REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-1	

GENERAL NOTES

SPECIFICATIONS:

CONSTRUCTION:

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-96 (English Units)

DESIGN:

AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, Second Edition, 1998, with 1999, 2000, 2001 and 2002 Interim Specifications.

DESIGN VEHICULAR LIVE LOAD:

AASHTO - LRFD HL-93

DESIGN STRESSES:

Structural Concrete, Class A(AE):
f'c = 5,000 psi

Structural Concrete, Class HPC:
f'c = 4,000 psi

Structural Concrete, Class P (Prestressed):
f'ci = 5,000 psi f'c = 7,000 psi

Reinforcing Steel:
fy = 60,000 psi

Prestressing Steel:
fpu = 270,000 psi

CONCRETE:

Furnish structural concrete, class HPC in cast-in-place deck slab, sidewalk, closure diaphragms and approach slabs. Concrete in prestressed concrete beams & prestressed concrete piles shall be structural concrete, class P (prestressed). All other concrete shall be structural concrete class A(AE).

Chamfer all exposed edges ¾" by ¾" on superstructure and 2" by 2" on substructure unless otherwise noted.

REINFORCING STEEL:

Furnish reinforcing steel conforming to AASHTO M 31, Grade 60. All splices not shown to be lapped a minimum 30 bar diameters or in accordance with AASHTO, which ever is greater. Provide 2" concrete cover for reinforcing steel unless otherwise noted. Use epoxy coated reinforcing steel for reinforcement that is located or anchored in structural concrete class HPC unless otherwise noted. Dimensions related to fabrication of bent bars are out-to-out of bars unless otherwise noted.

PRESTRESSING STEEL & MISCELLANEOUS STEEL:

Furnish ½"Φ, 7-wire, low-relaxation strands conforming to AASHTO M203, Grade 270. Superstructure tie rods shall conform to AASHTO M 275, Type II.

FOUNDATION:

For geotechnical information, see Soil and Foundation Report. See "Foundation Layout" sheet for ultimate pile capacity, pile design capacity, and estimated pile tip elevations.

PILES:

See "Precast Prestressed Concrete Piles" sheet for notes.

INDEX OF DRAWINGS	
BRIDGE DRAWING NO.	DRAWING TITLE
1	General Notes & Index
2	Site Plan
3	Plan & Elevation
4	Foundation Layout
5	Precast Abutment 1 & 2 Layout
6	Precast Abutment Reinforcement - 1
7	Precast Abutment Reinforcement - 2
8	Precast Caps for Pier 1 & 2
9	Prestressed Beam Layout & Details
10	Prestressed Beam Details
11	Slab Reinforcement Plan, Typical Section & Details
12	Top of Deck Elevations
13	Bridge Rail Details - 1
14	Bridge Rail Details - 2
15	Reinforcing Steel Bar List - CIP Slab
16	Approach Slabs
17	Precast Prestressed Concrete Piles
18	Boring Profile

SCHEDULE OF BRIDGE QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
20801	Structure Excavation	Cubic Yard	30.0
55101E	Precast Prestressed Concrete Piles, In Place	Linear Foot	774.0
55107	Test Piles	Linear Foot	50.0
55201N	Structural Concrete, Class HPC	Cubic Yard	68.0
55202AC	Structural Concrete, Class A(AE), For Substructure (Precast Abutment)	Cubic Yard	42.0
55202AC	Structural Concrete, Class A(AE), For Substructure (Precast Pier Cap)	Cubic Yard	16.0
55207NP	Structural Concrete, Class HPC, For Approach Slabs, Type 2	Square Yard	68.0
55301BA	Precast Prestressed Concrete Structural Members, Slab, AASHTO Type SI-36.	Each	30.0
55402	Epoxy Coated Reinforcing Steel	Pound	13793
55601D	Timber Bridge Railing	Linear Foot	168

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BRIDGE TO HEADQUARTERS COMPLEX

GENERAL NOTES AND INDEX

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	No Scale	Gary S. Jakovich	1 of 18	March, 2004	

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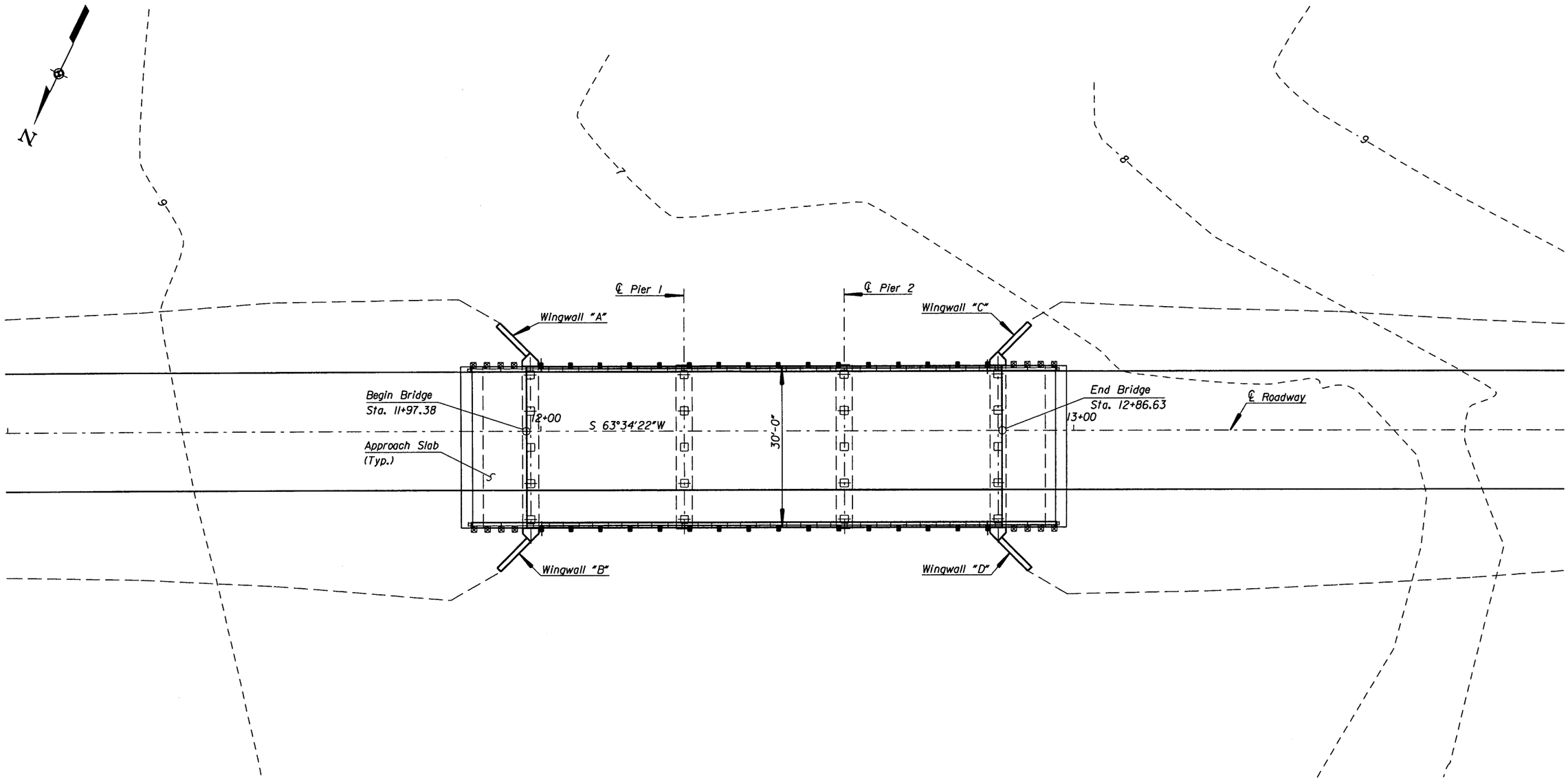
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEET
NE	MA	PKR 10(1)	H-2	



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SITE PLAN

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	1" = 10'-0"	Gary S. Jakovich	2 of 18	March, 2004	

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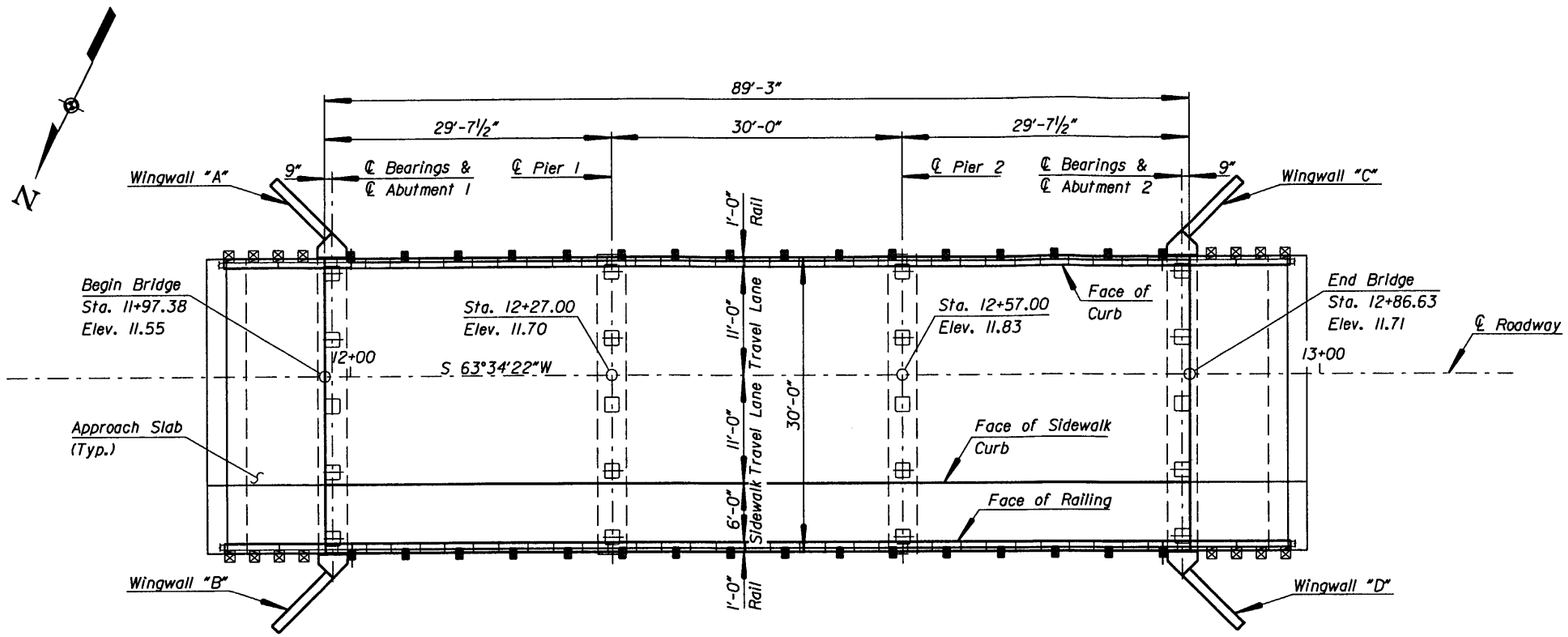
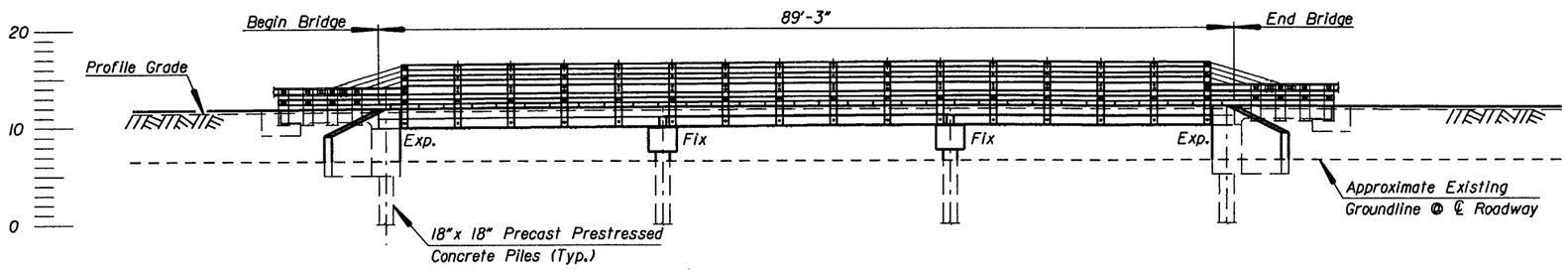
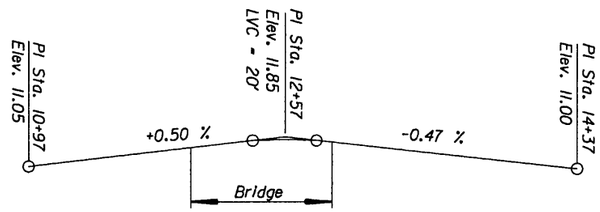
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-3	



PLAN
Scale: ⅛" = 1'-0"



ELEVATION
Scale: ⅛" = 1'-0"



PROFILE GRADE
No Scale

Vertical Profile - ℄ Roadway	Horizontal Curve Data - ℄ Roadway
PVI Sta. 12+57.00	POT Sta. 10+00.00
Elev. 11.85	POT Sta. 14+50.30
LVC = 20'	S 63°34'22"W
G1 = +0.50%	
G2 = -0.47%	

