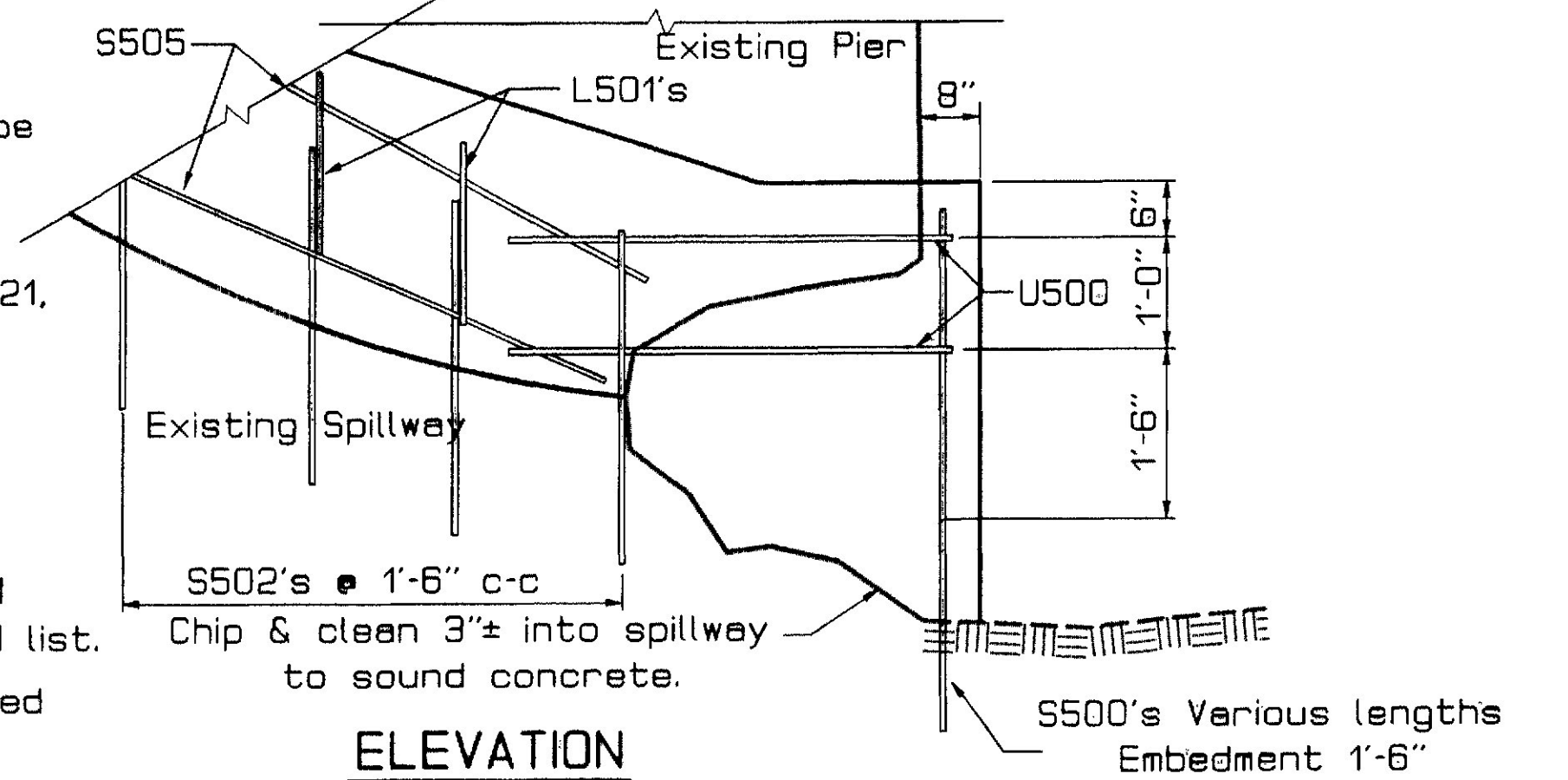


## UNDERMINED PIERS

[Pier #3, #4 and #5]

## NOTES

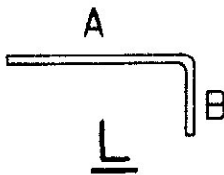
- 1.) All concrete removal other than Pier #6 removal shall be incidental to Item # 518.21 Rehabilitation of Structural concrete substructure.
- 2.) Pier Blocking concrete shall be paid for under Item 518.21, Rehabilitation of Structural Concrete Substructure.
- 3.) Horizontal bars shall be drilled and anchored to manufacturers specs. Use Type 3 anchor materials on MDOOT's approved list.
- 4.) Vertical bars shall be drilled and anchored to specified depth. Use Type 3 anchor materials on MDOOT's approved list.
- 5.) Work specified on these plans may be modified as directed by the Engineer.
- 6.) All work shall be performed in the dry.
- 7.) The concrete that does not require chipping shall be cleaned by sandblasting, subjected to the Engineer's approval and shall be incidental to Item #518.21, Rehabilitation of Structural Concrete Substructure.

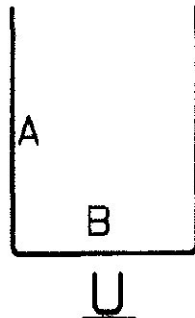


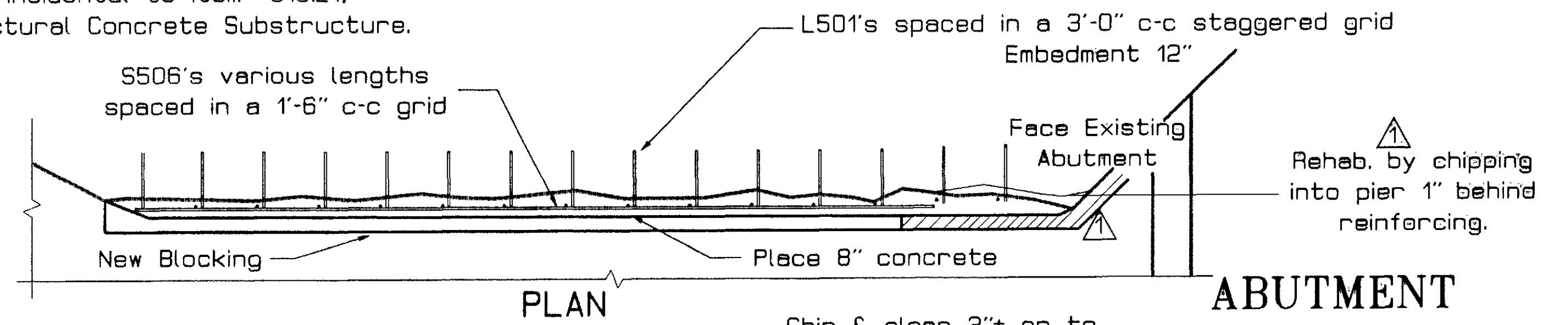
END ELEVATION

STRAIGHT BARS									
MARK	NO.	LENGTH	LOCATION		MARK	NO.	LENGTH	LOCATION	
S500	18	5'-2"	Pier Blocking		S505	24	11'-0"	Pier Blocking	
S501	84	4'-0"	Pier Blocking		S506	20	20'-0"	Abut. Rehab.	
S502	96	3'-0"	Pier Blocking						
S503	24	1'-8"	Pier Blocking						
S504	24	2'-0"	Pier Blocking						

