STRUCTURES STANDARDS

JANUARY 1984

8-9-85

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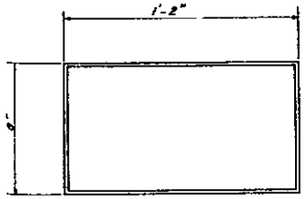
NOTE: Numbers in parenthes in block with Index Number, When Shown, Indicates revision number.

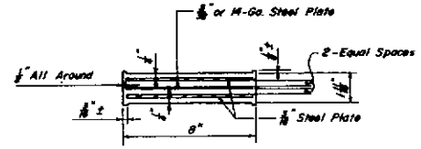
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

BRIDGE DESIGN STANDARDS

FILE NAME DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



PLAN



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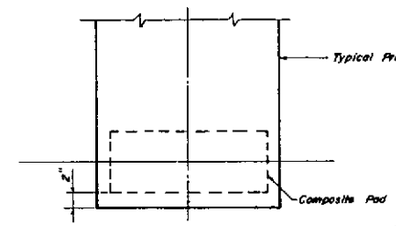
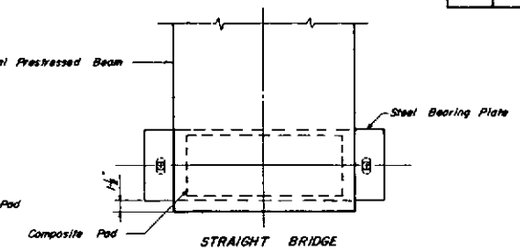
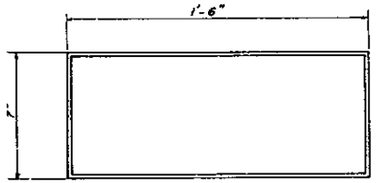


STRAIGHT BRIDGE



STRAIGHT BRIDGE

COMPOSITE PAD
For Type II Beams



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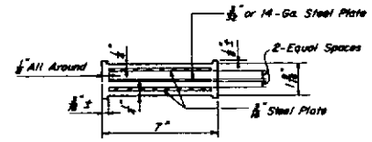
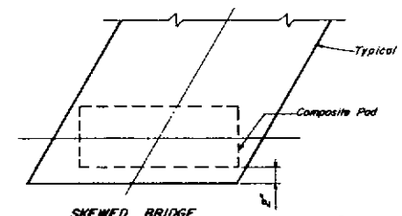


TYPICAL SECTION



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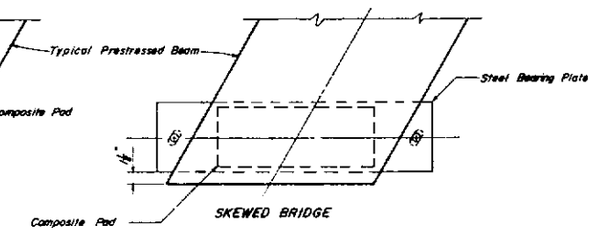
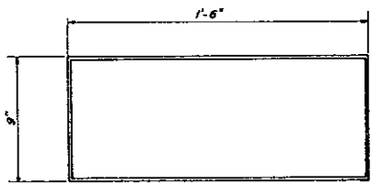


SKEWED BRIDGE

COMPOSITE PAD
For Type III Beams



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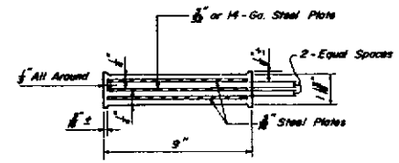
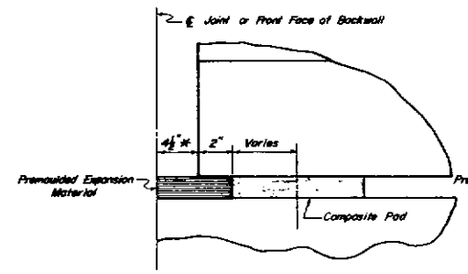
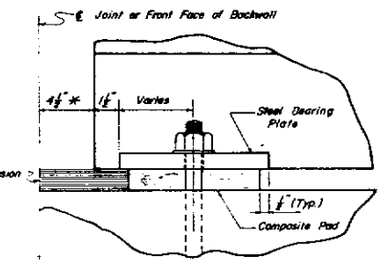