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PLAN AND ELEVATION

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	3 of 18	March, 2004	

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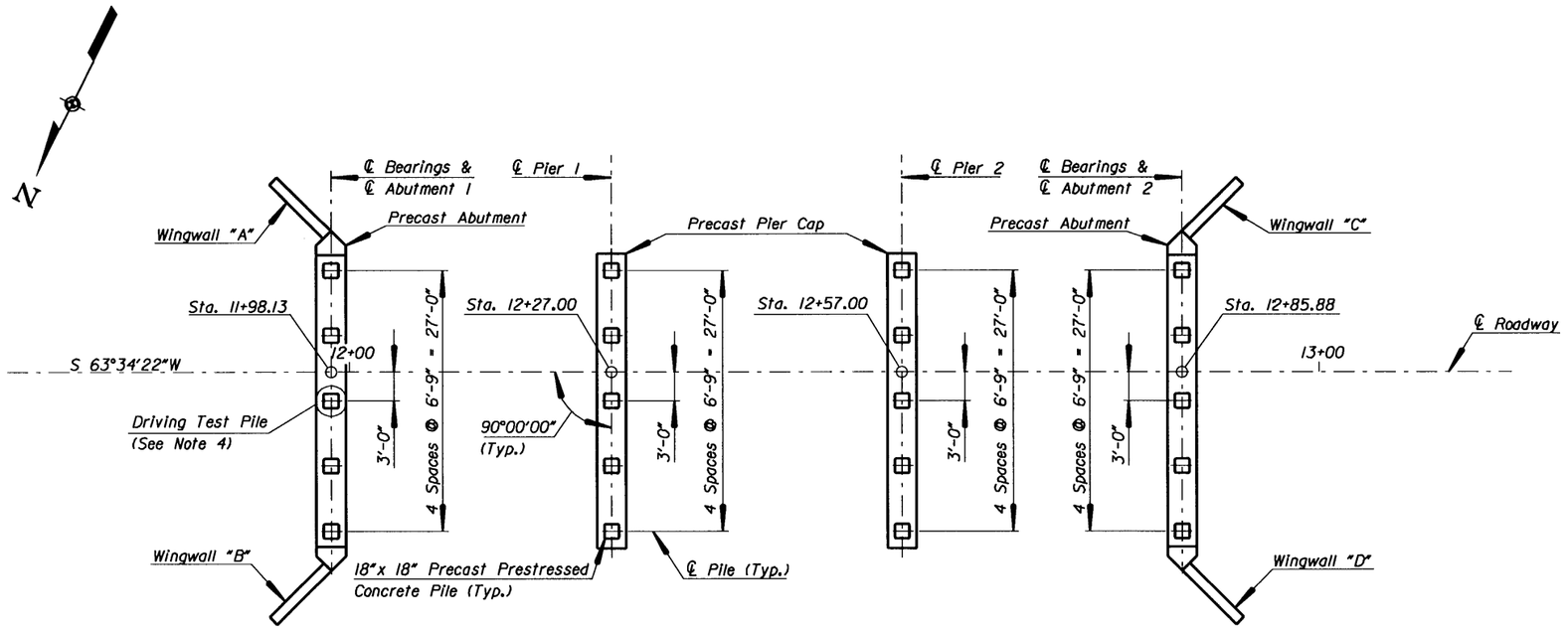
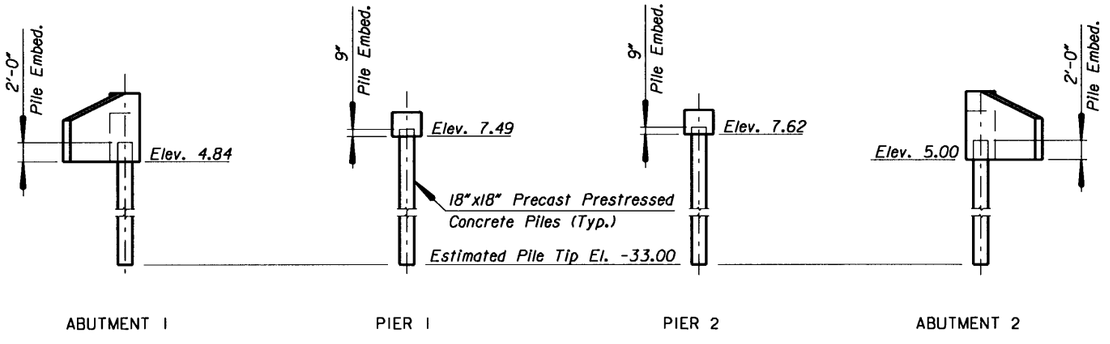
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-4	



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



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

Notes:
1. *Furnish 18"x 18" precast prestressed concrete piles.*
2. *See "Abutment 1 & 2 Layout" and "Precast Caps for Pier 1 & 2" sheets for substructure dimensions.*
3. *All substructure units are normal to ℄ Roadway.*
4. *Drive Test Pile in accordance with Subsection 551.05 of the FP-96.*

Drive Piles to ultimate pile capacity as shown below

Location	Ultimate capacity	Design Capacity (Service Load)
Abutment 1	400 kips/pile	80 kips/pile
Pier 1	400 kips/pile	140 kips/pile
Pier 2	400 kips/pile	140 kips/pile
Abutment 2	400 kips/pile	80 kips/pile

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FOUNDATION LAYOUT

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	4 of 18	March, 2004	

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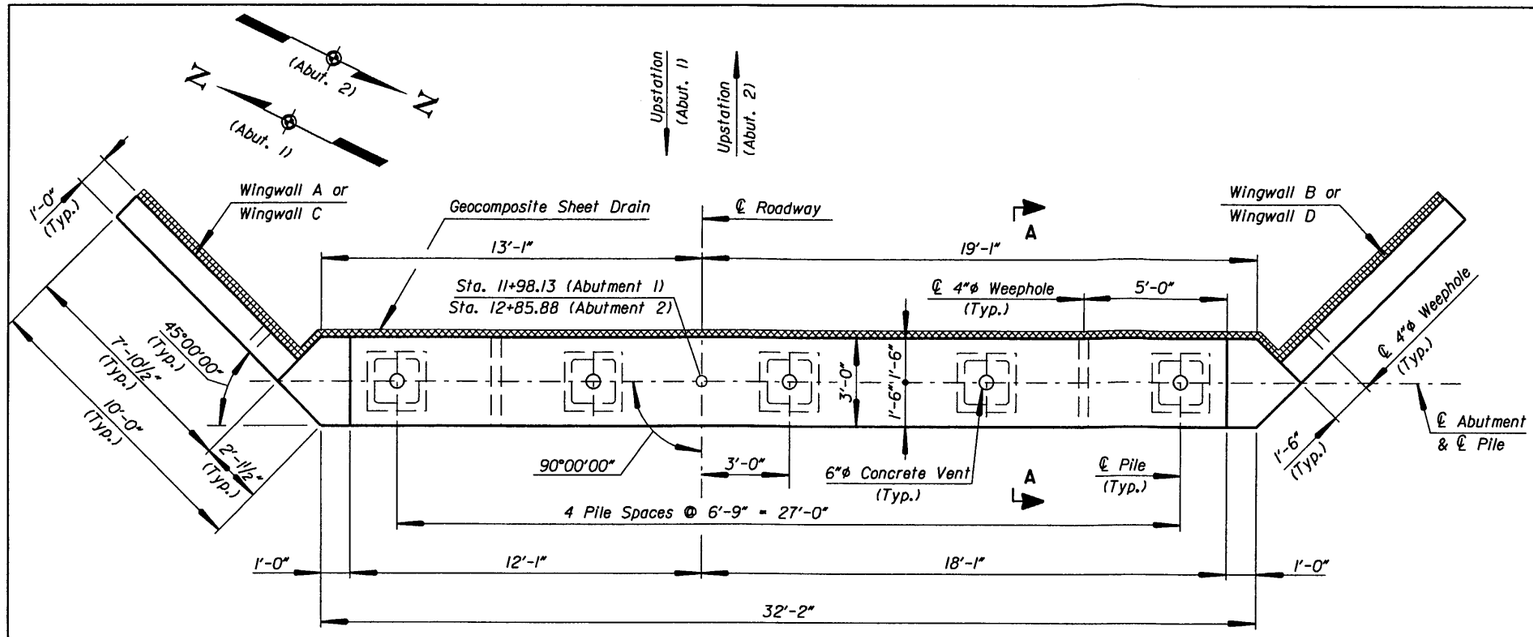
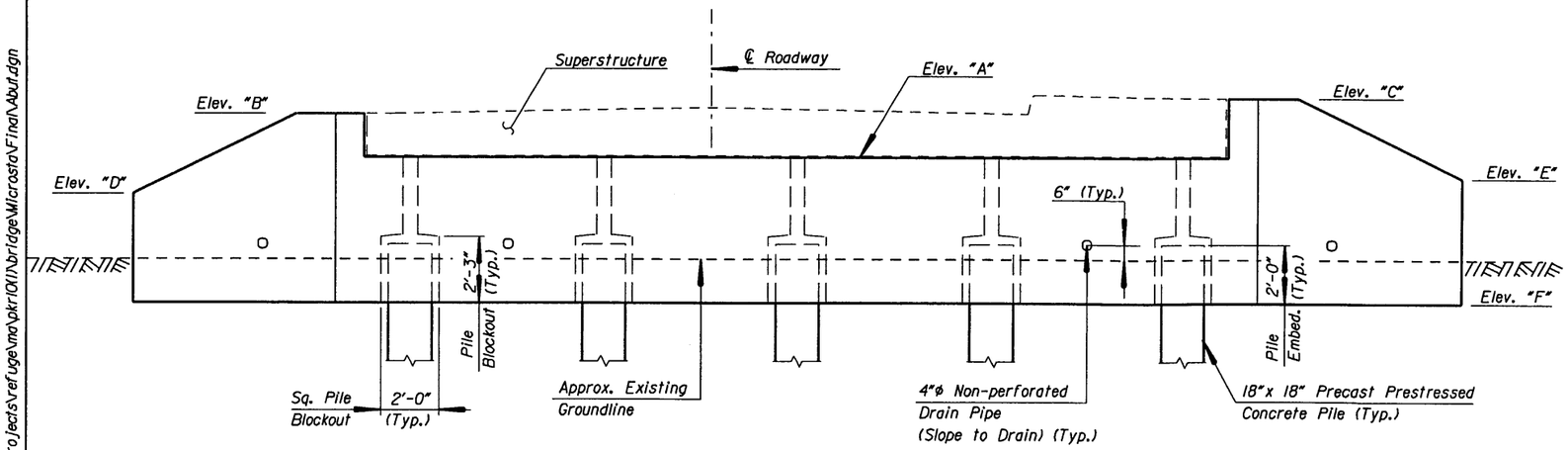
REGION	STATE	PROJECT	SHEET NO.	TOTA SHEET
NE	MA	PKR 10(1)	H-5	



PLAN
Scale: ⅜" = 1'-0"

Elevation Point	Abutment 1	Abutment 2
A	9.84	10.00
B	11.33	11.49
C	11.88	12.04
D	8.58	8.74
E	9.13	9.29
F	4.84	5.00

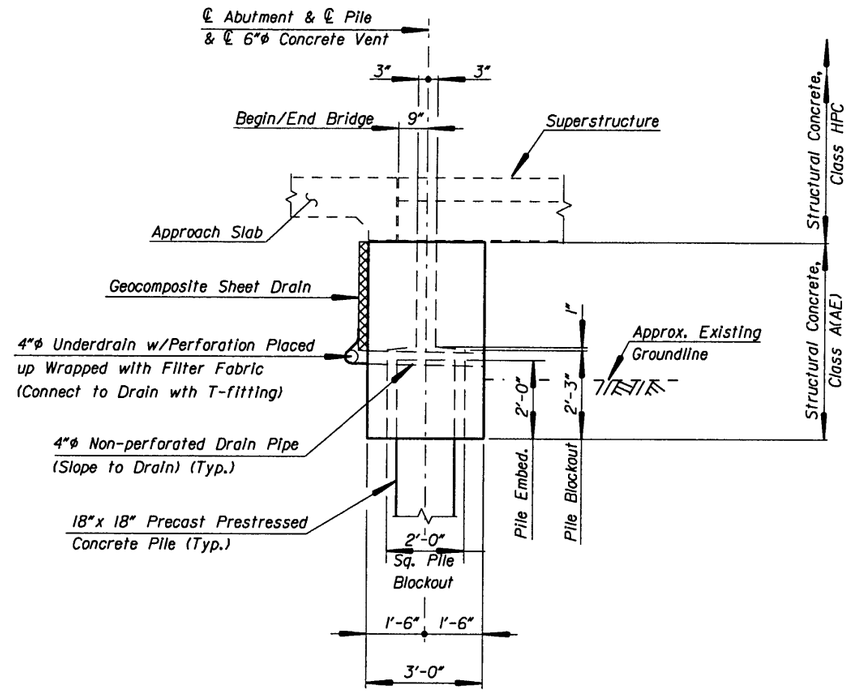


ELEVATION
Scale: ⅜" = 1'-0"

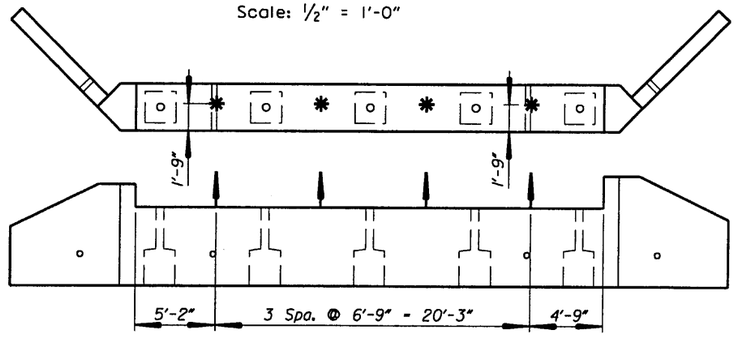
Note:

All piles are 18" x 18" precast prestressed concrete piles.
For design capacity, see "Foundation Layout" sheet.