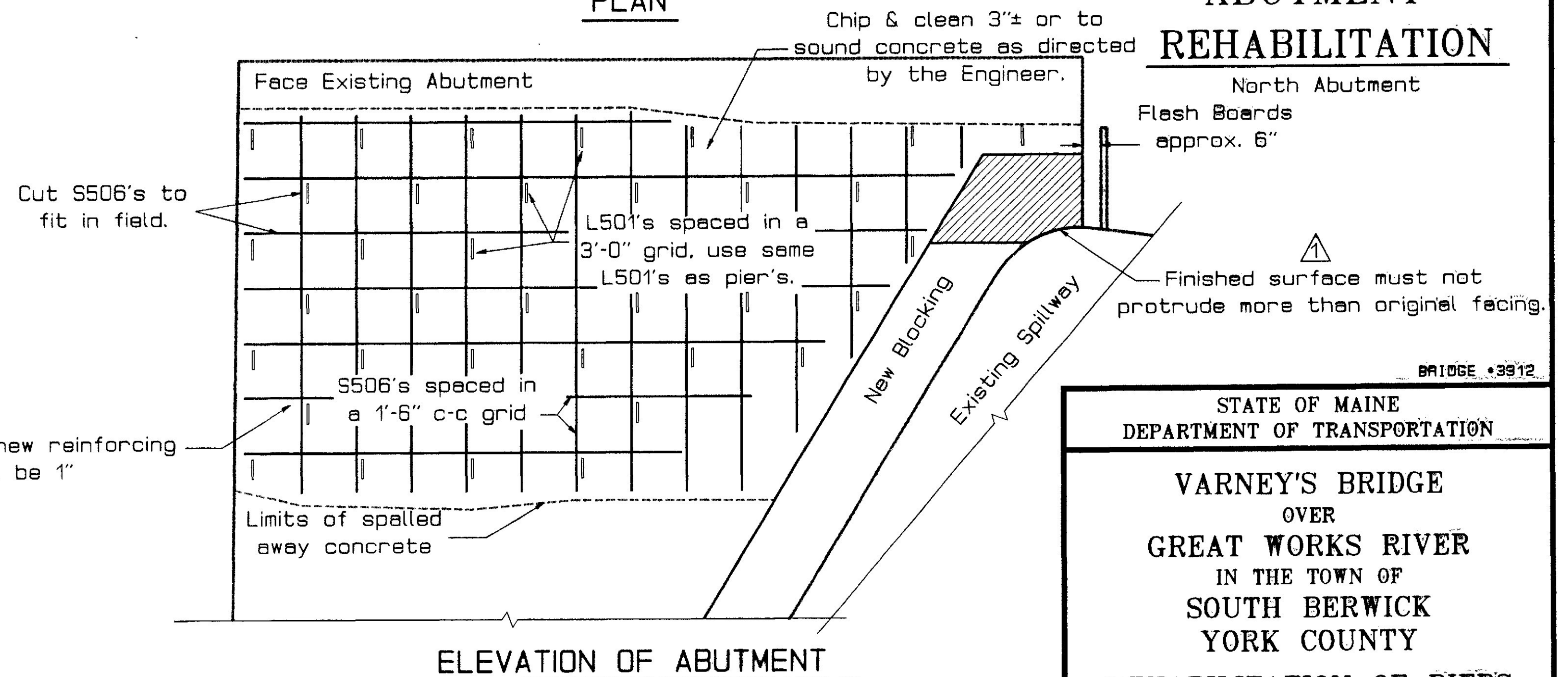
BENT BARS						
MARK	NO.	LENGTH	TYPE	A	B	LOCATION
U501	12	11'-0"	U	4'-0"	3'-0"	Pier Blocking
L501	250	3'-2"	L	1'-4"	1'-10"	Pier & Abut.







## ABUTMENT REHABILITATION



## ELEVATION OF ABUTMENT

REVISION	DESCRIPTION	DATE
1	Blocking and Rebar change	8/95

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

VARNEY'S BRIDGE  
OVER  
GREAT WORKS RIVER  
IN THE TOWN OF  
SOUTH BERWICK  
YORK COUNTY

## REHABILITATION OF PIERS

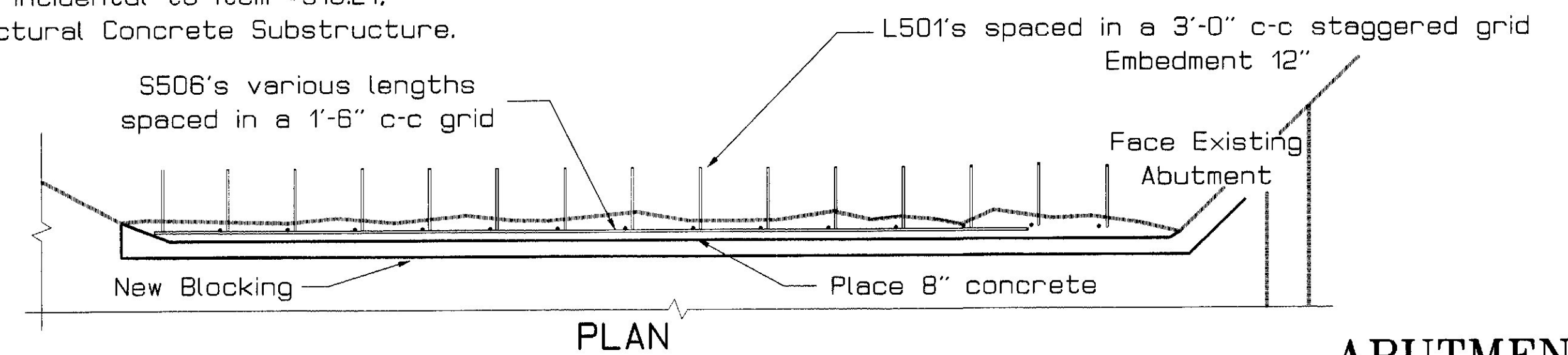
SHEET 5 OF 8 AUGUSTA, MAINE June 1995



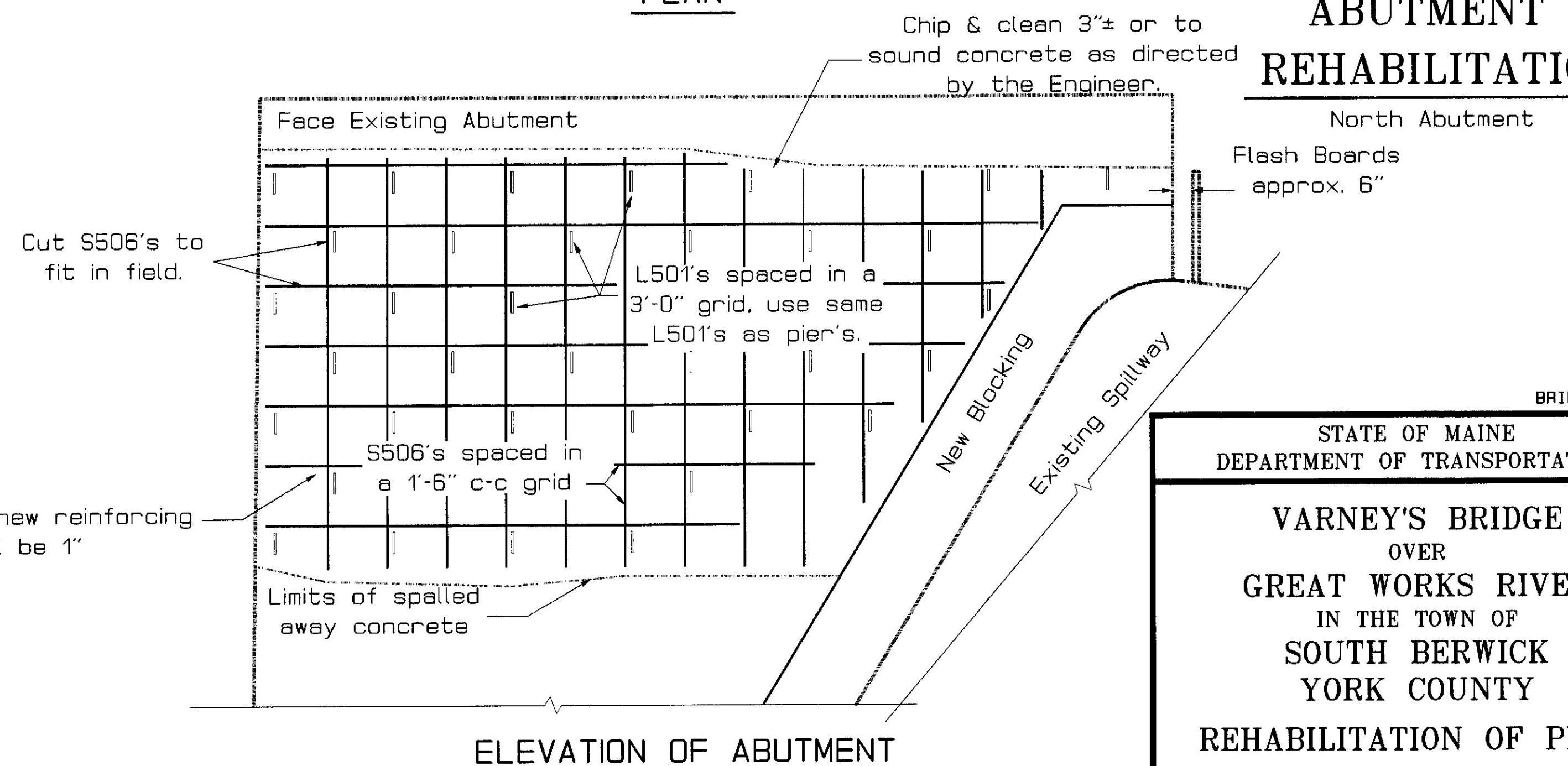


## NOTES

- 
- Diagram illustrating the ELEVATION view of the structure, showing the Spillway and Existing Pier. Key components and dimensions include:
- S505** and **L501's** reinforcement bars.
  - Existing Pier** and **Existing Spillway**.
  - U500** reinforcement bar.
  - S502's @ 1'-6" c-c** (center-to-center).
  - Chip & clean 3"± into spillway to sound concrete.**
  - S500's Various lengths Embedment 1'-6"**.
  - Dimensions:** 8", 6", 1'-0", 1'-6".