TYPICAL SECTION



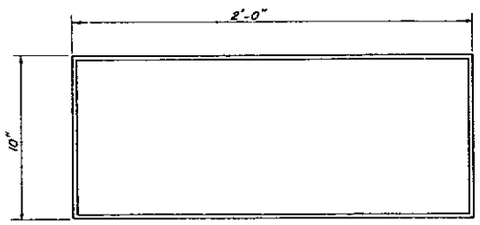
TYPICAL PAD DETAIL
INTERIOR BEAM



TYPICAL PAD DETAIL
EXTERIOR BEAM

* Unless otherwise noted on Beam Sheets.

COMPOSITE PAD
For Type IV Beams



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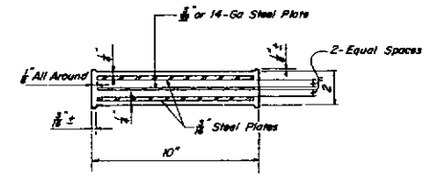


TYPICAL SECTION

COMPOSITE PAD
For Type V & VI Beams

GENERAL NOTES

Neoprene in all Bearing Pads shall have a Grade 50 durometer hardness.

Steel plates in composite pads shall conform to A.S.T.M. A-36 or A-245 Grade C or D, or A-570 Grade C or SAE 1010, SAE 1020.
Variations in pad dimensions will be allowed provided revised pads will meet the current specifications and are approved by the Engineer.

Bearing seat shall be finished parallel to the bottom of Beam.

Steel Bearing Plates, Anchor Bolts, Nuts and Washers shall be hot dip galvanized in accordance with A.S.T.M. Specification A-123. Payment for steel bearing plate assemblies shall be included in the Contract Unit Price for Prestressed Beams or Structural Steel. For location and details of Bearing Plates see Beam sheets.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

COMPOSITE NEOPRENE BEARING PADS

REVISIONS	
Dates	Descriptions

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	W E H	9-76
Checked by	D E K	9-76
Quantities by		
Checked by		
Supervised by	S H H	