NOTE:
ABUTMENT 2 SHOWN, ABUTMENT 1 SIMILAR BUT OPPOSITE HAND AND AS NOTED



SECTION A-A
Scale: ½" = 1'-0"



LIFTING LOCATION
No Scale

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PRECAST ABUTMENT 1 & 2 LAYOUT

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	5 of 18	March, 2004	

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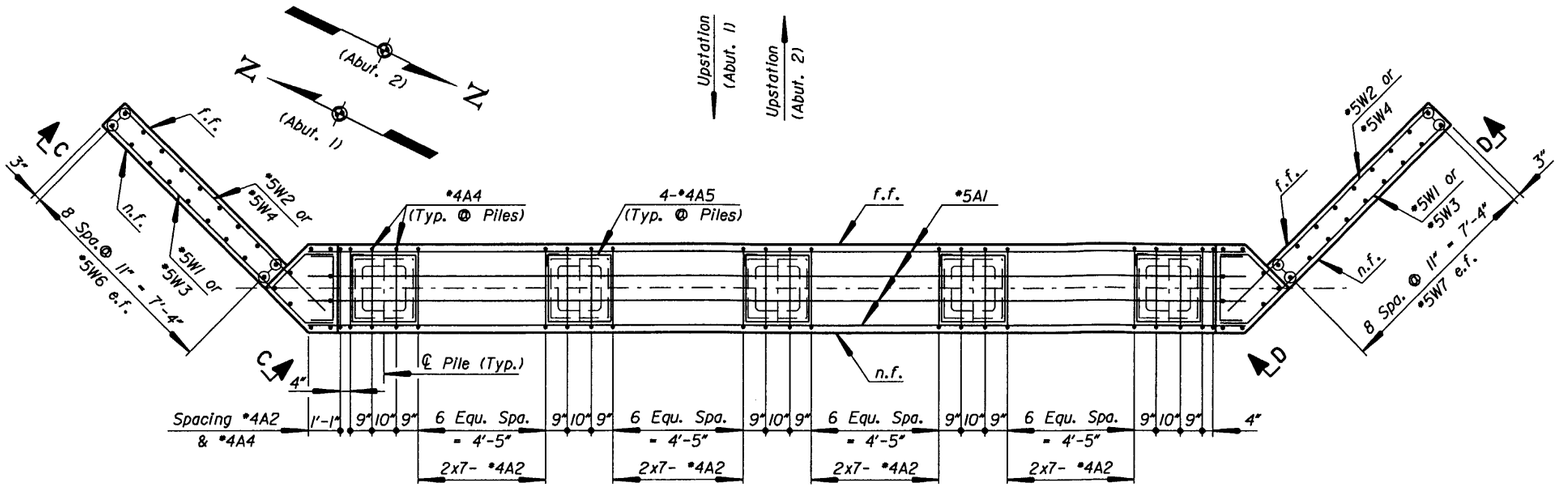
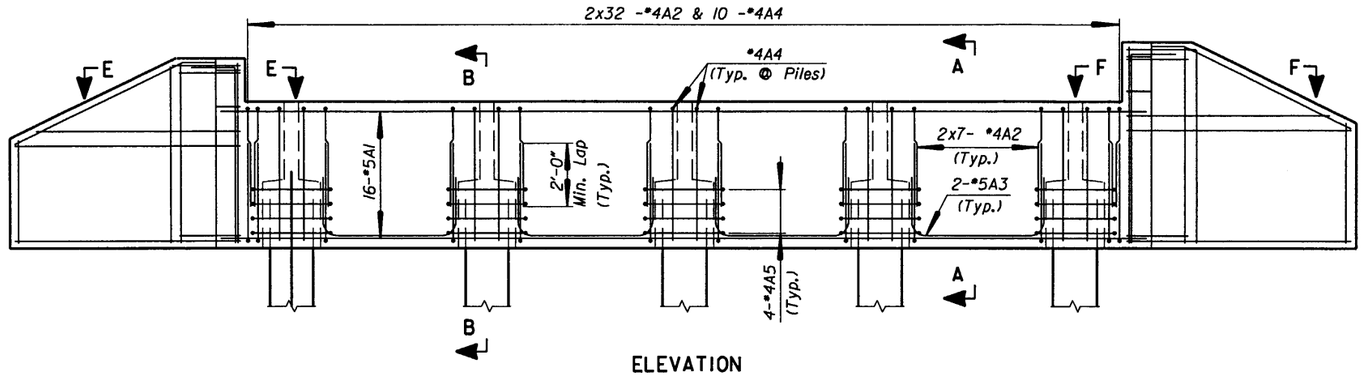
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEET
NE	MA	PKR 101(1)	H-6	

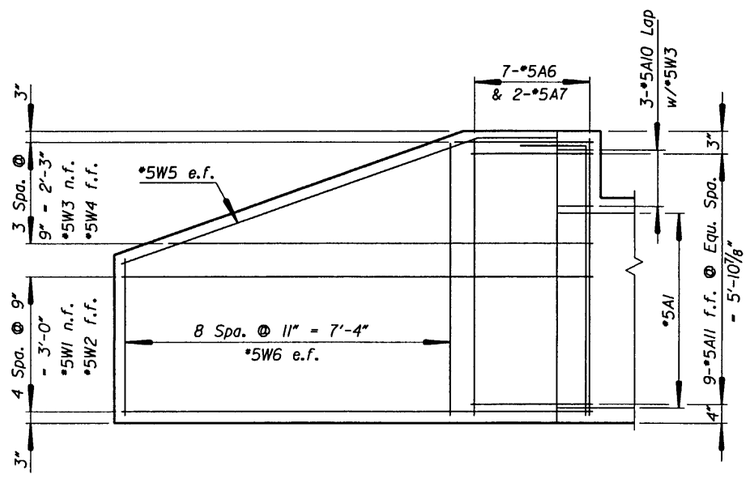


PLAN
Scale: 3/8" = 1'-0"

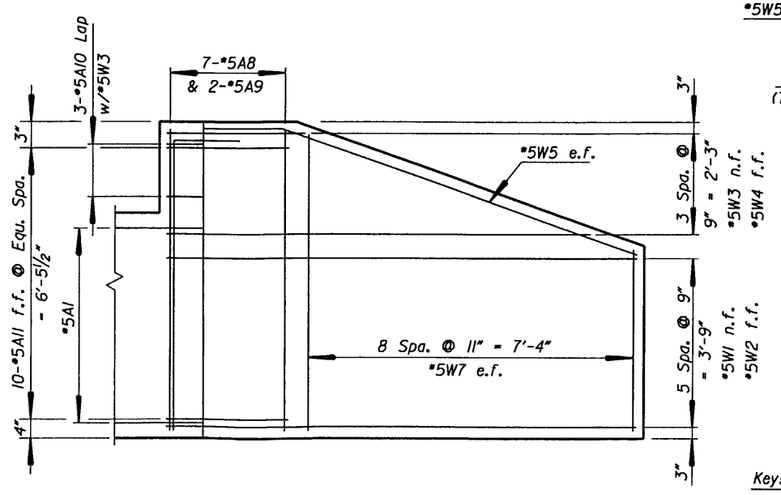


ELEVATION
Scale: 3/8" = 1'-0"

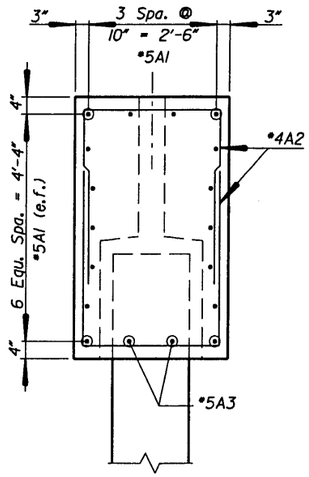
NOTE:
ABUTMENT 2 SHOWN, ABUTMENT 1 SIMILAR BUT OPPOSITE HAND AND AS NOTED



VIEW C-C
No Scale



VIEW D-D
No Scale



SECTION A-A
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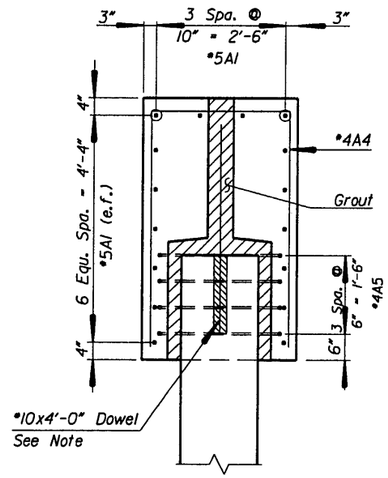

SECTION B-B
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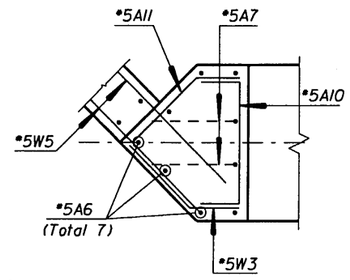
Note:
*Drill and epoxy *10x4'-0" dowels into the top of cut-off pile*



SECTION E-E
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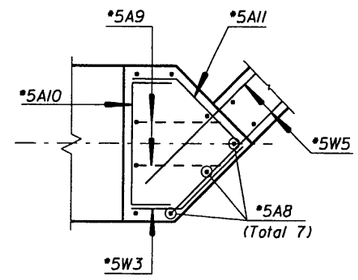

SECTION F-F
No Scale

Key:
n.f. = near face
f.f. = far face
e.f. = each face

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PRECAST ABUTMENT REINFORCEMENT-I

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	6 of 18	March, 2004	

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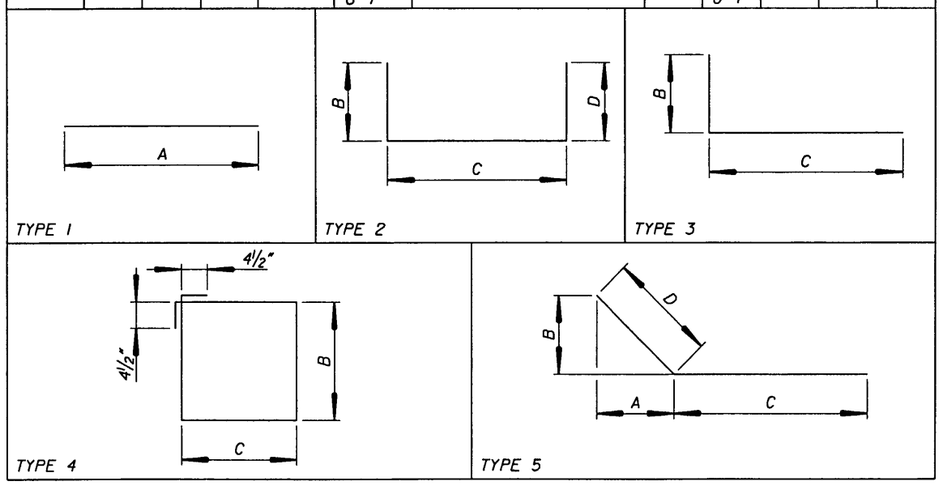
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-7	

REINFORCING STEEL PER ABUTMENT

REINFORCING STEEL SCHEDULE							DIMENSION TABLE				
MARK	NO.	SIZE	PIN ø	NO. EA.	LENGTH	LOCATION	TYPE	A	B	C	D
*5A1	16	#5	—		32'-2"	Top & Bot. Long.	1	32'-2"			
*4A2	64	#4	2"		9'-0"	Stirrups Between Piles	2		3'-3"	2'-8"	3'-3"
*5A3	8	#5	3¾"		9'-2"	Bot. Long. Between Piles	2		2'-6"	4'-5"	2'-6"
*4A4	10	#4	2"		11'-6"	Stirrups @ Piles	2		4'-6"	2'-8"	4'-6"
*4A5	20	#4	2"		10'-0"	Stirrups @ Piles	4		2'-5"	2'-5"	
*5A6	7	#5	—		6'-2"	Abutment Left End	1	6'-2"			
*5A7	2	#5	2½"		7'-6"	Abutment Left End	3		1'-6"	6'-2"	
*5A8	7	#5	—		6'-8"	Abutment Right End	1	6'-8"			
*5A9	2	#5	2½"		8'-0"	Abutment Right End	3		1'-6"	6'-8"	
*5A10	6	#5	2½"		4'-0"	Abutment End	2		10"	2'-6"	10"
*5A11	19	#5	3¾"		2'-7"	Abutment End	5	7"	7"	1'-9"	10"
*5W1	11	#5	3¾"		10'-6"	Wingwalls	5	7"	7"	9'-8"	10"
*5W2	11	#5	—		9'-9"	Wingwalls	1	9'-9"			
*5W3	8	#5	3¾"	2	3'-0"	Wingwalls	5	7"	7"	2'-2"	10"
					To					To	
					9'-5"					8'-7"	
*5W4	8	#5	—	2	2'-2"	Wingwalls	1	2'-2"			
					To			To			
					8'-7"			8'-7"			
*5W5	4	#5	3¾"		10'-0"	Wingwalls	5	1'-10"	8"	8'-0"	2'-0"
*5W6	18	#5	—	2	3'-6"	Wingwall A & C	1	3'-6"			
					To			To			
					6'-0"			6'-0"			
*5W7	18	#5	—	2	4'-0"	Wingwall B & D	1	4'-0"			
					To			To			
					6'-7"			6'-7"			



Dimensions in bending diagrams are out-to-out of bars.

PRECAST ABUTMENT NOTES:

CONCRETE:
Concrete in the precast abutments shall be structural concrete, class A(AE) with a 28 day compressive strength of 5000 psi.

REINFORCING STEEL:
All reinforcing steel shall be AASHTO M31, Grade 60.

GROUT:
All grouts for precast connections shall consist of non-shrink grout in accordance with ASTM C-1107 (see SCR).

CHAMFERS:
All exterior corners shall receive a 2" chamfer unless otherwise noted.

ERECTION:
It is the Contractor's responsibility to support the abutments, achieve a complete and solid connection between pile & abutment, and achieve correct elevations. Drill & epoxy #10x4'-0" dowel into the top of cut-off pile. Fill the voids around the pile with a non-shrink grout. Moist cure the connection in the forms for a minimum time period of seven days.

PAYMENT:
All cost associated with the fabrication, erection, furnishing and construction of the abutments including structural concrete, class A(AE), reinforcing steel will be paid at the contract unit price for "Structural Concrete, Class A(AE), For Substructure (Precast Abutment)".
Payment will include, but not be limited to non-shrink grout used for the pile to abutment connection.

HANDLING:
Maintain abutments in an upright position.

ESTIMATED QUANTITIES PER ABUTMENT	
Item	Quantity
Structural Concrete, Class A(AE)	21 Cu. Yd.
Reinforcing Steel	1970 lbs.