## ABUTMENT REHABILITATION



BRIDGE • 3312

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STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

VARNEY'S BRIDGE  
OVER  
GREAT WORKS RIVER  
IN THE TOWN OF  
SOUTH BERWICK  
YORK COUNTY

REHABILITATION OF PIERS

SHEET 5 OF 8 AUGUSTA, MAINE June 1995

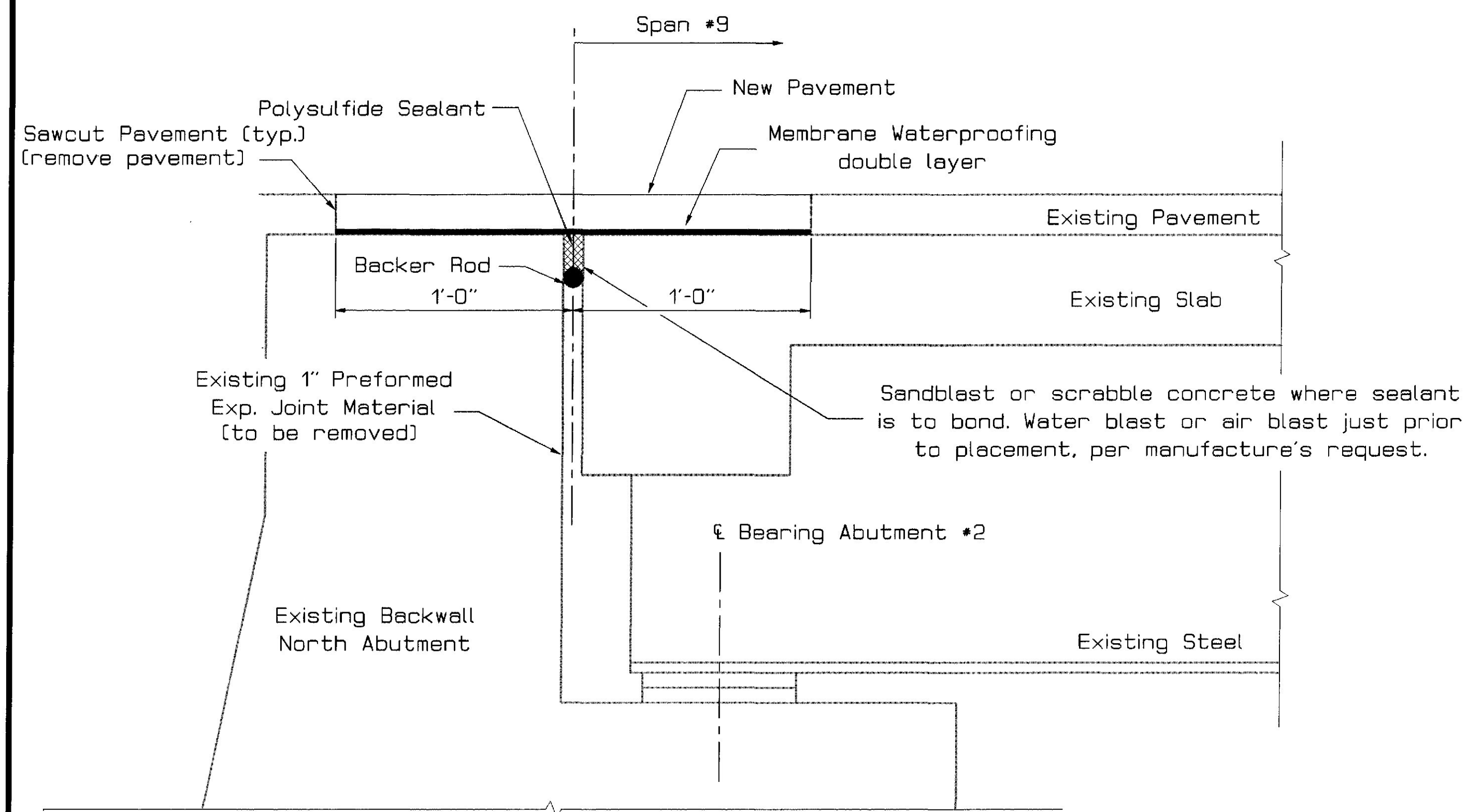
PROJECT DESIGN ENGINEER		BY	DATE
DESIGN-DETAILED _____		M. FALLA	5/95
CHECKED _____			
REVISED _____			
FIELD CHANGES _____			