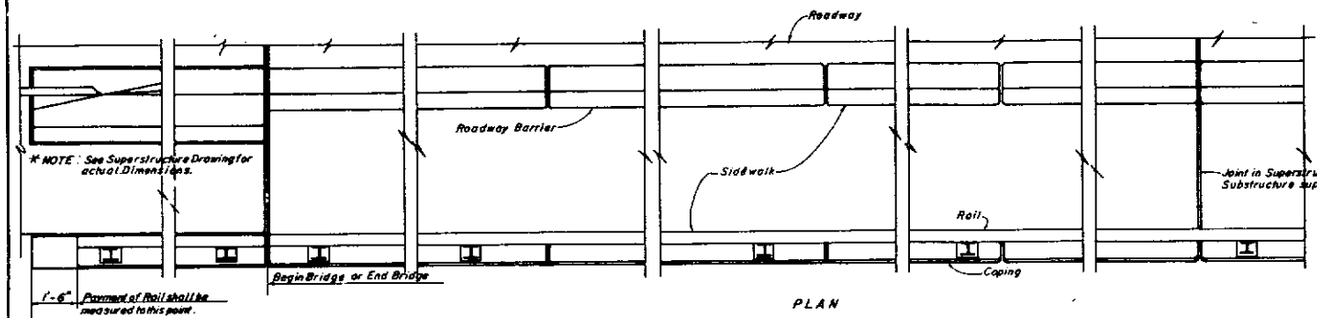
APPROVED BY

Chief Engineer, Production

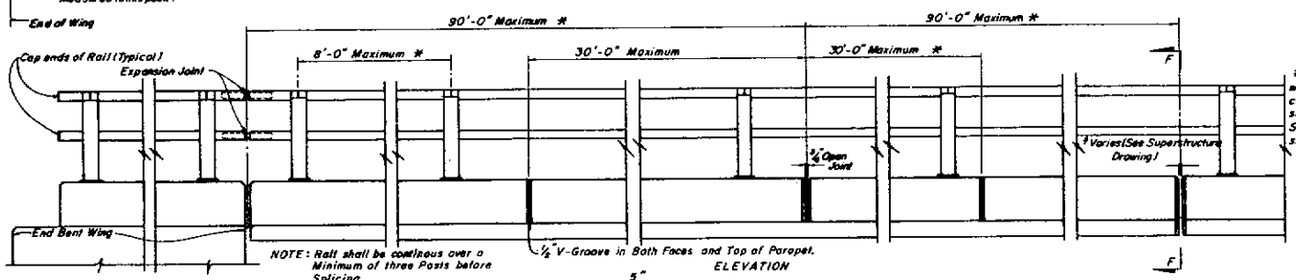
Drawing No. 1 of 1

Index No. 12037

FED. ROAD DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	FLA.			



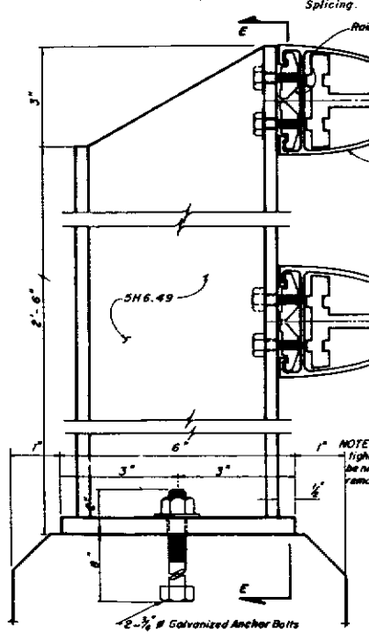
PLAN



NOTE: Rail shall be continous over a Minimum of three Posts before Splicing.

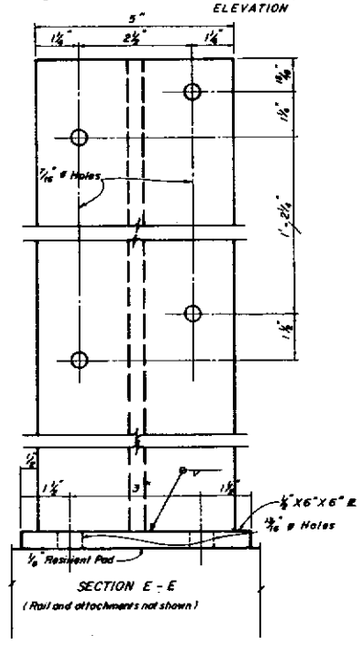
ELEVATION

† At Substructure Supports where Roadway Slab is continuous, the Joint in Parapet shall be sealed as shown in Section F-F. Joint Opening shall be 3/4" min.



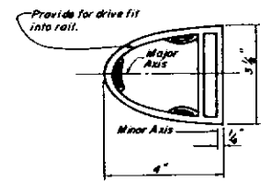
NOTE: After nuts have been tightened the threads shall be nicked to prevent removal of nuts.

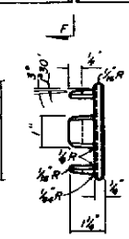
SECTION THRU RAIL

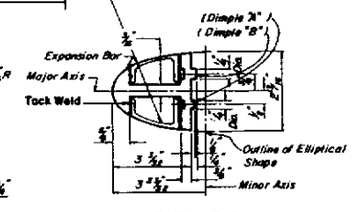


SECTION E - E

(Rail and attachments not shown)



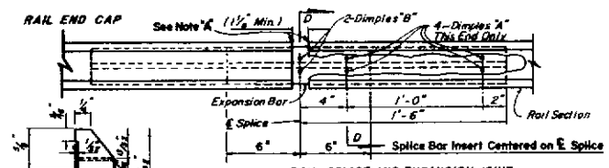




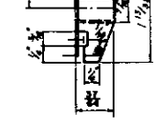
SECTION D-D

Splice Bar Insert 12" Long-Tack Weld Two Places Each End to Expansion Bar

Provide extra 4" of Seal. Cut away all but top of Shell to provide and flap. Bend down and Seal with a Lubricating Adhesive.