Estimated Abutment Weight - 84.6 Kips

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PRECAST ABUTMENT REINFORCEMENT-2

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	7 of 18	March, 2004	

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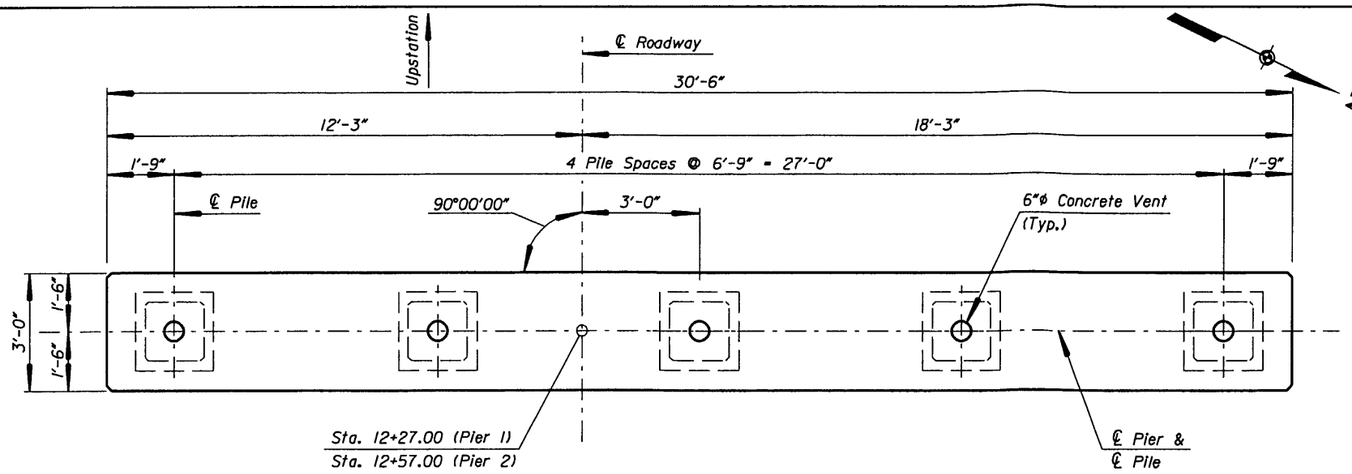
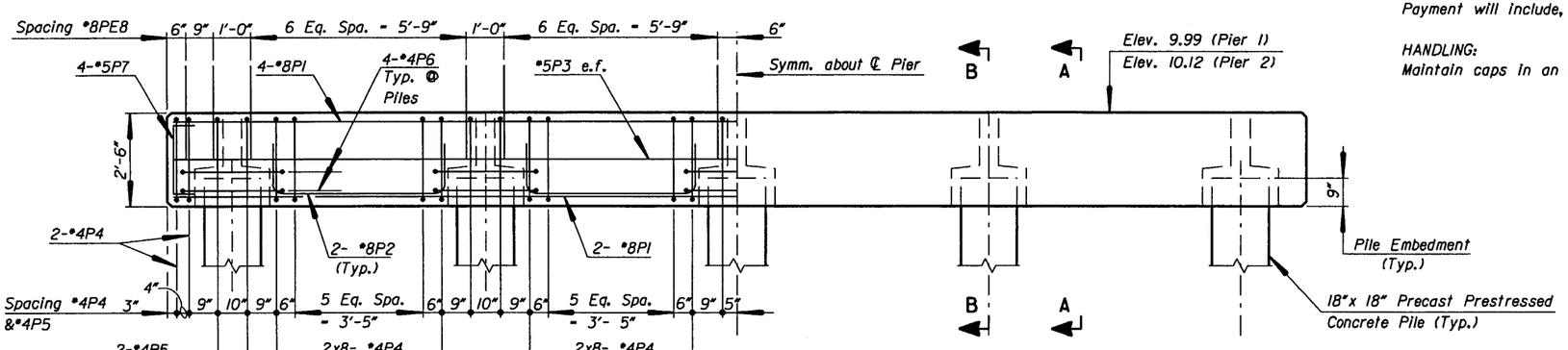
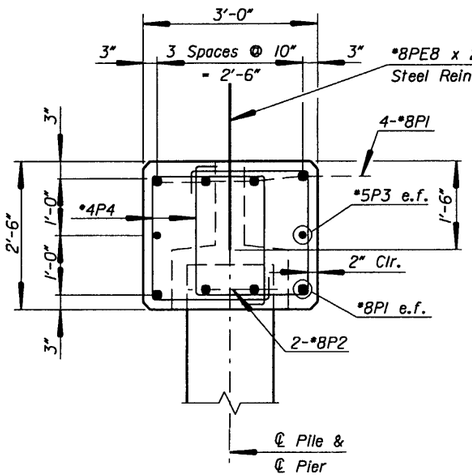
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-8	



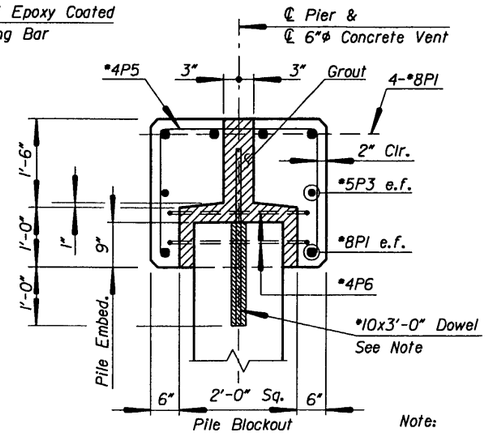
PLAN
Scale: ½" = 1'-0"



ELEVATION
Scale: ½" = 1'-0"

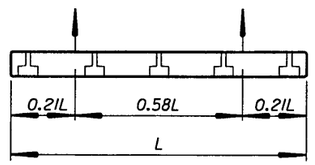


SECTION A-A
Scale: ¾" = 1'-0"



SECTION B-B
Scale: ¾" = 1'-0"

Note:
*Drill and epoxy *10x3'-0" dowels into the top of cut-off pile.*



TWO POINT LIFTING DETAIL

ESTIMATED QUANTITIES PER PIER	
Item	*Quantity*
Structural Concrete, Class A(AE)	8 Cu. Yd.
Reinforcing Steel	1232 lbs.
Epoxy Coated Reinforcing Steel	242 lbs.

Estimated Cap Weight = 31.1 Kips

Key:
e.f. - each face

PRECAST CAP NOTES:

CONCRETE:
Concrete in the precast caps shall be structural concrete, class A(AE) with a 28 day compressive strength of 5000 psi.

REINFORCING STEEL:
All reinforcing steel shall be AASHTO M31, Grade 60.

GROUT:
All grouts for precast connections shall consist of non-shrink grout in accordance with ASTM C-1107 (see SCH

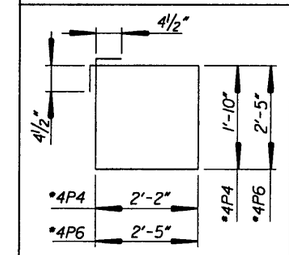
CHAMFERS:
All exterior corners shall receive a 2" chamfer unless otherwise noted.

ERECTION:
*It is the Contractor's responsibility to support the caps, achieve a complete and solid connection between pile & cap, and achieve correct elevations. Drill & epoxy *10x3'-0" dowel into the top of cut-off pile. Fill the voids around the pile with a non-shrink grout. Moist cure the connection in the forms for a minimum time period of seven days.*

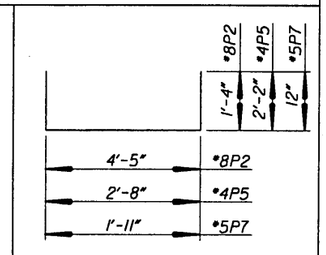
PAYMENT:
All cost associated with the fabrication, erection, furnishing and construction of the caps including structural concrete, class A(AE), reinforcing steel, epoxy coated reinforcing steel will be paid at the contract unit price for "Structural Concrete, Class A(AE), For Substructure (Precast Pier Cap)". Payment will include, but not be limited to non-shrink grout used for the pile to cap connection.

HANDLING:
Maintain caps in an upright position.

REINFORCING STEEL PER PIER CAP



**4P4, *4P6*



**8P2, *4P5, *5P7*

MARK	NO.	SIZE	PIN ϕ	LENGTH	LOCATION
*8P1	6	*8	—	30'-1"	Top & Bot. Long.
*8P2	8	*8	6"	6'-8"	Bot. Between Piles
*5P3	2	*5	—	30'-1"	Sides, Long.
*4P4	72	*4	2"	8'-4"	Stirrups
*4P5	10	*4	2"	6'-10"	Stirrups @ Piles
*4P6	10	*4	2"	10'-0"	Sirrups @ Piles
*5P7	8	*5	2½"	3'-9"	Ends
*8PE8	32	*8	—	2'-10"	Centerline of Cap

Dimensions in bending diagram are out-to-out of bars

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PRECAST CAPS FOR PIER 1 & 2

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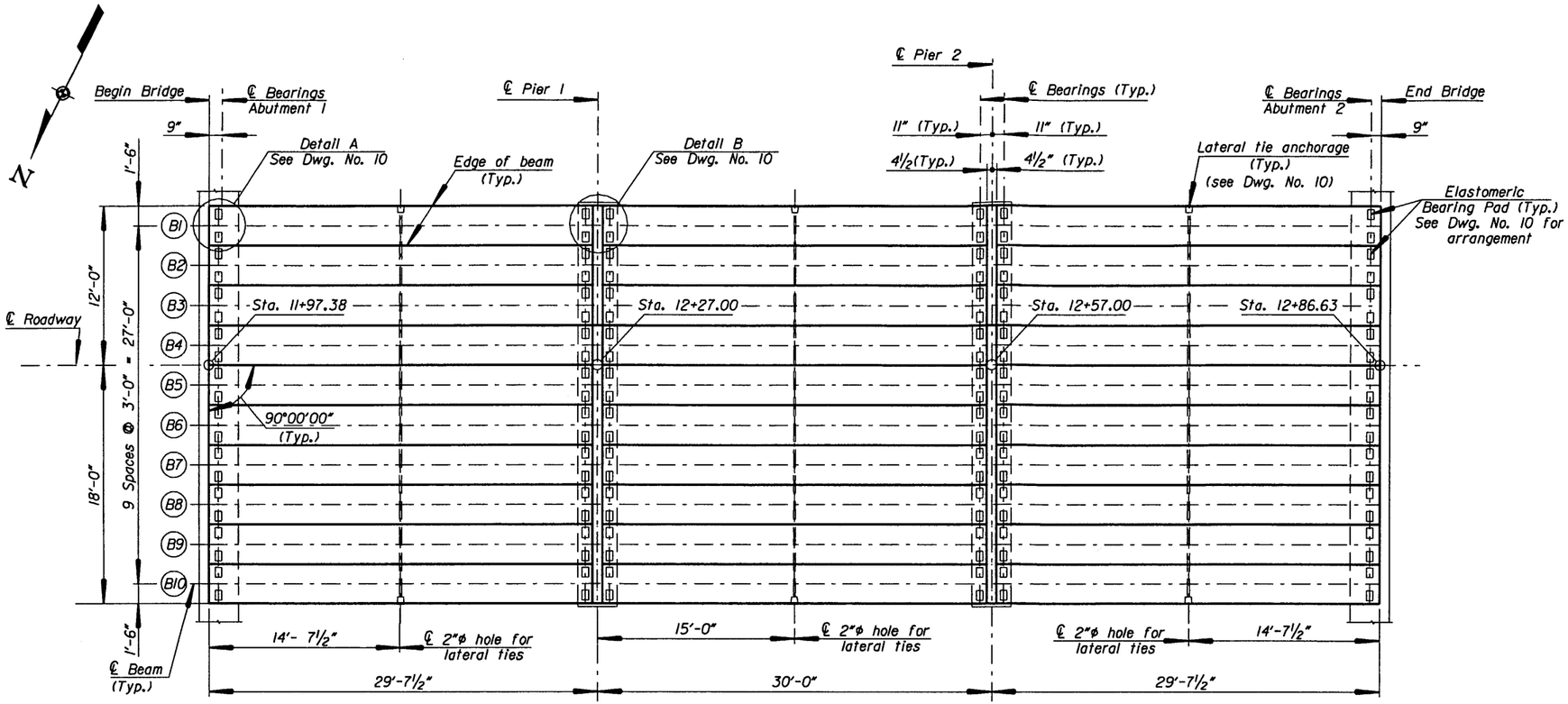
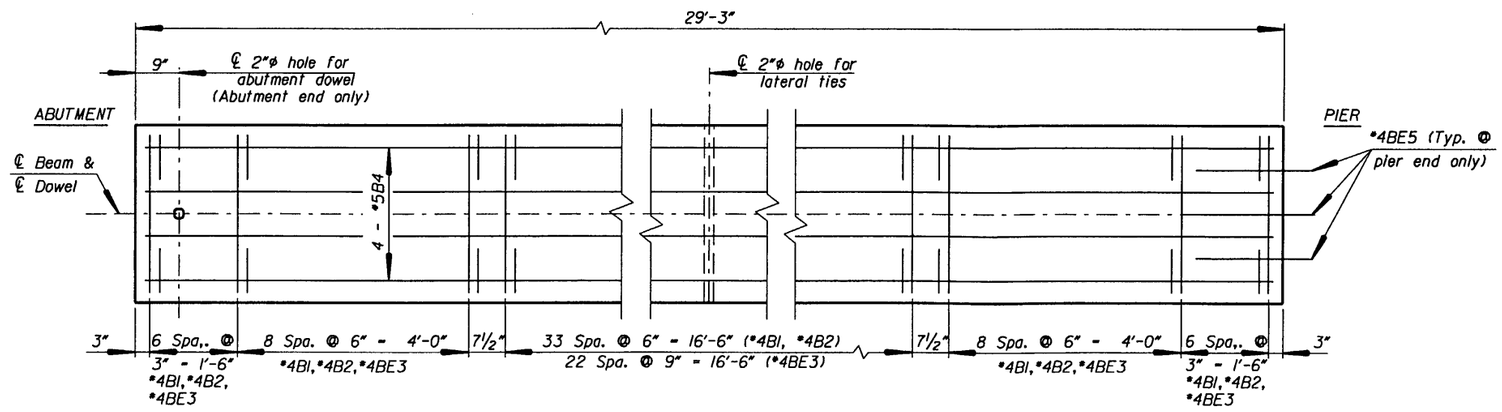
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-9	



PRESTRESSED BEAM LAYOUT
Scale: 3/16" = 1'-0"



PLAN OF BEAM
Scale: ¾" = 1'-0"

PRECAST PRESTRESSED BEAM NOTES:

1. Prestressed concrete in the precast prestressed concrete beams shall be structural concrete, class P (prestressed) having a minimum compressive strength of 7000 psi at 28 days. The minimum compressive strength at transfer of the prestressing force shall be 5000 psi.