**PLANS**

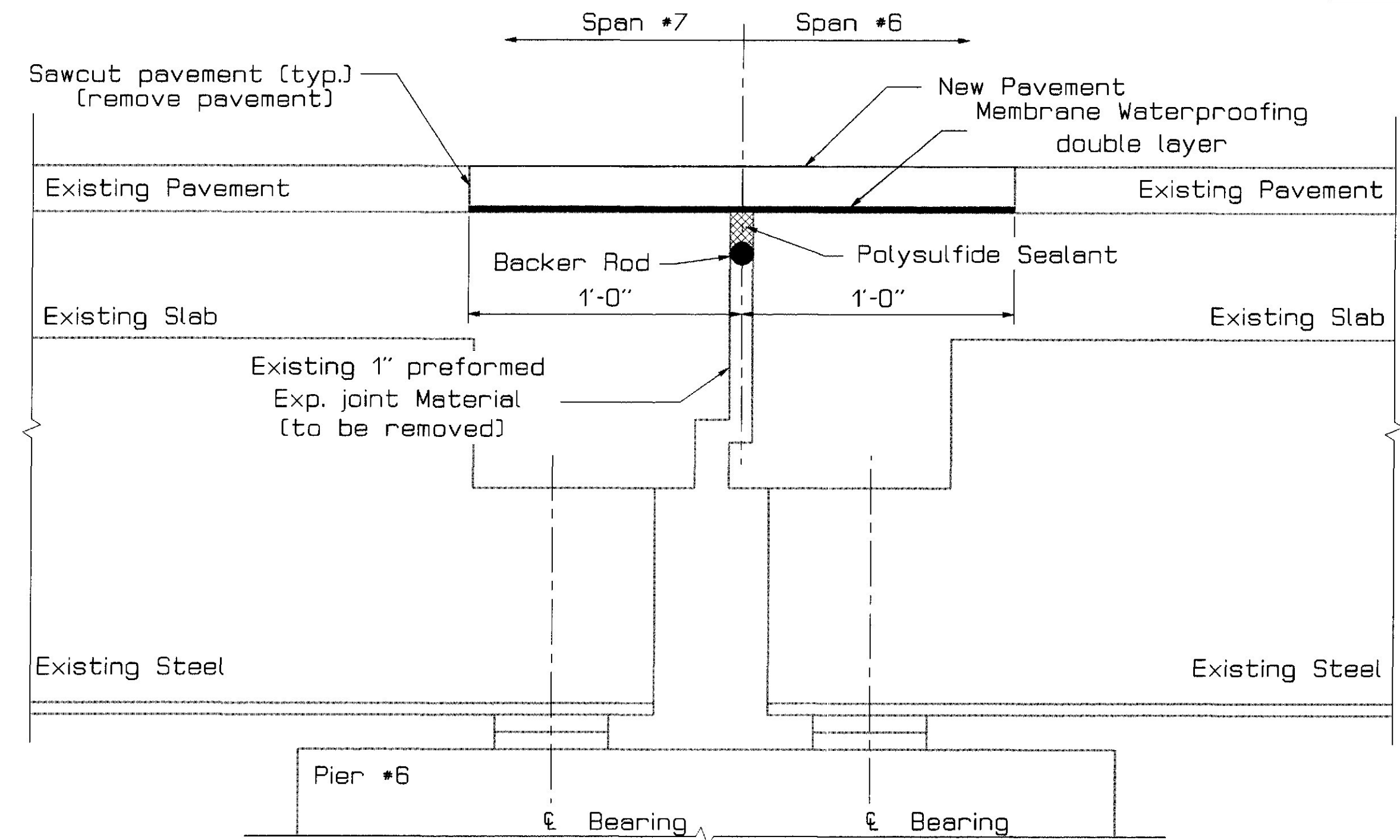
05JLY95-01.00.10  
PIERHAB



F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	006281.00	6	8



JOINT @ NORTH ABUTMENT



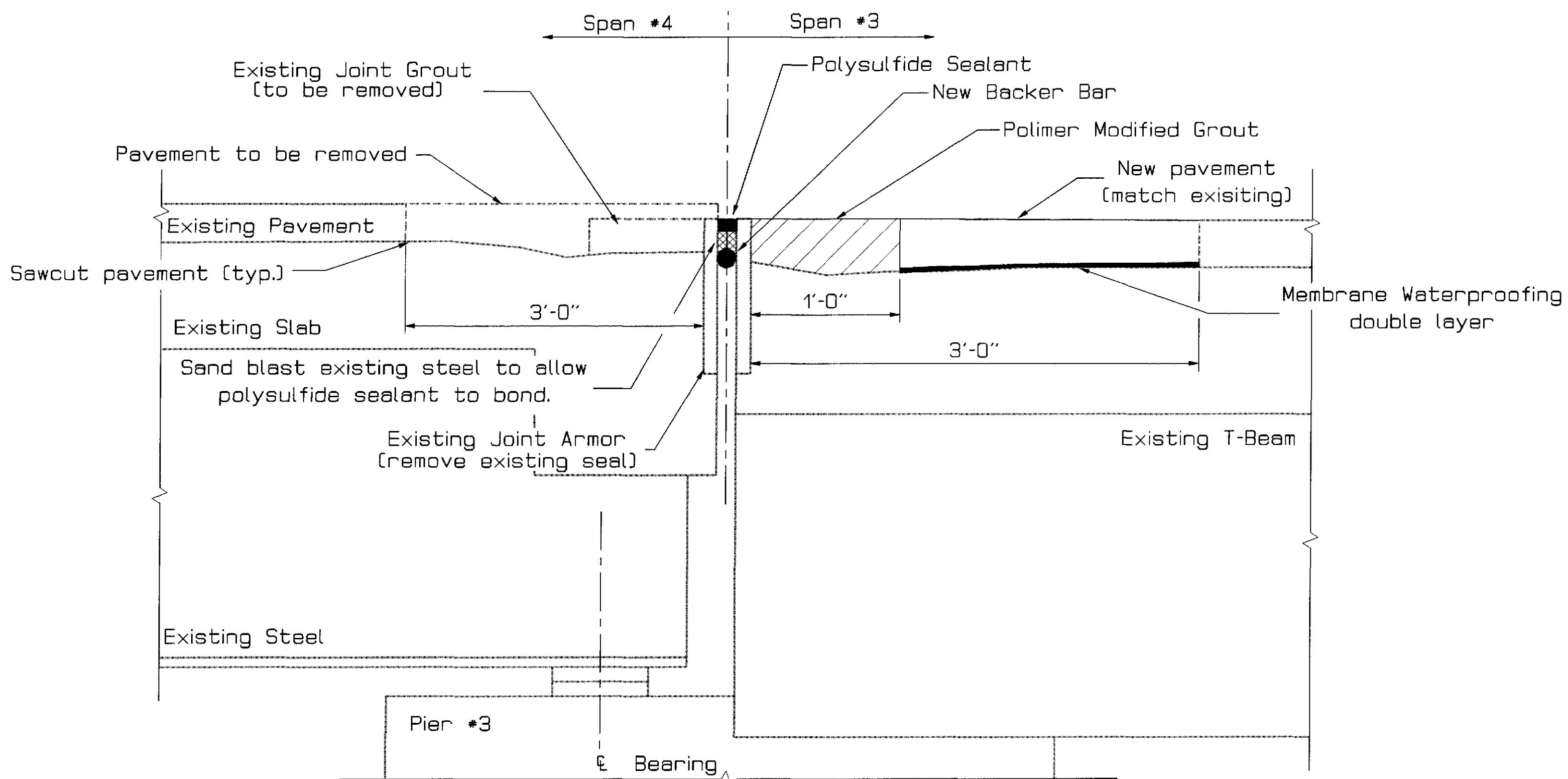
JOINT @ PIER #6

## Notes

All items involved in the bridge joint replacement including Membrane Waterproofing and grout will be considered incidental to Item #520.202 Expansion Device (Self Leveling Bridge Joint Seal), except paving.

All pavement shall be Type D mix and will be paid for under Item 403.101 Hot Bituminous Pavement, Grade D.

All work required to furnish and place joint seals shall conform to Special Provision 520 Expansion Device (Self Leveling Bridge Joint Seal).



JOINT @ PIER #3

PROJECT DESIGN ENGINEER	DATE
BY	5/95
DESIGN-DETAILED	
CHECKED	
REVISIONS	
FIELD CHANGES	

PLANS

05 JULY 95-0100-10  
JOINTS

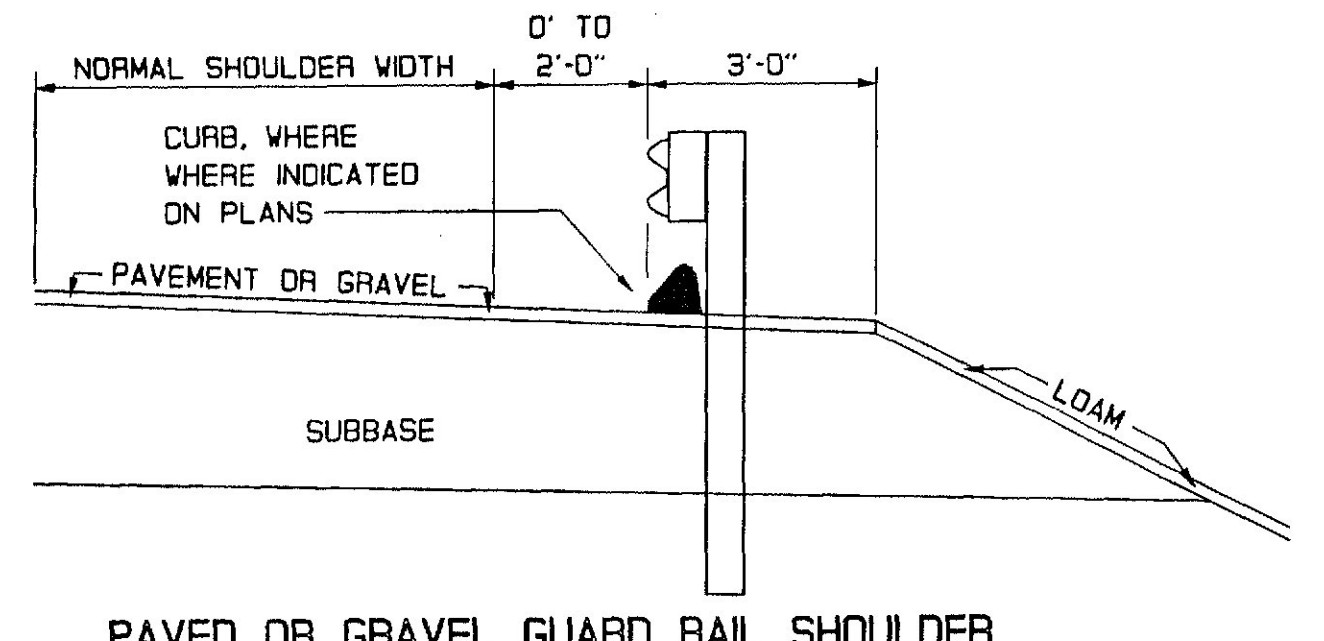
BRIDGE #3312

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

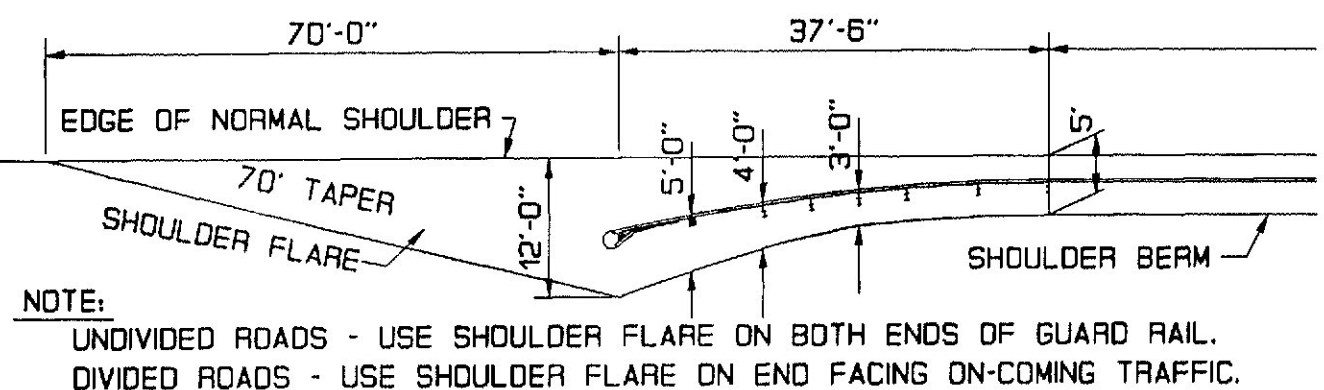
VARNEY'S BRIDGE  
OVER  
GREAT WORKS RIVER  
IN THE TOWN OF  
SOUTH BERWICK  
YORK COUNTY  
JOINT DETAILS

SHEET 6 OF 8 AUGUSTA, MAINE June 1995

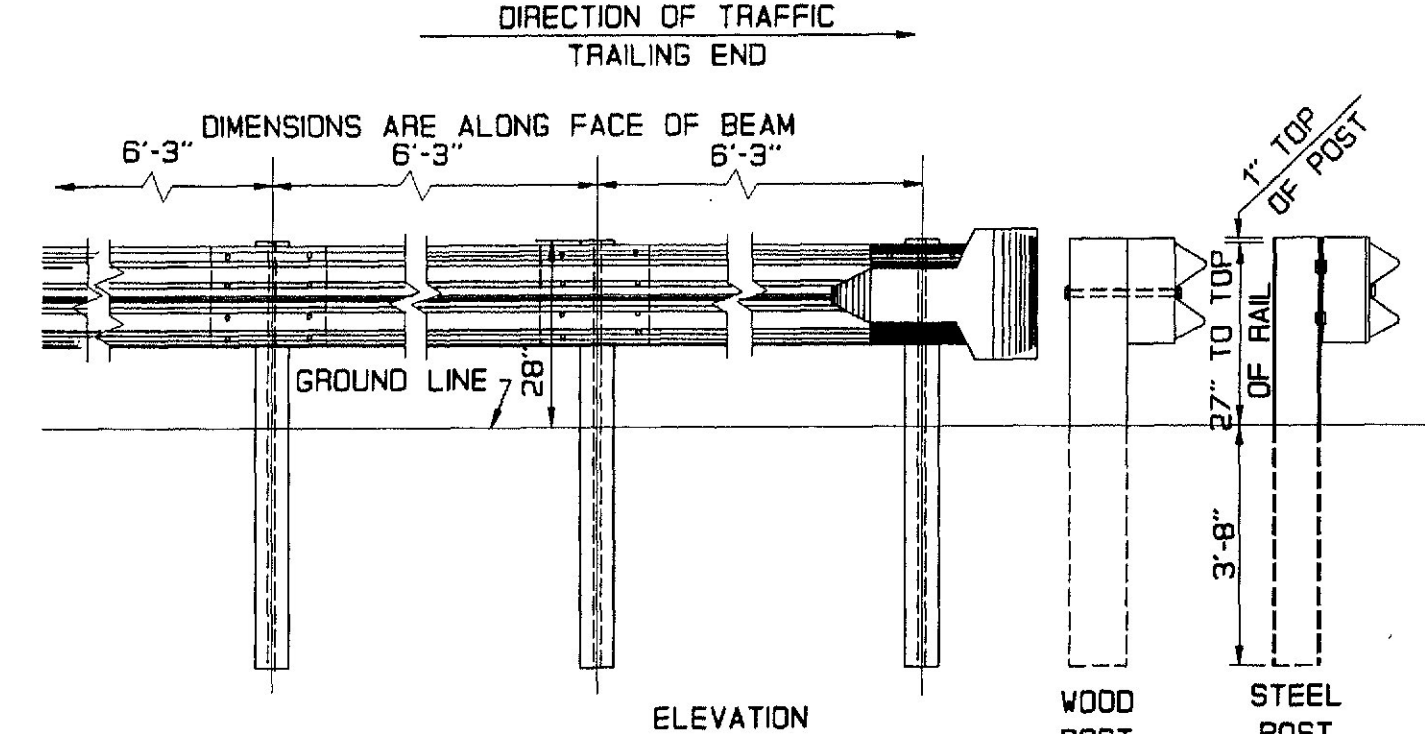




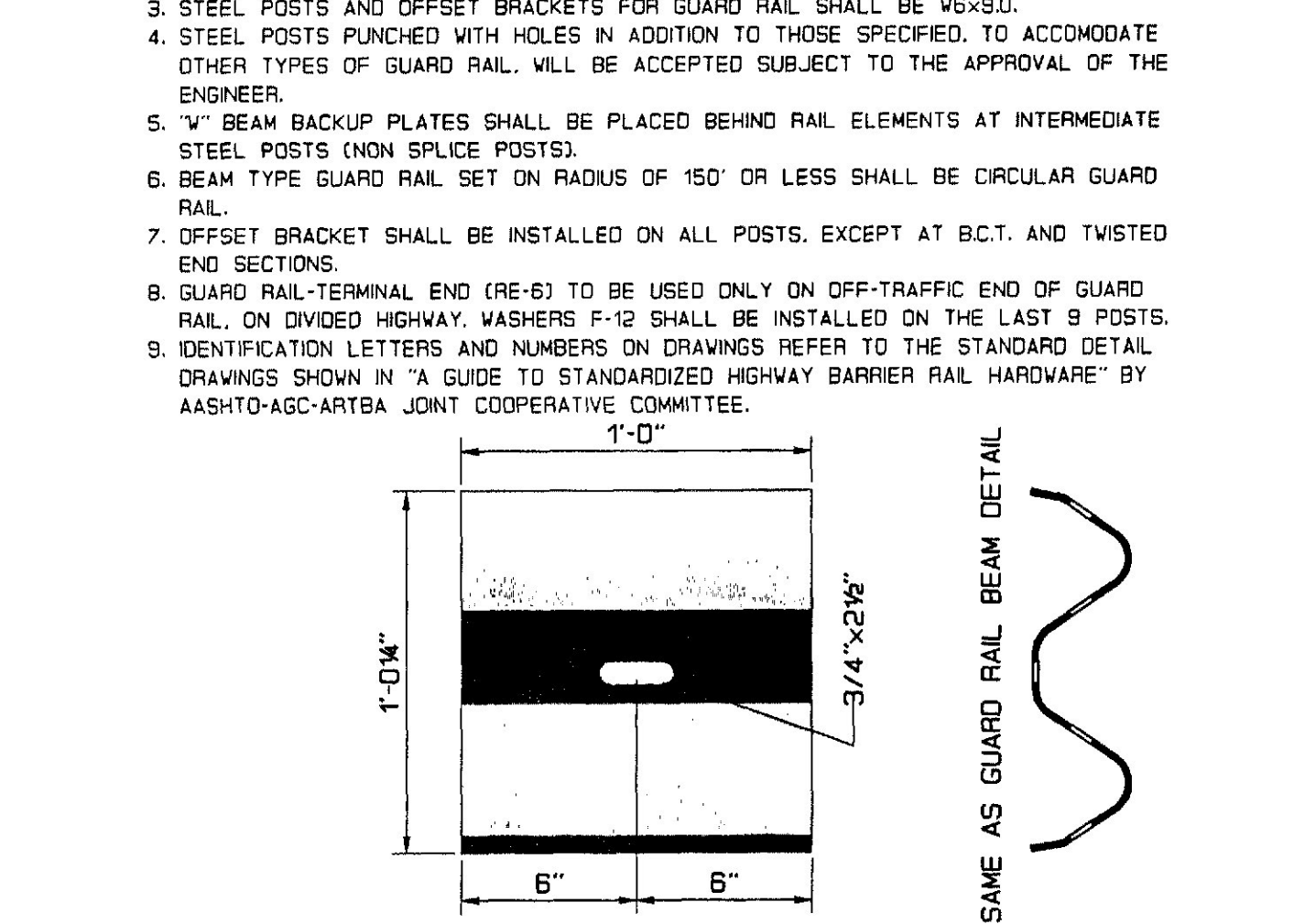
LOCATION OF GUARD RAIL TYPE 3