2. Prestressing reinforcement shall be seven wire low relaxation strands, ½"ø, Grade 270, conforming to the general requirements of AASHTO M203. Apply 31 kips initial prestress force per strand.

3. Deformed reinforcing bars shall conform to AASHTO M31, Grade 60. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted.

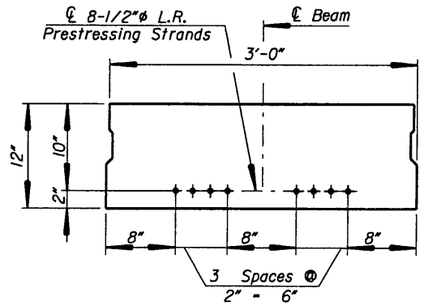
4. Cost of joint waterproofing and elastomeric bearing pads will be included in the price bid for "Precast Prestressed Concrete Structural Members, Slab, AASHTO Type SI-36".

5. All mortaring of shear keys shall be done in one continuous operation without interruption.

6. Cast-in-place deck slab and sidewalk shall be cast only after the strength of the mortar in shear keys exceeds 4000 psi.

7. The mortar in the shear keys shall be high-strength mortar.

8. Reinforcing bars #4BE3 & #4BE5 shall be epoxy coated. Cost of reinforcing steel to be included in the price bid for "Precast Prestressed Concrete Structural Memebers, Slab, AASHTO Type SI-36".



STRAND LAYOUT
No Scale

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PRESTRESSED BEAM LAYOUT & DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	9 of 18	March, 2004	

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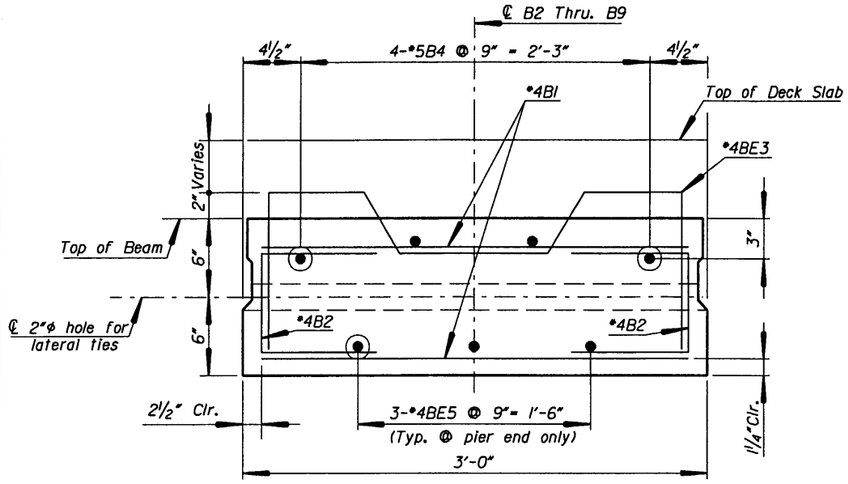
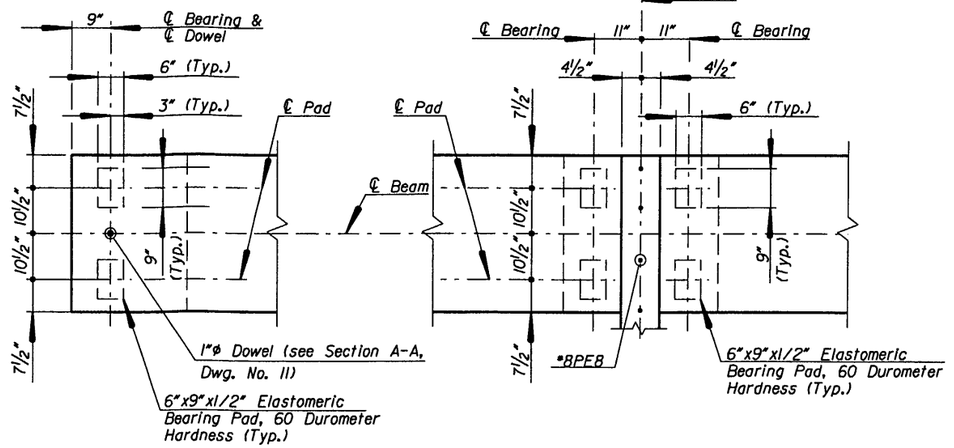
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-10	



TYPICAL INTERIOR BEAM

Note:
For location of prestreeing strands, see strand layout on Dwg. No. 9.

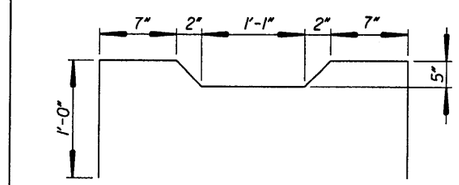


ABUTMENT (DETAIL A)

PIER (DETAIL B)

TYPICAL BEARING PAD ARRANGEMENT

REINFORCING STEEL SCHEDULE (PER BEAM)



MARK	NO.	SIZE	PIN ø	LENGTH	LOCATION
*4B1	128	#4	—	2'-7"	Top & Bot. Transverse
*4B2	128	#4	2"	2'-0½"	Vertical Stirrups
*4BE3	53	#4	2"	4'-10½"	Shear Interface
*5B4	4	#5	2½"	29'-6"	Top Longitudinal
*4BE5	3*	#4	3"	2'-7"	@ Pier End

Dimensions in bending diagram are out-to-out of bars

* - 3 each for span 1 & span 3 beams
- 6 each for span 2 beams

TYPICAL EXTERIOR BEAM

Notes:
1. For reinforcing steel, see interior beam section.
2. For location of prestressing strands, see strand layout on Dwg. No. 9.
3. Contractor shall protect 1"ø open hole in the exterior precast slab units during cast-in-place deck slab placement for future installation of bridge railing.

SHEAR KEY DETAIL

Note:
Omit shear key on exterior face of exterior beam

LATERAL TIE ANCHORAGE DETAIL

Note:
Blockouts for lateral tie anchorages are on exterior beam side of exterior beam only.

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PRESTRESSED BEAM DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	No Scale	Gary S. Jakovich	10 of 18	March, 2004	

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REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
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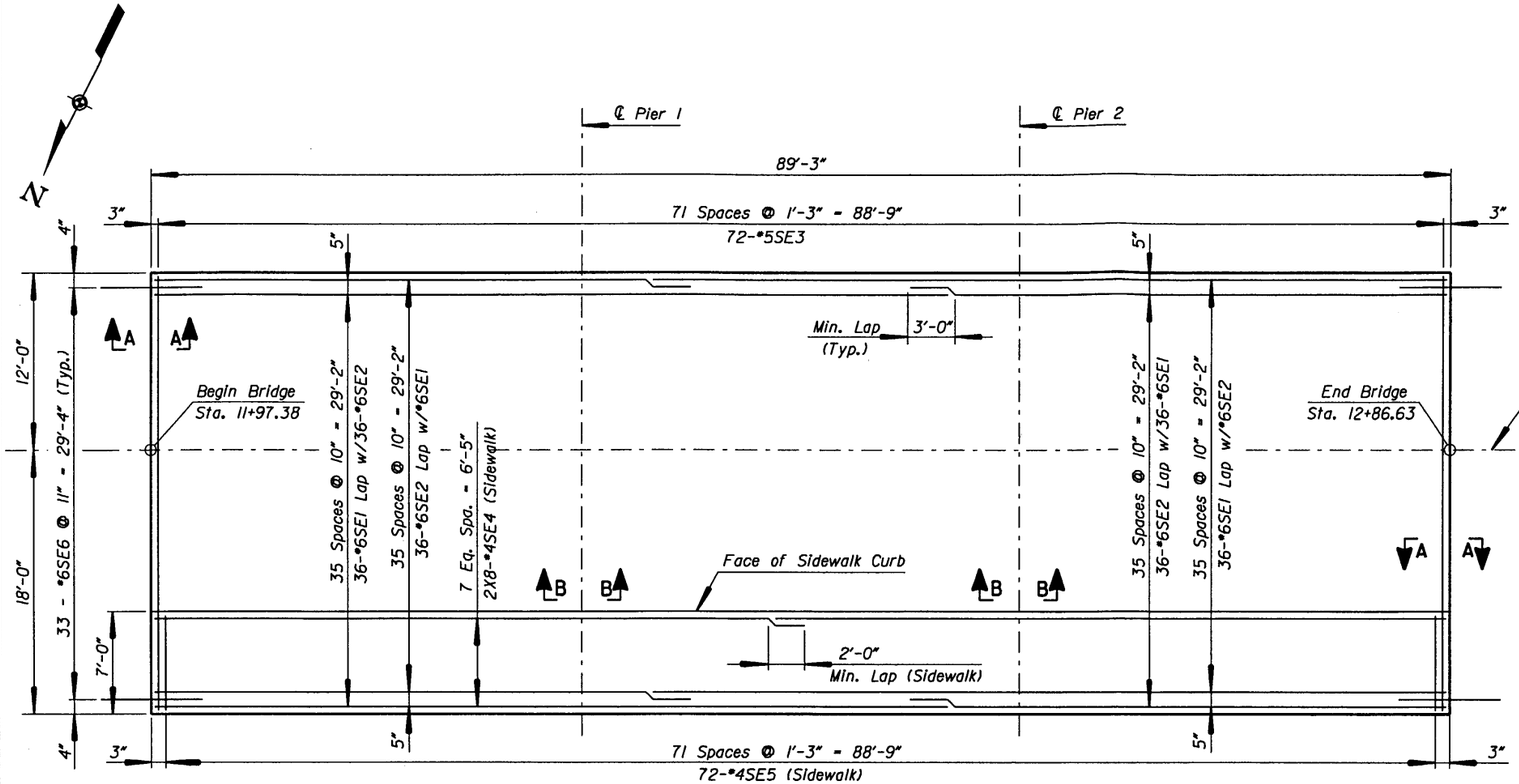
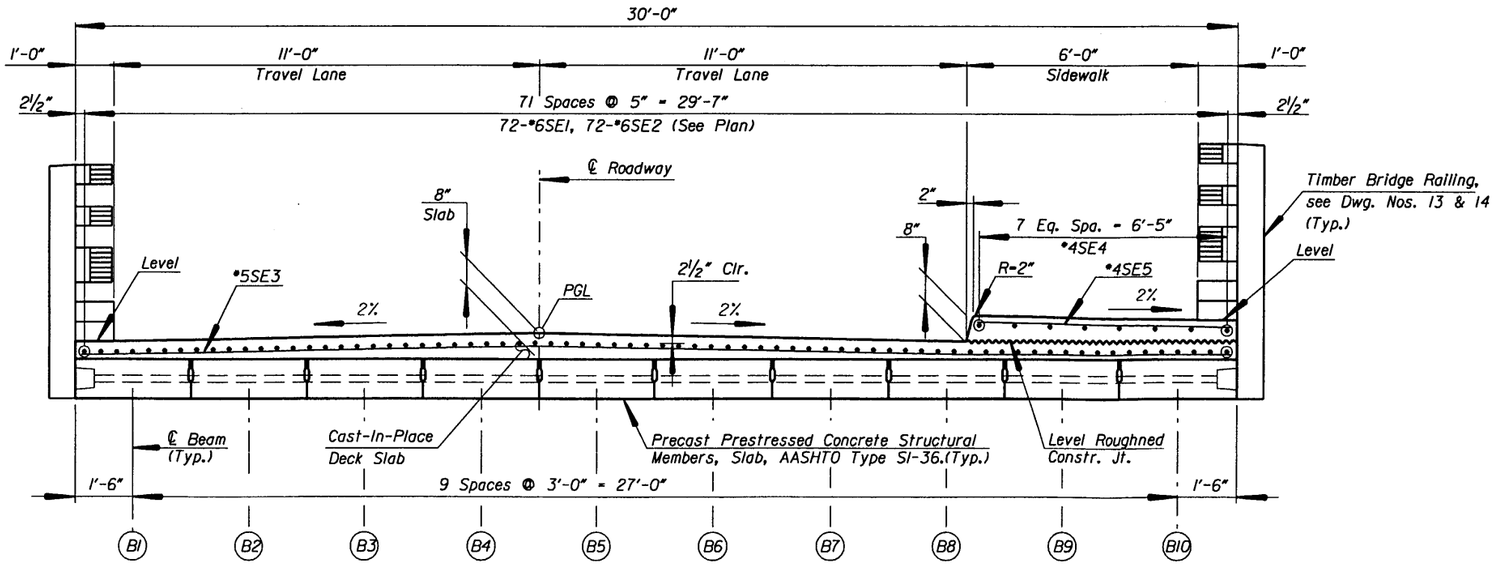
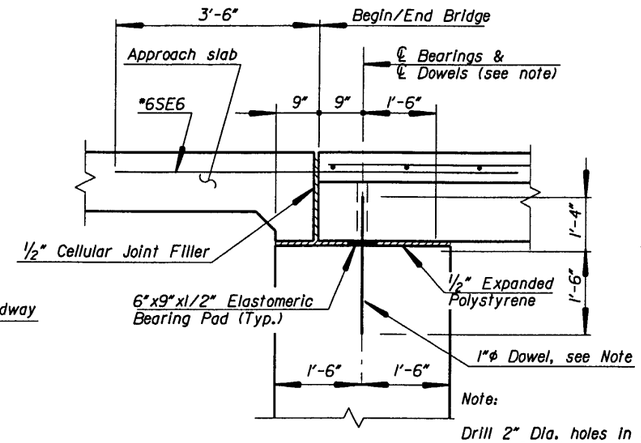


SLAB REINFORCEMENT PLAN
Scale: 3/16" = 1'-0"



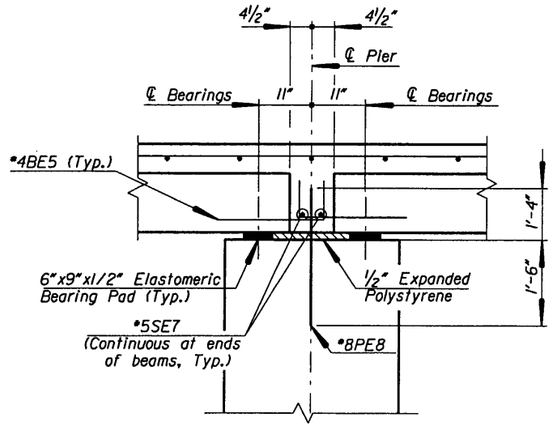
TYPICAL TRANSVERSE SECTION
Scale: 1/2" = 1'-0"



SECTION A-A
Scale: 3/4" = 1'-0"

Note:

Drill 2" Dia. holes in substructure & beams for 1" dia. dowels after beam shear keys have been grouted and tie rods are tensioned. Place dowel in place. Fill holes in substructure with approved non-shrink epoxy grout. Fill holes in beam with rubberized joint sealing material. All cost associated including labor and material will be paid at the contract unit price for "Precast Prestressed Concrete Structural Memebers, Slab, AASHTO Type SI-36".