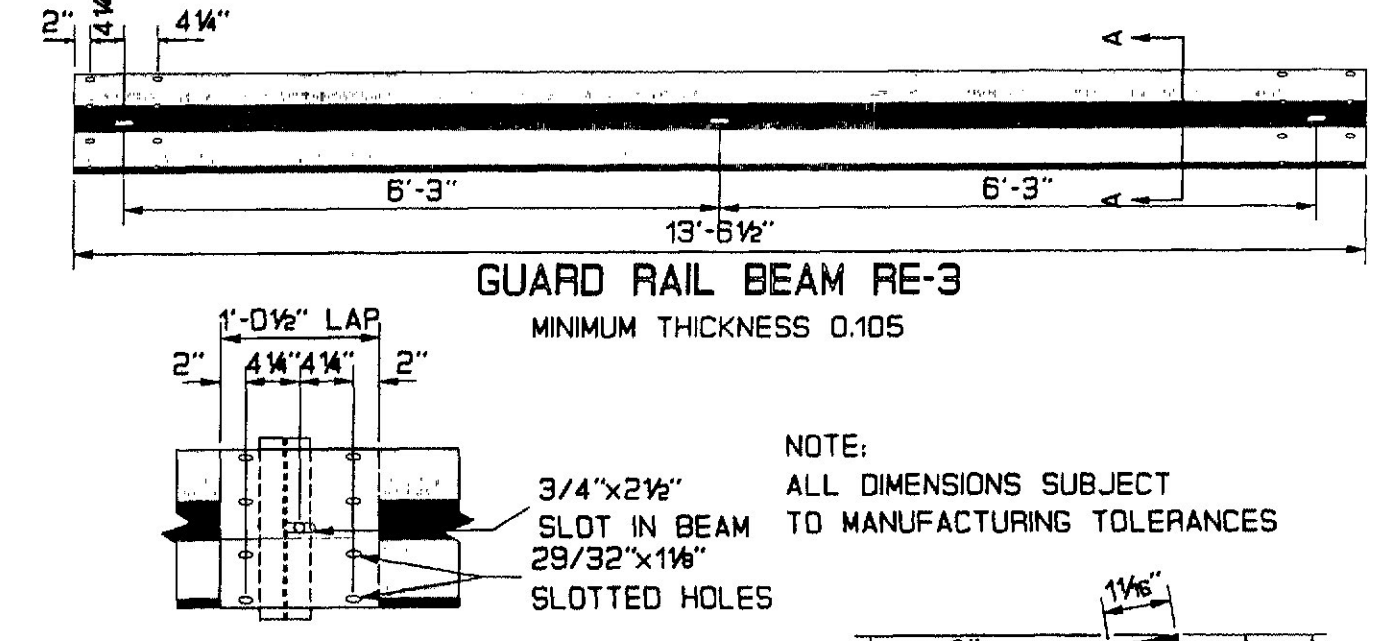
SHOULDER WIDENING FOR BREAKAWAY  
CABLE TERMINAL SECTION



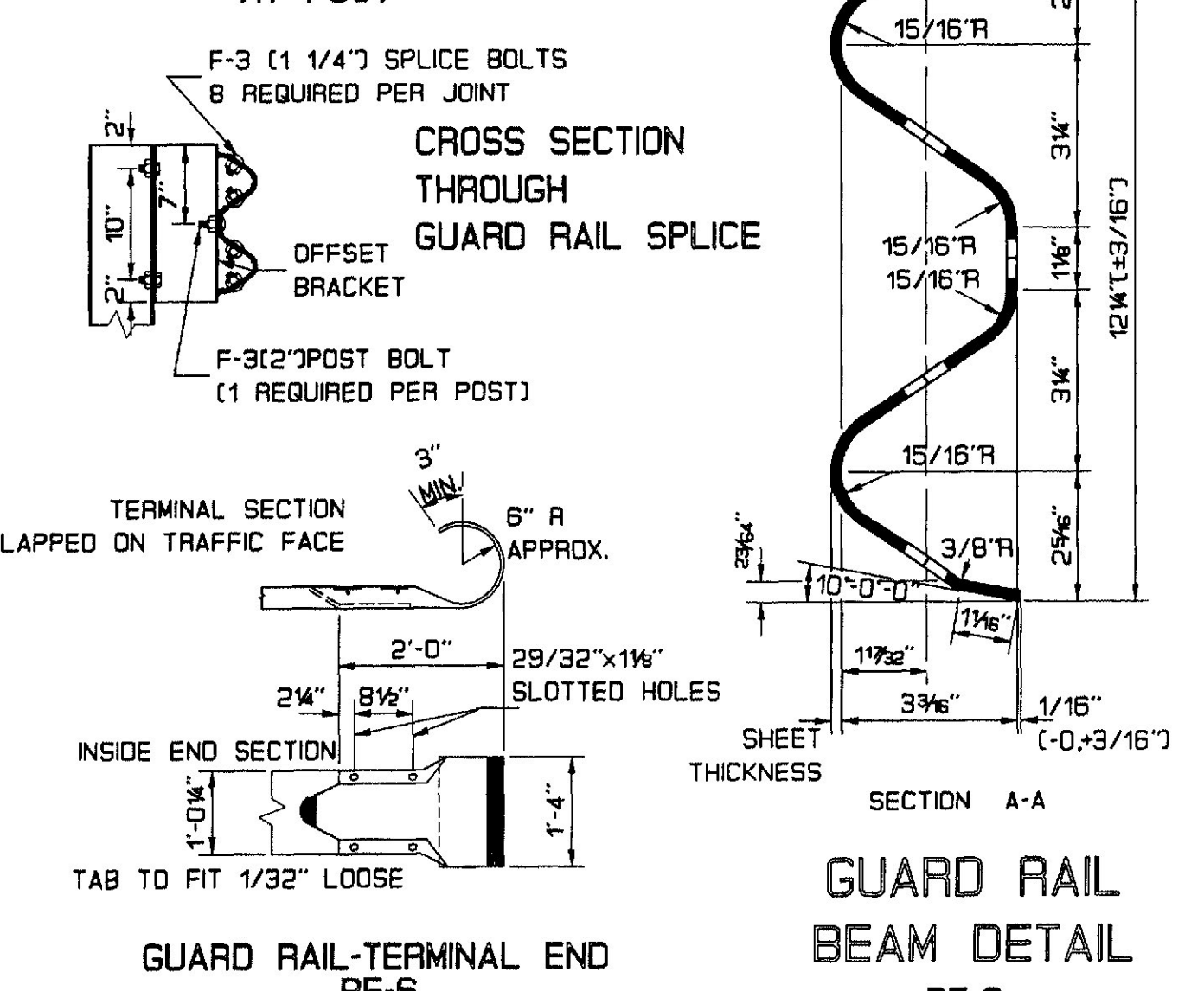
ELEVATION



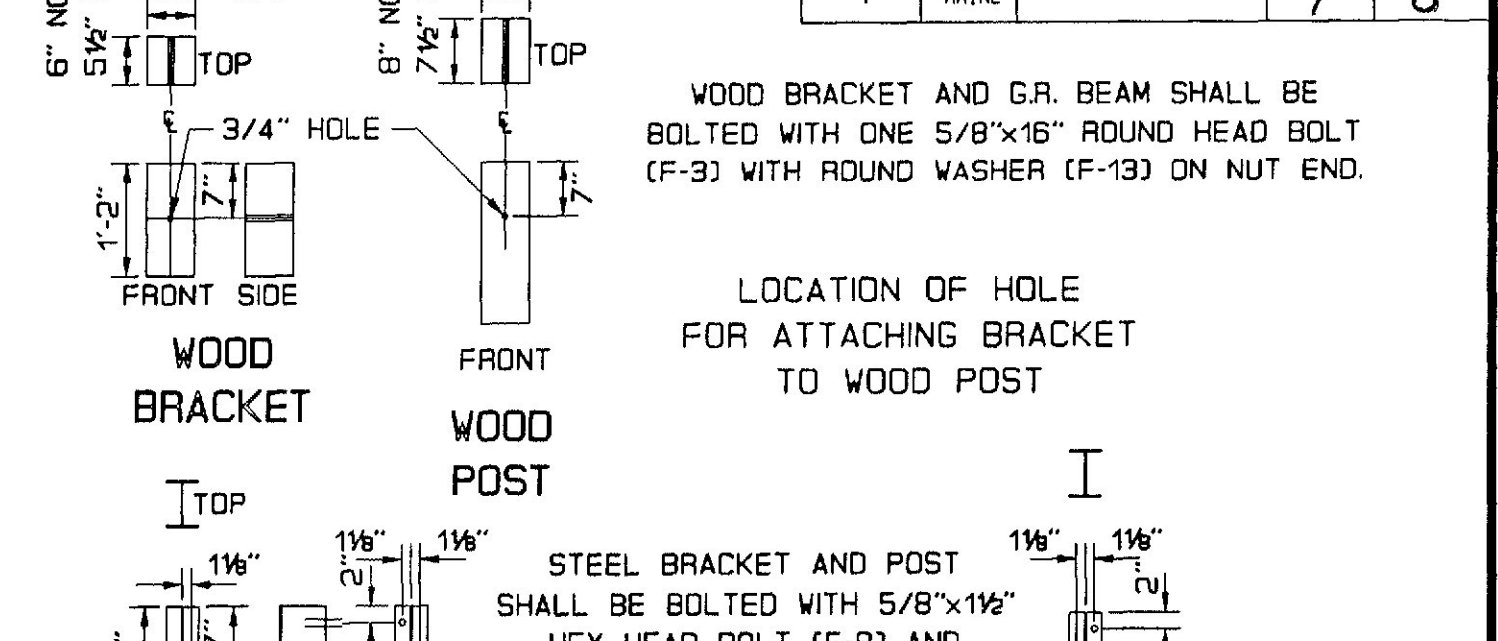
W-BEAM BACKUP PLATE - RE-4



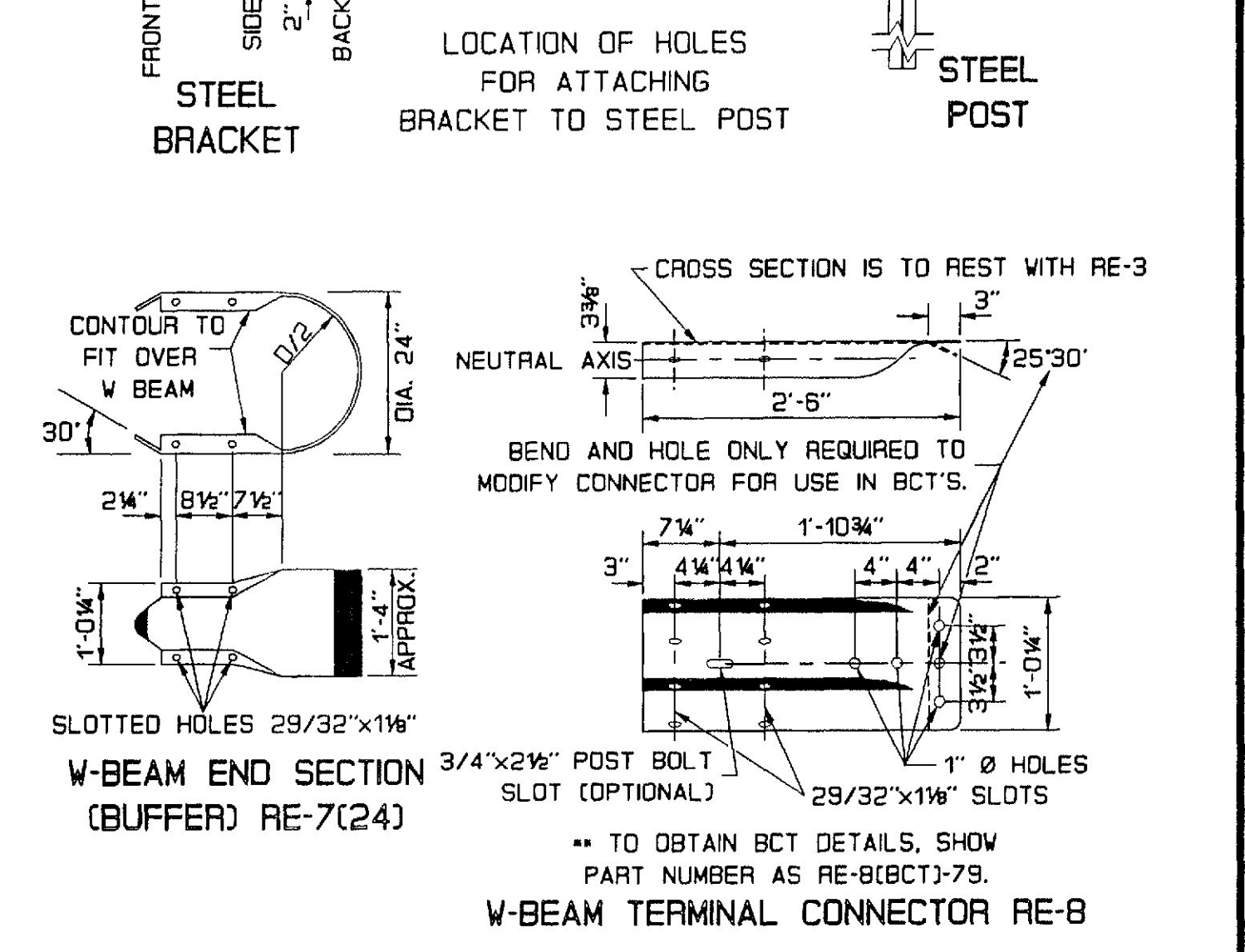
GUARD RAIL BEAM RE-3



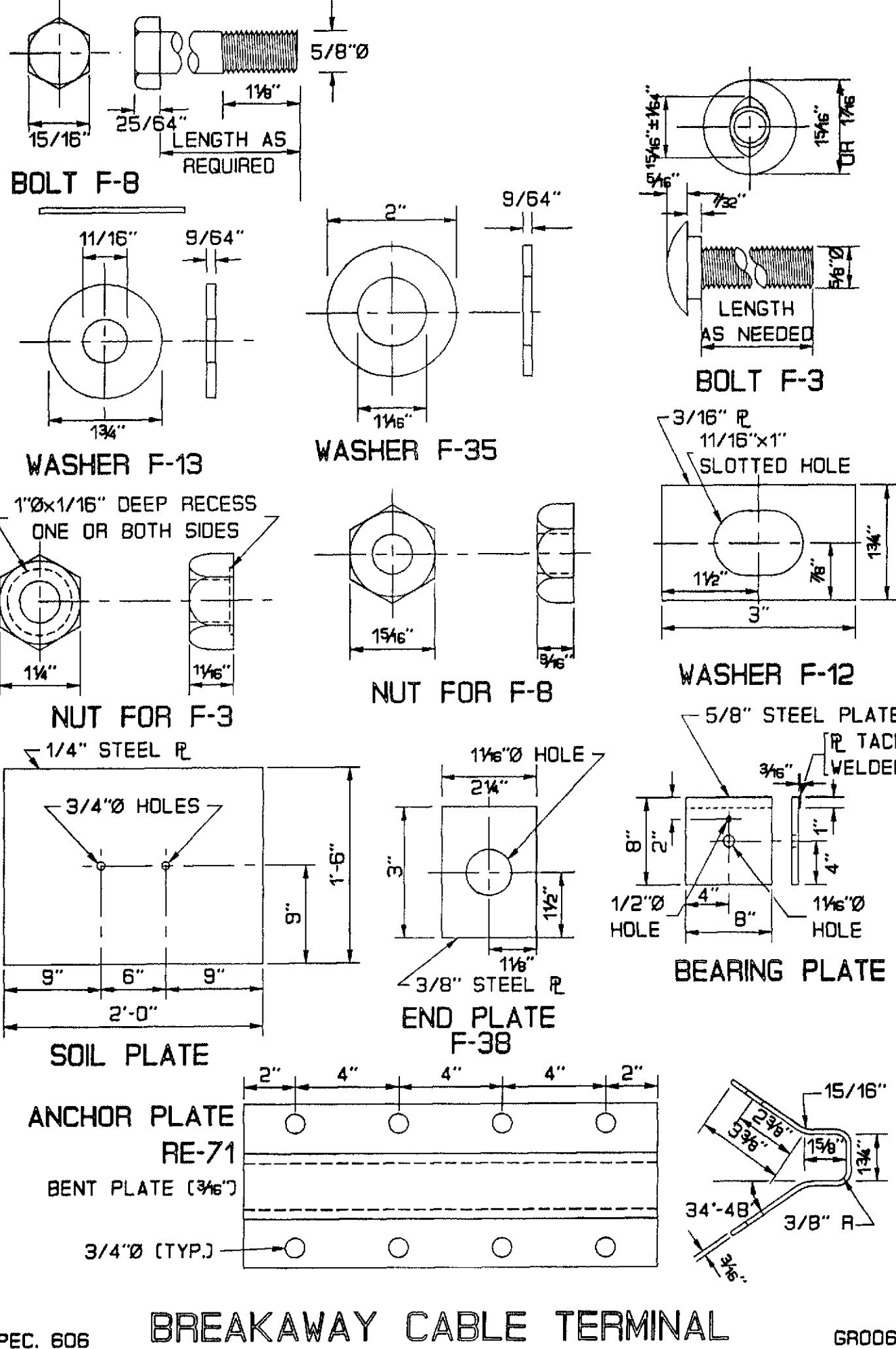
CROSS SECTION THROUGH GUARD RAIL SPLICED