SECTION B-B
Scale: 3/4" = 1'-0"

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SLAB REINFORCEMENT PLAN, TYPICAL SECTION & DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	11 of 18	March, 2004	

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REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
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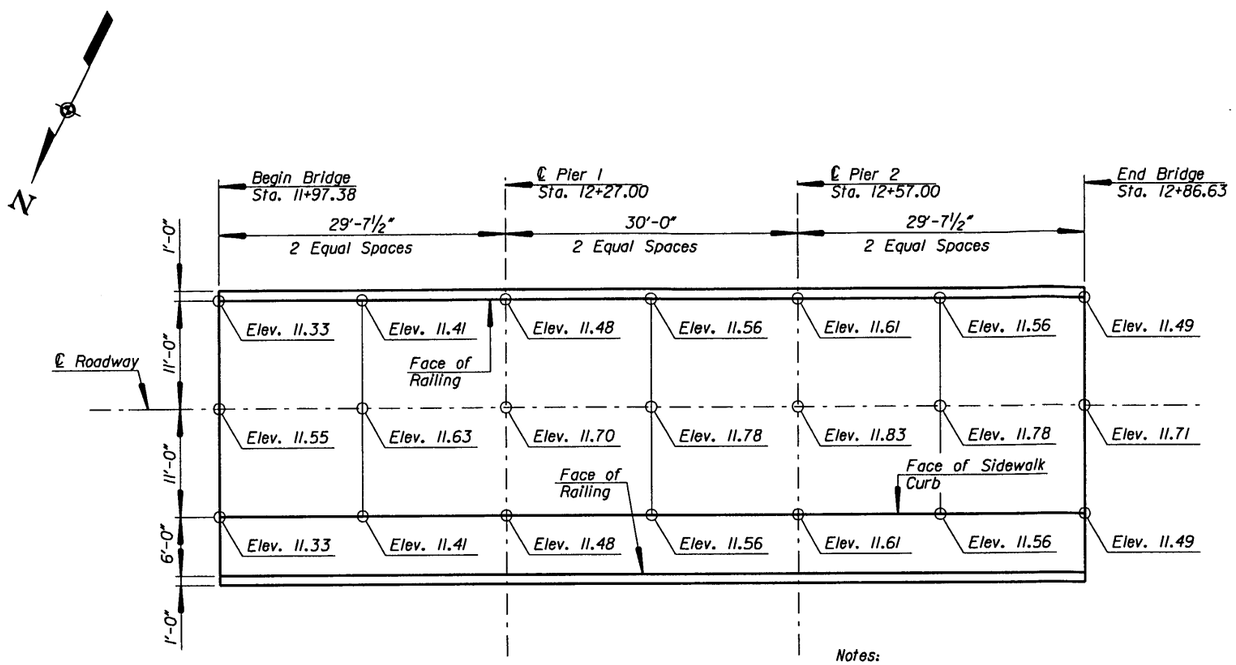

DECK ELEVATIONS

Notes:

Slab elevations shown are on top of finished roadway.

Stations shown are at ℄ Roadway.

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TOP OF DECK ELEVATIONS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS

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Arvind Patel	Arvind Patel	G. Jakovich	No Scale	Gary S. Jakovich	12 of 18	March, 2004	

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REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
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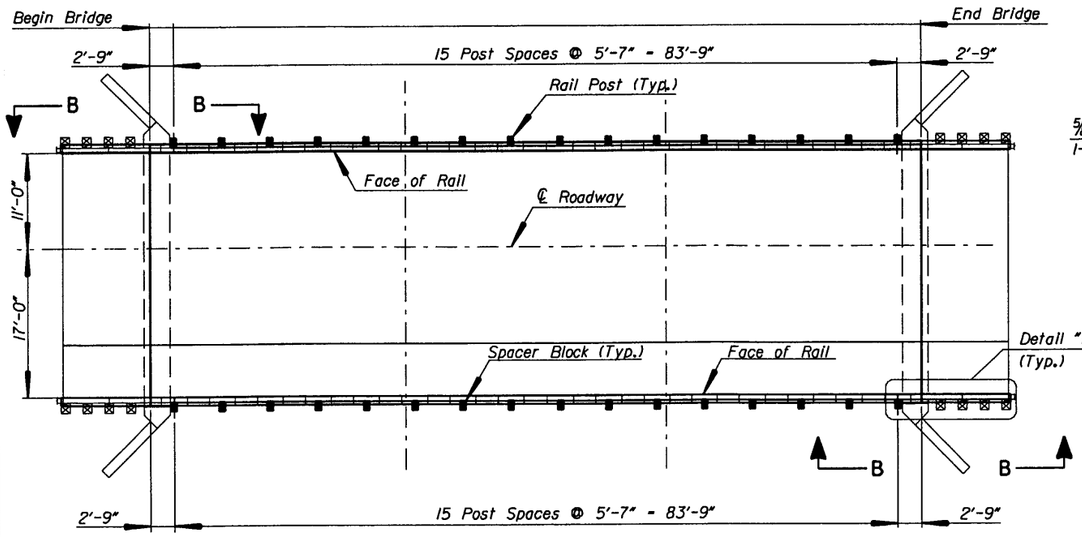
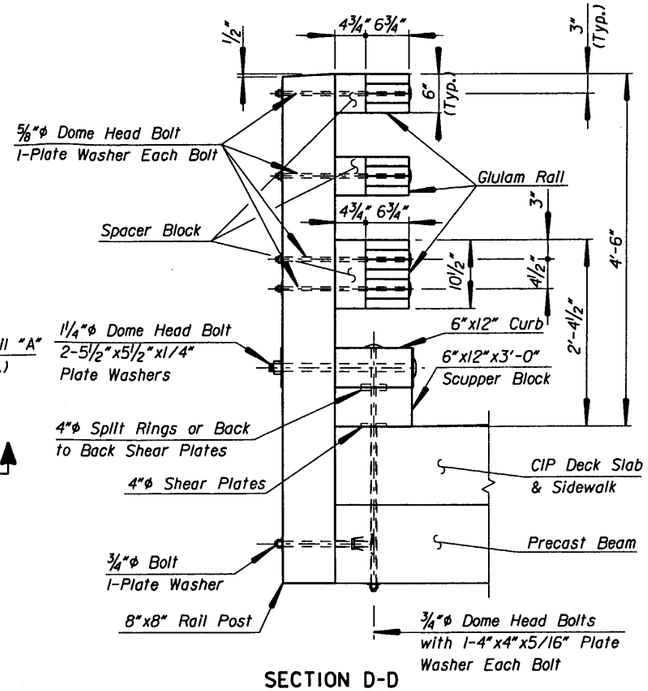
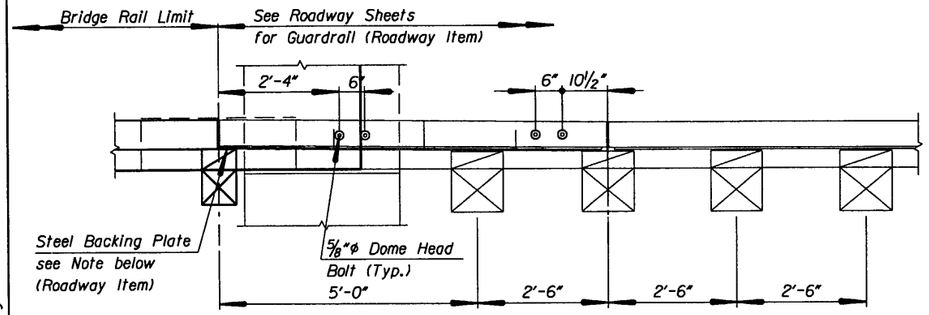


LAYOUT
Scale: 1/8" = 1'-0"

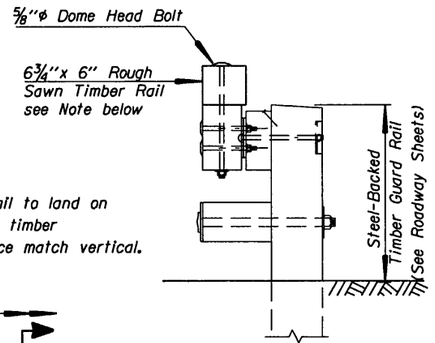


SECTION D-D
Scale: 1" = 1'-0"



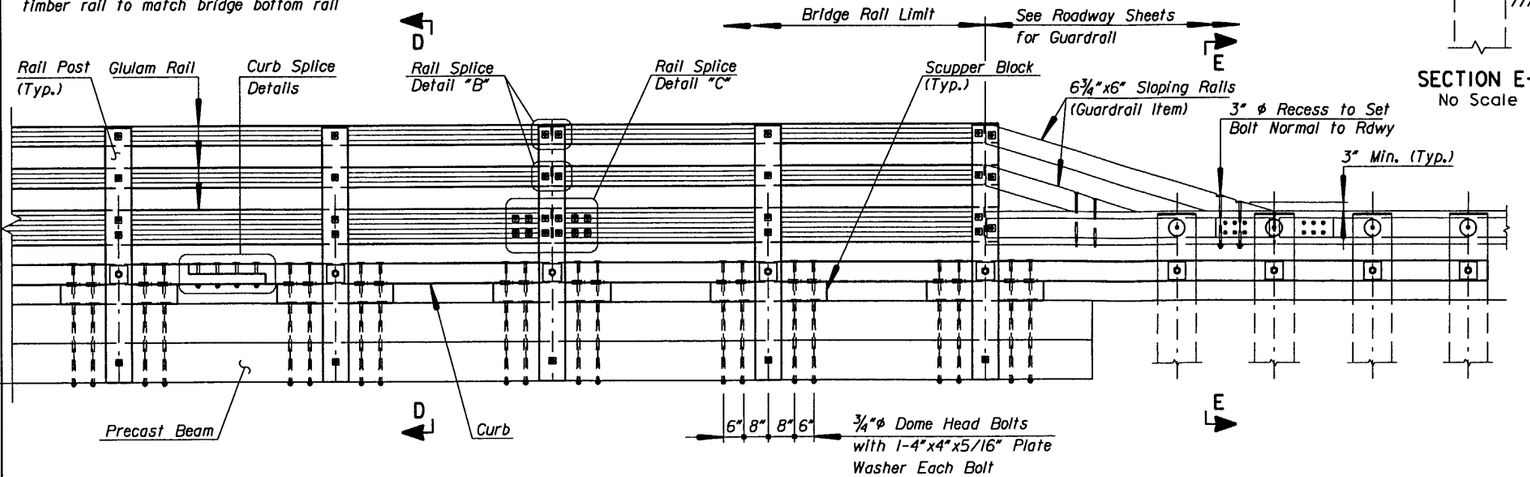
DETAIL "A"
No Scale

Note:
Provide steel backing plate between spacer block and sawn timber rail to match bridge bottom rail



Note:
Field adjust top sloping rail to land on timber rail of steel-backed timber guard rail with traffic face match vertical.

SECTION E-E
No Scale



VIEW B-B (PART ELEVATION)
Scale: 1/2" = 1'-0"

NOTES:

1. Dimensions given for glued-laminated (glulam) timber rails are actual dimensions. The depth of the bottom glulam timber rail may be increased to a maximum of 10¾" to allow for other standard glulam sizes. In such cases, detail dimensions shall be modified accordingly.
2. Dimensions for wood posts, curbs and scuppers are given as nominal dimensions. Actual dimensions may be a maximum of 1/2" less than the stated nominal dimensions depending on material surfacing. Dimensions for spacer block depth are actual dimensions.
3. Locate curb and rail splices so that curb and rail members are continuous over not less than two posts. Locate curb splices a minimum of 1.5 post spacings away from rail splices. It is recommended that glulam rails be continuous over the length of the bridge.
4. Sawn lumber and glulam shall comply with the requirements of AASHTO M168 and shall be pressure treated with wood preservative in accordance with AASHTO M133 using a ACQ, at a minimum net retention of 0.60 pounds per cubic foot.
5. Bridge rail shall be horizontally laminated glulam, Visually Graded Western Species Combination No. 2, or Visually Graded Southern Pine Combination No. 48
6. Posts, curbs, scuppers, and spacer blocks shall be sawn lumber, Visually Graded No.1 Southern Pine or Visually Graded No.1 Douglas Fir-Larch.
7. Steel plates and shapes shall comply with the requirements of ASTM A36.
8. Bolts shall comply with ASTM A307 requirements, Grade 2. Bolts on traffic face of rail and on the top of curb shall be dome head.
9. Split rings shall be manufactured from SAE 1010 hot rolled carbon steel. Shear plates shall be malleable iron manufactured according to ASTM A47, Grade 32510.
10. All steel components and fasteners shall be galvanized in accordance with AASHTO M232 (ASTM A153) & ASTM A653 (Coating Designation G-185 for Hot-Dip Connector).
11. To the extent possible, all wood shall be cut, drilled, and completely fabricated prior to pressure treatment with preservatives. When field fabrication of wood is required or if wood is damaged, all cuts, bore holes, and damage shall be immediately field treated with wood preservative in accordance with AASHTO M133.
12. Top of rail posts and the top of the rail splice plate kerf shall be sealed with roofing cement or otherwise protected from direct exposure to weather.
13. For Curb Splice Detail, Rail Splice Detail "B", Rail Spice Detail "C" and for additional details, see "BRIDGE RAIL DETAILS-2" sheet.

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BRIDGE RAIL DETAILS - 1

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								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	13 of 18	March, 2004	

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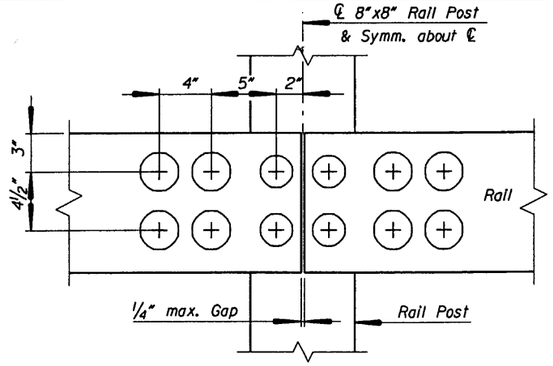
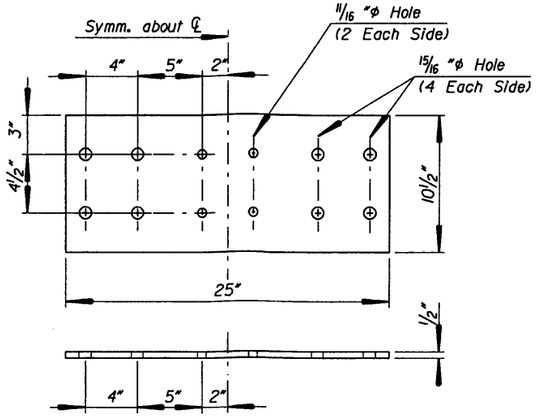
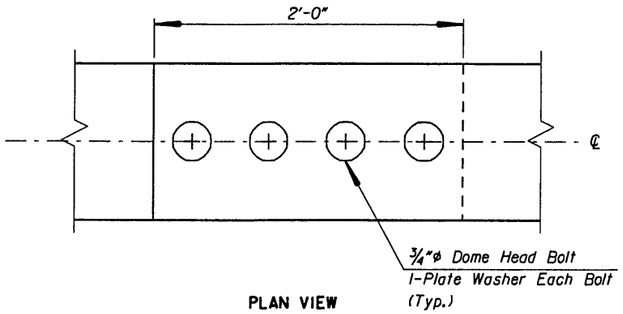
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-14	



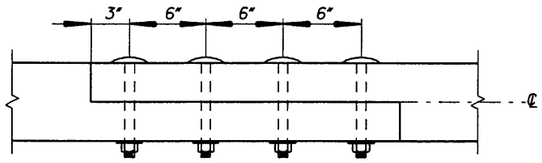
FRONT VIEW - DETAIL "C"



STEEL SPLICE PLATE DETAIL

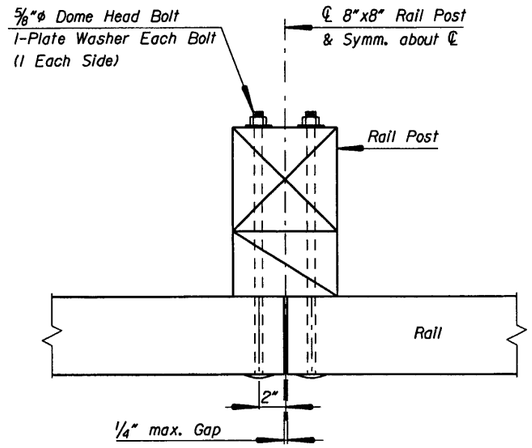


PLAN VIEW

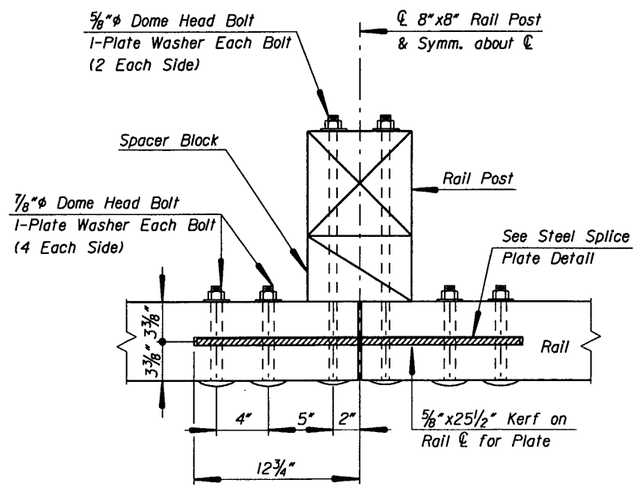


ELEVATION

CURB SPLICE DETAILS



PLAN VIEW - DETAIL "B"



PLAN VIEW - DETAIL "C"

RAIL SPLICE DETAILS

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BRIDGE RAIL DETAILS - 2

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	No Scale	Gary S. Jakovich	14 of 18	March, 2004	

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REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-15	

REINFORCING STEEL SCHEDULE

CAST IN BAR MK	PLACE QTY	SLAB REINFORCEMENT - EPOXY COATED PL SIZE	NO EA.	LENGTH	WEIGHT	LOCATION	PLACING NOTES
6SE1		6					CIP SLAB. LONGITUDINAL
6SE2		6					CIP SLAB. LONGITUDINAL
5SE3		5					CIP SLAB. TRANSVERSE
4SE4		4					SIDEWALK. LONGITUDINAL
4SE5		4					SIDEWALK. TRANSVERSE
6SE6		6					SLAB/APPROACH SLAB
5SE7		5					DIAPHRAGM

TOTAL WEIGHT FOR RELEASE:

DIMENSION TABLE

BAR MK	TYP	A	B	C	D	E	F	G	H	J	K	O
6SE1												
6SE2												
5SE3												
4SE4												
4SE5												
6SE6												
5SE7												

BENDING DIAGRAMS

Notes:

Dimensions in bending diagrams are out - to - out of bars.

Reinforcing bar list shall be completed and submitted in accordance with Section 554.03.

The Contractor shall use the same respective bar marks for reinforcing steel labeling as shown in the contract plans.

Straight bars have no "TYP" designation.

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
Arvind Patel	BSK	G. Jakovich	No Scale	Gary S. Jakovich	15 of 18	March, 2004	

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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

PARKER RIVER
NATIONAL WILDLIFE REFUGE

BRIDGE TO HEADQUARTERS COMPLEX

REINFORCING STEEL BAR LIST
CIP SLAB

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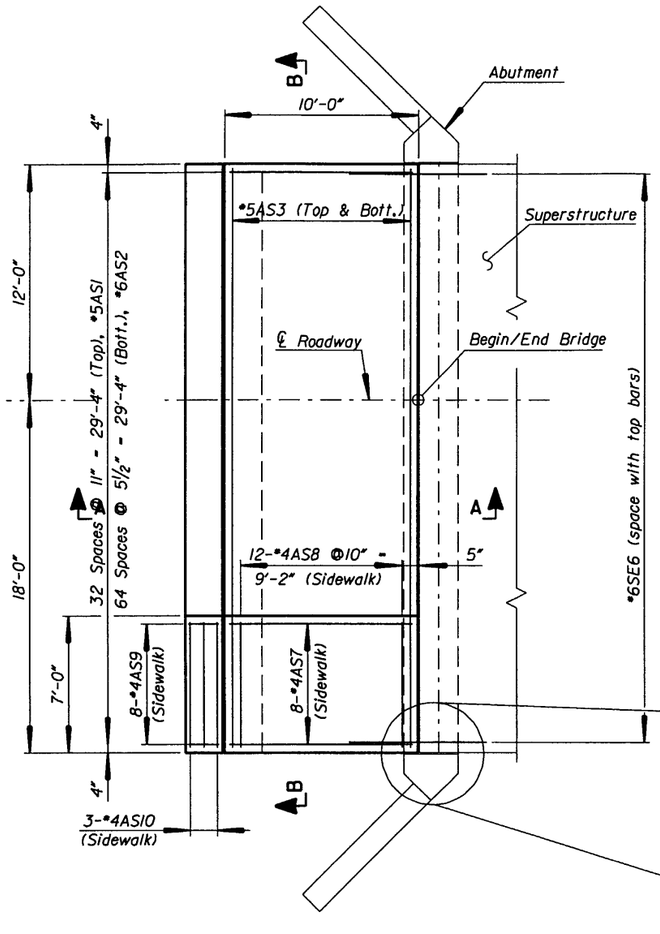
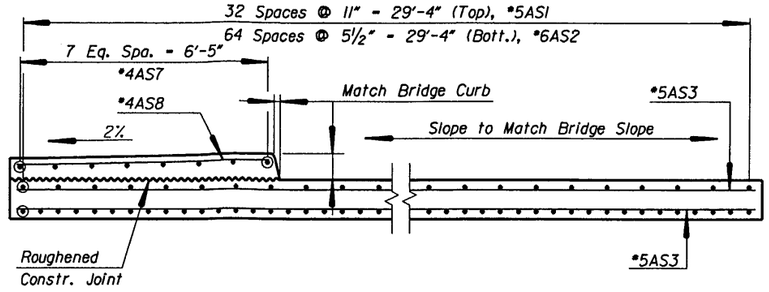
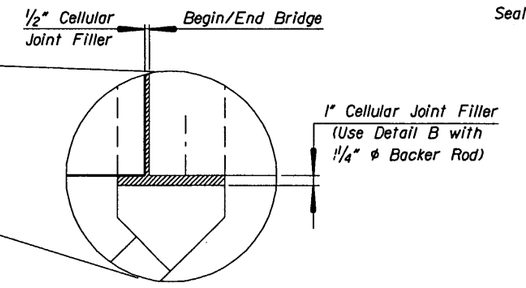
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-16	

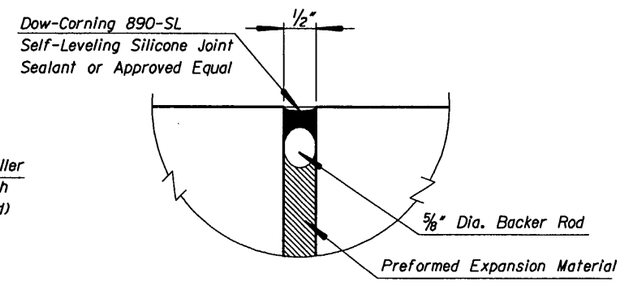


PLAN
Scale: ¼" = 1'-0"
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR BUT OPPOSITE HAND)



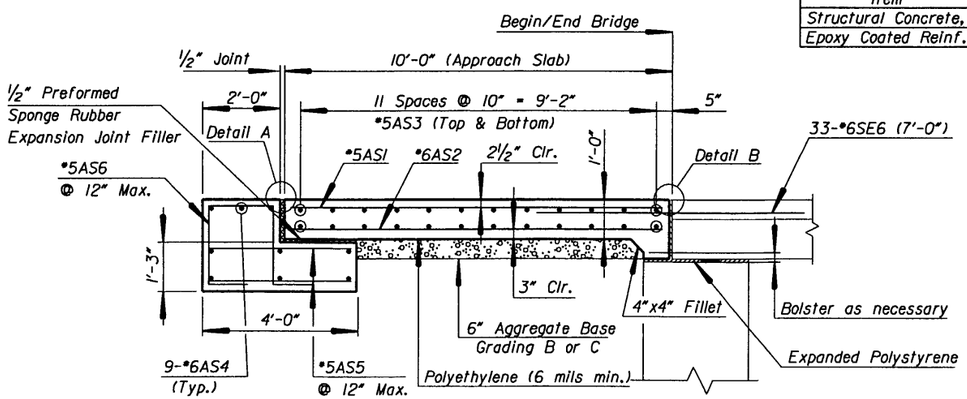
SECTION B-B
Scale: ½" = 1'-0"



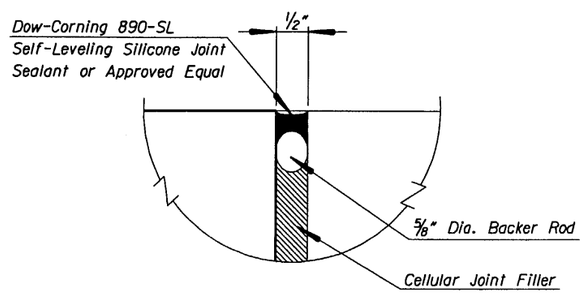


DETAIL A
No Scale

ESTIMATED QUANTITIES PER APPROACH SLAB	
Item	*Quantity*
Structural Concrete, Class HPC	21 Cu. Yd.
Epoxy Coated Reinf. Steel	2866 lbs.