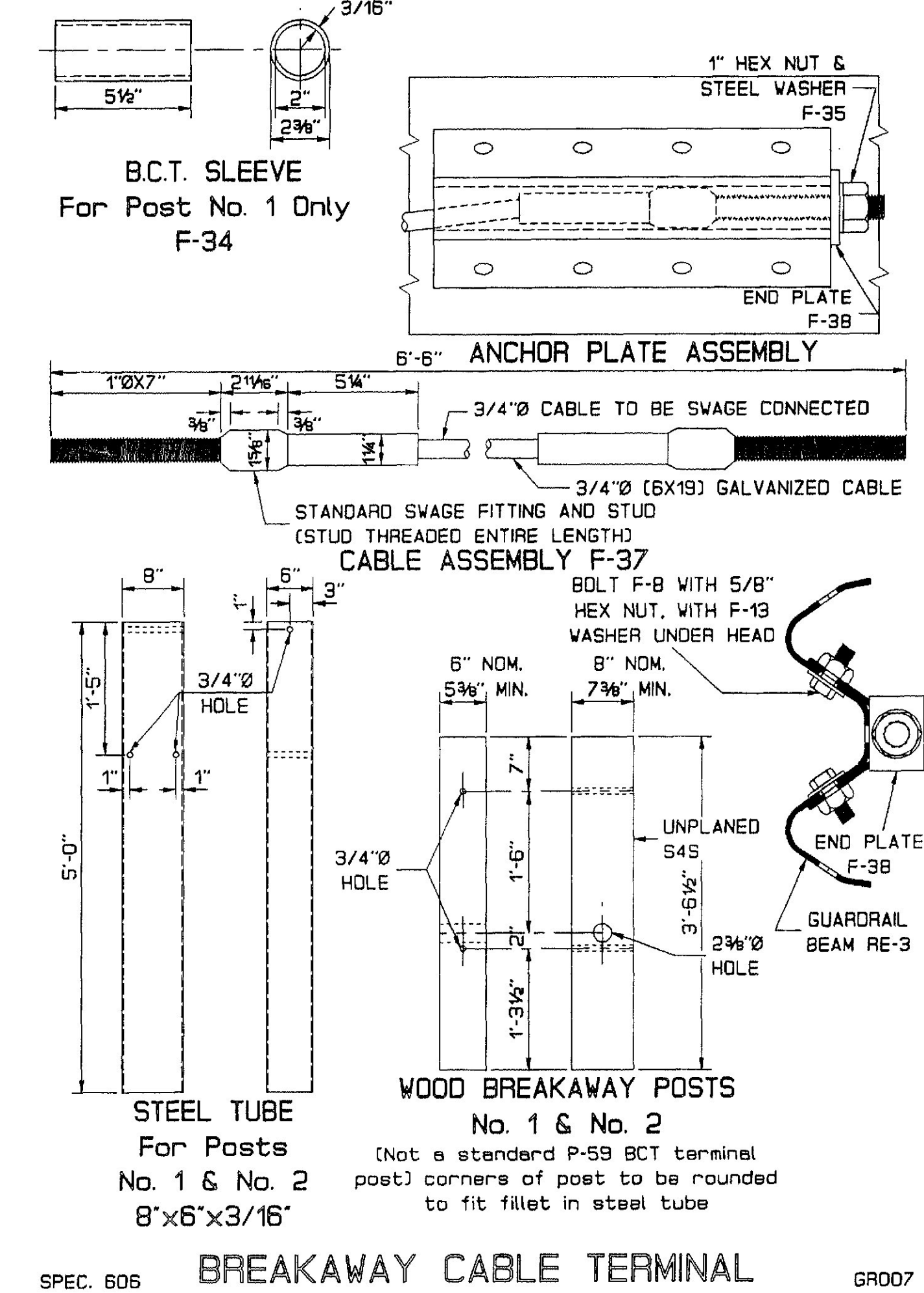
WOOD BRACKET



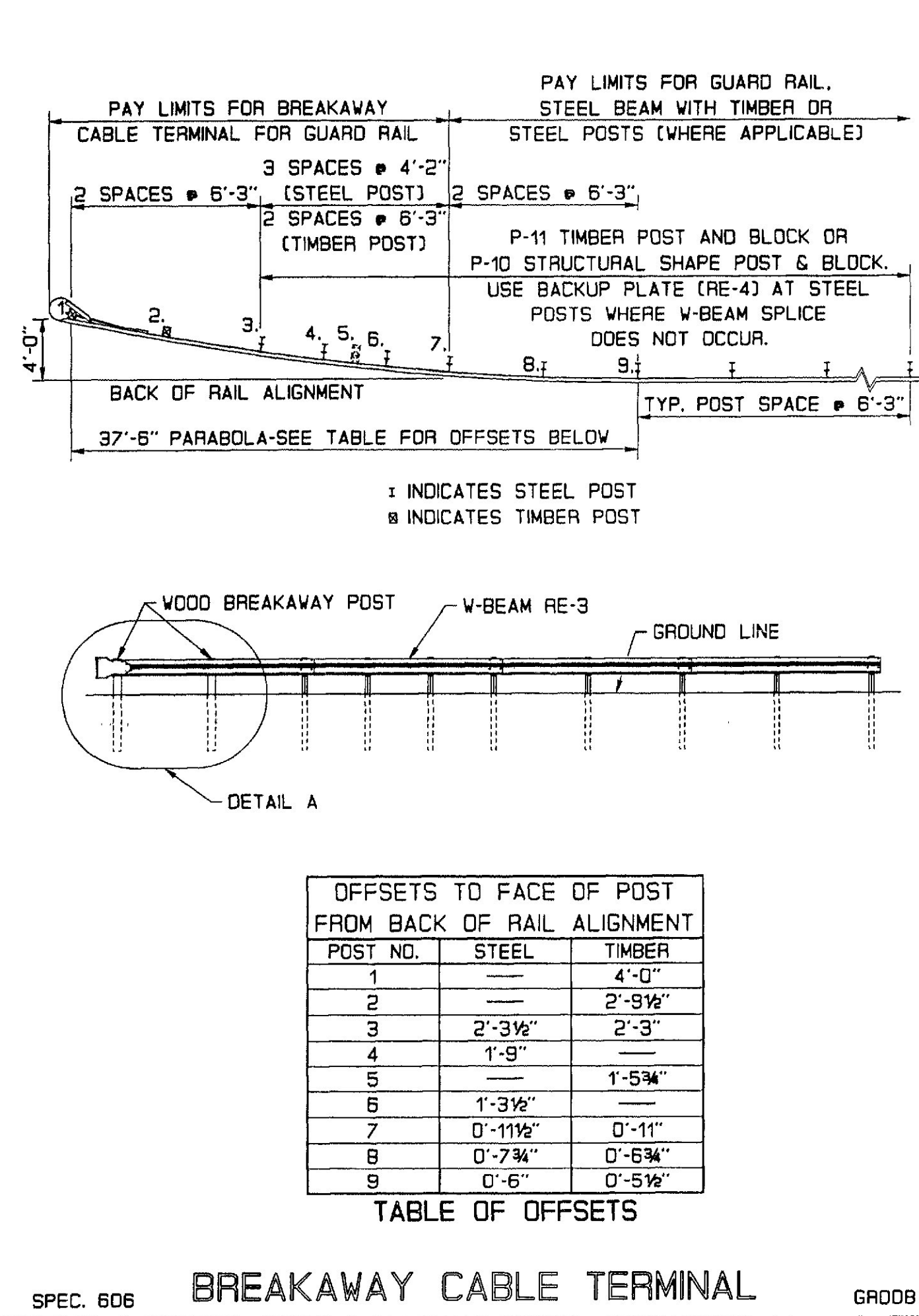
STEEL BRACKET



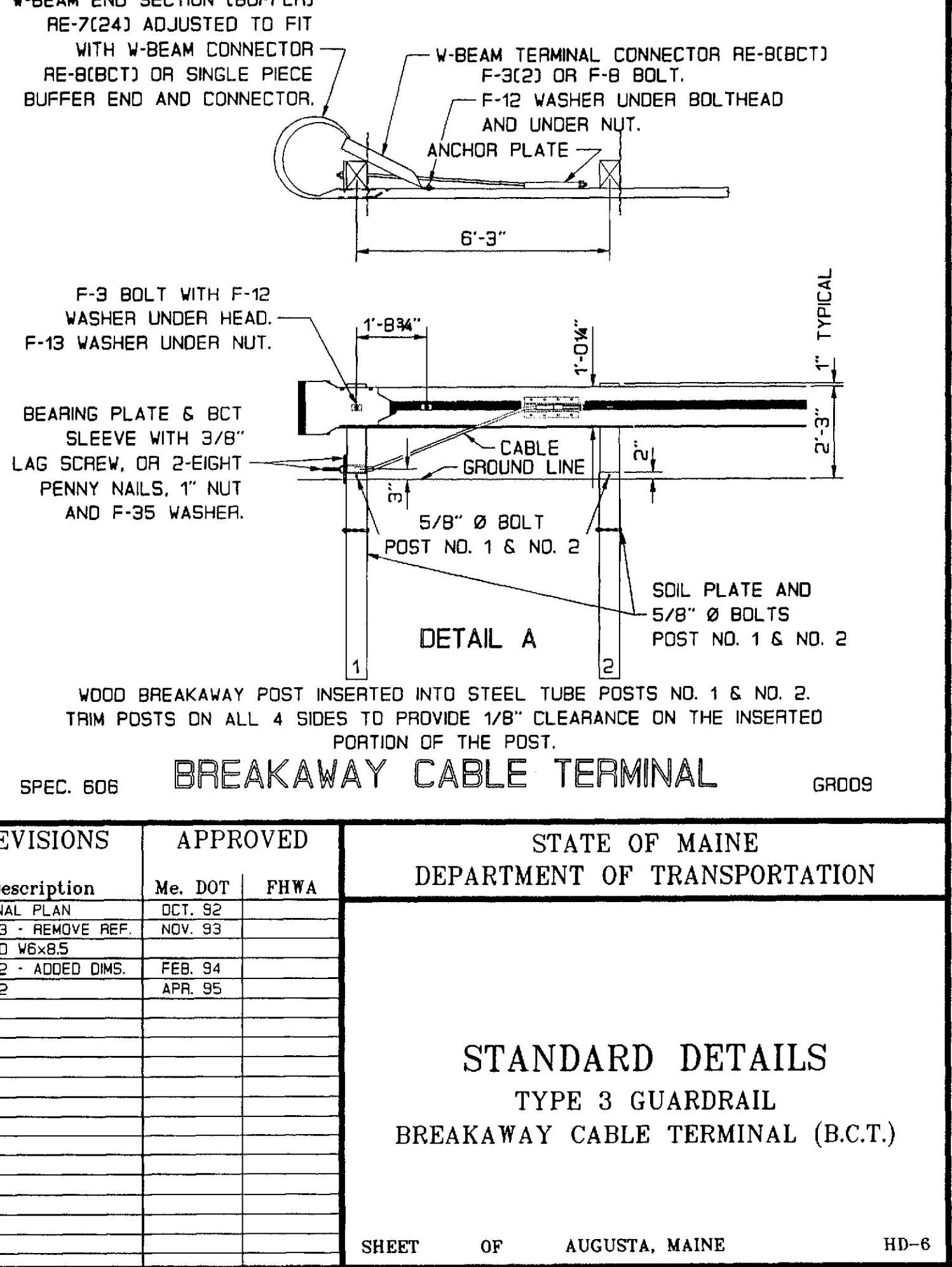
BREAKAWAY CABLE TERMINAL



BREAKAWAY CABLE TERMINAL



BREAKAWAY CABLE TERMINAL



BREAKAWAY CABLE TERMINAL

PROJECT DESIGN ENGINEER	DATE
DESIGN-DETAILED	
CHECKED	
REVISIONS	
FIELD CHANGES	

13JUN95-0100.30

POST NO.	STEEL	TIMBER
1	4'-0"	4'-0"
2	2'-3 1/2"	2'-3 1/2"
3	2'-3 1/2"	2'-3 1/2"
4	1'-9"	1'-9"
5	1'-5 3/4"	1'-5 3/4"
6	1'-3 1/2"	1'-3 1/2"
7	0'-11 1/2"	0'-11"
8	0'-7 3/4"	0'-6 3/4"
9	0'-6"	0'-5 1/2"

TABLE OF OFFSETS