SECTION A-A
Scale: ½" = 1'-0"

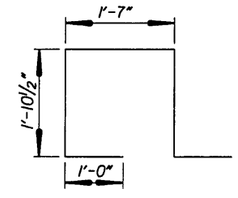


DETAIL B
No Scale

NOTES:

1. *Reinforcing steel for approach slab shall be epoxy coated.*
2. *Install joint sealer and compatible backer rod in accordance with manufacturer's instructions and recommendations.*
3. *Polythylene, backer rod, joint sealer, joint filler, aggregate base, reinforcing steel are subsidiary to the cost of "Structural Concrete Class HPC, for Approach Slabs, Type 2".*
4. *All Concrete shall be structural concrete, class HPC.*

REINFORCING STEEL SCHEDULE (PER APPROACH SLAB)



*5AS6

MARK	NO.	SIZE	PIN ø	LENGTH	LOCATION
*5AS1	33	*5	—	9'-6"	Top Longitudinal
*6AS2	65	*6	—	9'-6"	Bot. Longitudinal
*5AS3	24	*5	—	29'-6"	Top & Bot. Transverse
*6AS4	9	*6	—	29'-6"	Sleeper Slab
*5AS5	62	*5	—	3'-7"	Sleeper Slab
*5AS6	31	*5	2½"	6'-10"	Sleeper Slab
*4AS7	8	*4	—	9'-6"	Sidewalk, Longitudinal
*4AS8	12	*4	—	6'-6"	Sidewalk, Transverse
*4AS9	8	*4	—	1'-8"	Sidewalk, Longitudinal
*4AS10	3	*4	—	6'-6"	Sidewalk, Transverse

Dimensions in bending diagram are out-to-out of bars

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EASTERN FEDERAL LANDS HIGHWAY DIVISION

PARKER RIVER
NATIONAL WILDLIFE REFUGE

BRIDGE TO HEADQUARTERS COMPLEX

APPROACH SLABS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	As Shown	Gary S. Jakovich	16 of 18	March, 2004	

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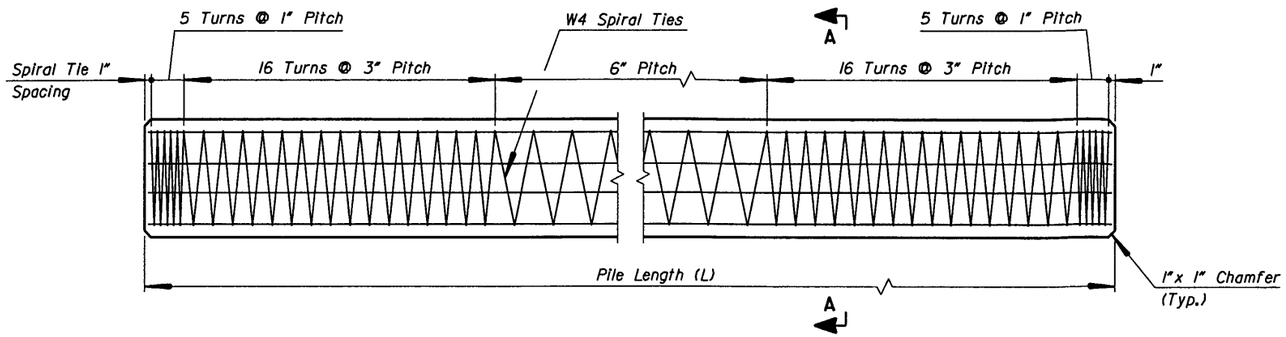
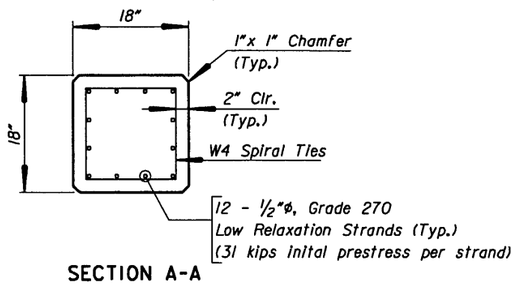
REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
NE	MA	PKR 10(1)	H-17	

MAXIMUM CASTING LENGTHS (L)	
One Point Pick-Up	63'
Two Point Pick-Up	90'
Three Point Pick-Up	126'



PLAN OF PILE SHOWING SPIRAL TIE SPACING



SECTION A-A

PILE NOTES:

CONSTRUCTION SPECIFICATIONS:
Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03.

DESIGN SPECIFICATIONS:
AASHTO LRFD Bridge Design Specifications, Customary U.S. Units, Second Edition, 1998, with 1999, 2000, 2001 and 2002 Interim Specifications.

CONCRETE:
Concrete in the Precast Prestressed Piles shall be Class P and shall have a minimum compressive strength of 7000 psi at 28 days, compressive strength at transfer of the prestressing force shall be not less than 5000 psi.

PRESTRSSING REINFORCEMENT:
Prestressing reinforcement shall be seven wire low relaxation strands, ½"ϕ, Grade 270, shall conform to the general requirements of AASHTO M203. Apply 31 kips initial prestress force per strand.

REINFORCING STEEL:
All reinforcing steel except spiral ties shall be AASHTO M31, Grade 60.

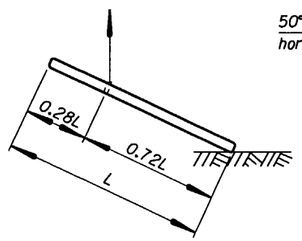
SPIRAL TIES:
Spiral ties shall be manufactured from cold-drawn steel wire meeting the requirements of AASHTO M32.

FORMS:
For forming exterior of piles, the use of steel forms on concrete founded casting beds is required, unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

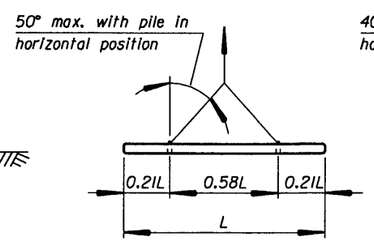
TOLERANCES:
Pile ends shall be plane surfaces and perpendicular to axis of pile with a maximum tolerance of ⅛" per foot transversely.

PAYMENT:
Precast prestressed piling will be paid for at the contract unit price per linear foot bid for "Precast Prestressed Concrete Piles, In Place" & "Test Piles".

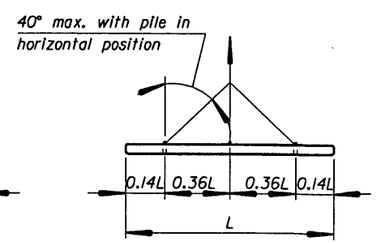
Note to Contractor:
Hard driving conditions are expected & therefore a "Pile Shoes" should be provided for all piles to protect pile-tip from damage during driving. See "Geotechnical Report" for more detail.



ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP

NOTE: Pick-up points to be plainly marked with removable band of paint on piles.

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BRIDGE TO HEADQUARTERS COMPLEX

PRECAST PRESTRESSED CONCRETE PILES

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								Arvind Patel	Arvind Patel	G. Jakovich	No Scale	Gary S. Jakovich	17 of 18	March, 2004	

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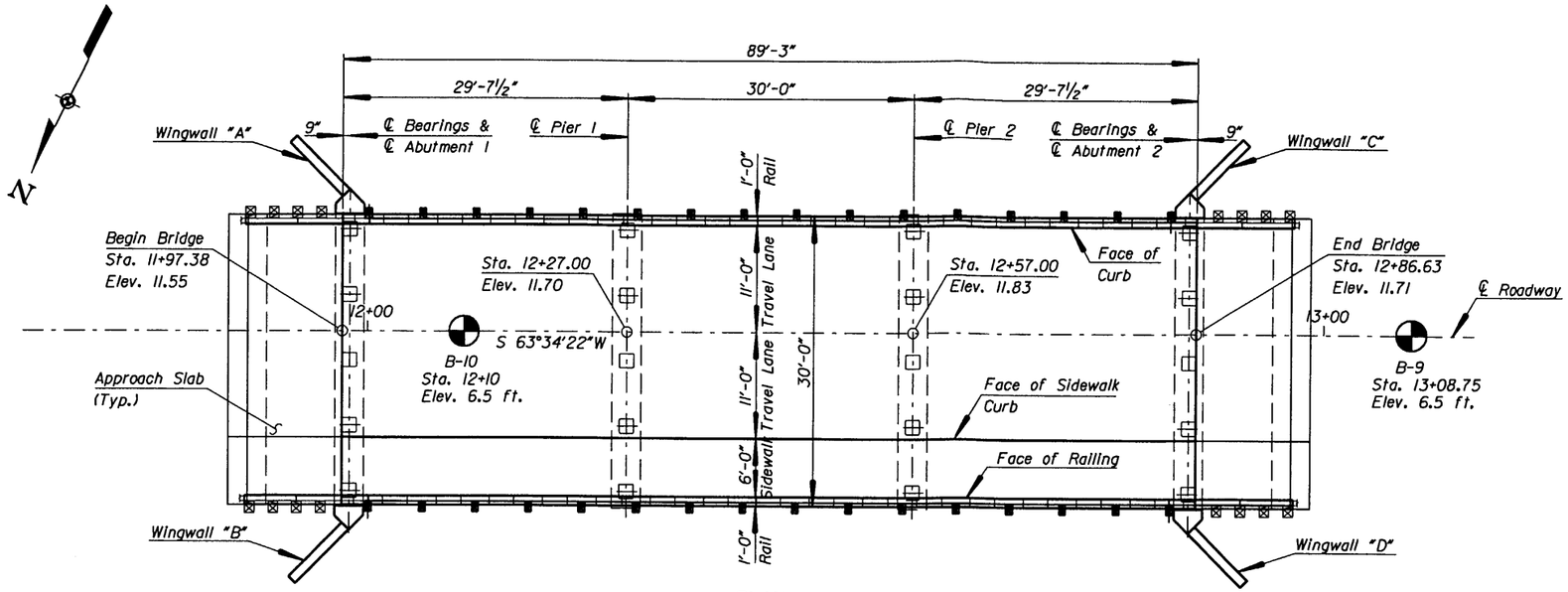
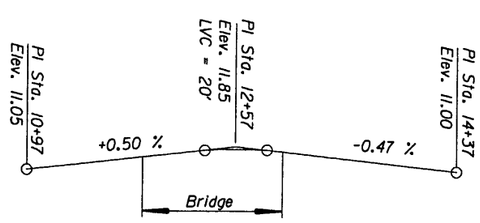


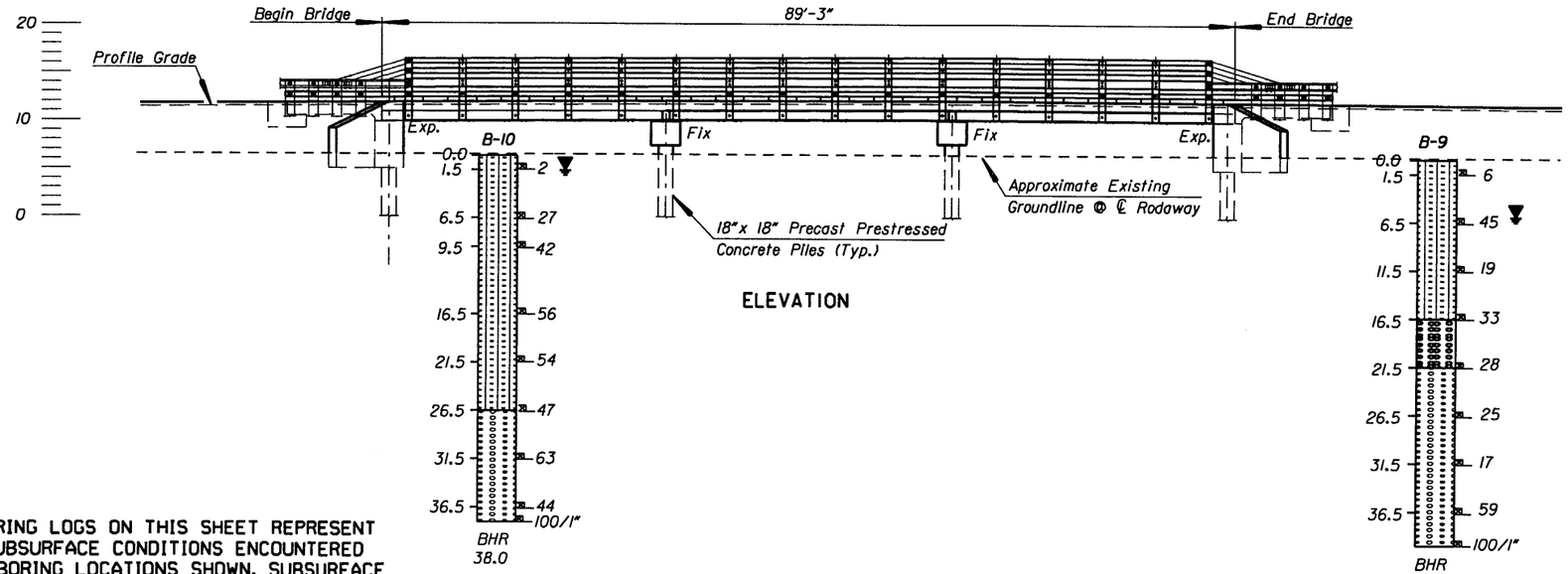
PLAN



PROFILE GRADE

No Scale

Vertical Profile - ℄ Roadway	Horizontal Curve Data - ℄ Roadway
PVI Sta. 12+57.00	POT Sta. 10+00.00
Elev. 11.85	POT Sta. 14+50.30
LVC = 20'	S 63°34'22"W
G1 = +0.50%	
G2 = -0.47%	



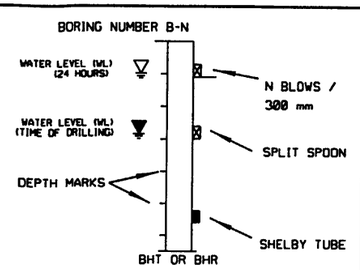
ELEVATION

THE BORING LOGS ON THIS SHEET REPRESENT THE SUBSURFACE CONDITIONS ENCOUNTERED AT THE BORING LOCATIONS SHOWN. SUBSURFACE CONDITIONS MAY VARY BETWEEN THESE LOCATIONS.

Bridge Drawing No. 18 of 18

SYMBOL	TYPE OF MATERIAL	SYMBOL	TYPE OF MATERIAL
	SILTY SAND		
	GRAVELLY SAND		
	GRAVEL		

TEST BORING



MISCELLANEOUS

1. SPT-STANDARD PENETRATION TEST -AASHTO T206-74
2. R-REFUSAL, SPT 100 BLOWS/300 mm
3. CR%-PERCENT OF RECOVERY
4. RQD-ROCK QUALITY DESIGNATION
5. BHT-BORE HOLE TERMINATED
6. BHR-BORE HOLE REFUSAL
7. GEOPHYSICAL TEST SITE: SEISMIC (S) RESISTIVITY (R)

SCALE NO SCALE

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FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

BORING LOCATION PLAN AND SUBSURFACE PROFILE

Parker River
National Wildlife Refuge

RRP-PKR 10(1)

Bridge to Visitor Center