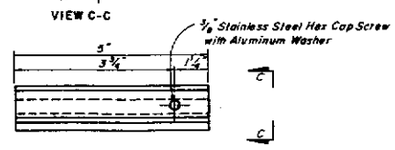


RAIL SPLICE AND EXPANSION JOINT

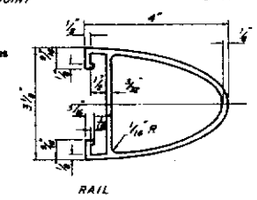


VIEW C-C

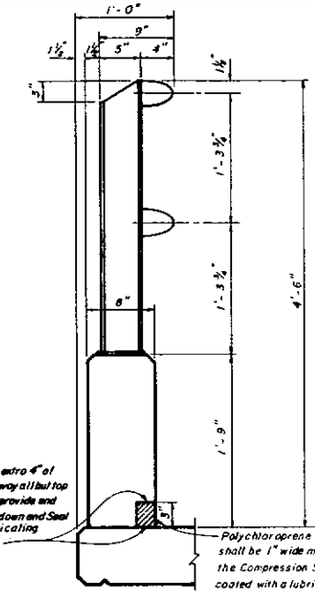
NOTE "A"-Rough Cut Ends and Edges of Aluminum Rails shall be Ground or Filed Smooth to Remove All Sharp Edges, Nicks or Burrs that would be Injurious to the Human Touch.



RAIL CLAMP BAR



RAIL



SECTION F - F

Polychloroprene Compression Seals used in 3/4" Open Joint shall be 1" wide minimum. All contacting surfaces between the Compression Seal and the Concrete shall be thoroughly coated with a lubricating adhesive. See 1975 Supplement.

GENERAL NOTES

1. The cost of all materials in Parapet shall be included in Concrete (Superstructure) and Reinforcing Steel (Superstructure).
2. Aluminum Rail shall be paid for per linear foot and shall be measured along the centerline of the top surface of the Rail. Payment includes Anchor Bolts, Nuts, Resilient Pads, all incidental materials and labor required to complete the installation.
3. For details of Rail Alignment and Post Spacing see Superstructure and End Bent Details.

SPECIFICATIONS FOR BRIDGE RAIL

POST: Aluminum A.S.T.M B221, alloy 6061-T6 or alloy 6351-T5 with welding using filler wire 4043.

RAIL & RAIL SPLICE: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5.

RAIL CLAMP BAR: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5.

ANCHOR BOLTS: Anchor Bolts shall be in accordance with A.S.T.M. A-36 or A-307. Anchor Bolts, nuts and washers shall be hot-dip galvanized in accordance with A.S.T.M. Designation A-153.

RAIL END CAP: A.S.T.M. B 26 sand cast aluminum alloy, S G70A-F (Alum. Assoc. alloy designation A-356-F).

RAIL INSTALLATION. Rail Post shall be normal to Profile Grade. Posts shall be seated on 1/8" thick resilient pads in accordance with Article 932-2.1 The dimension shall be the same as the post base. Rail expansion joints shall occur in the panel between post on either side of Bridge expansion joints. Rail expansion joints shall be similar to rail splices with provision for movement equal to 1.5 times the bridge joint opening.

SHOP DRAWINGS: Complete details and description of materials of the proposed bridge rail shall be submitted by the contractor for the Engineers approval prior to fabrication.

NOTE: Where Aluminum comes in contact with Concrete or other metals, contacting surfaces shall be thoroughly coated with Aluminum impregnated coalking compound.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

ALUMINUM HANDRAIL (SIDEWALK)

REVISIONS	
Dates	Description
1-4-79	Change Curb from 9" to 1'-9"
3-27-80	Added note to "Rail Splice And Expansion Joint"
3-19-81	Added Splice Bar Insert & Note "A"
6-13-81	CHKD Splice Bar Dimension
6-7-82	Rev. Section E-E

ROAD NO.	COUNTY	PROJECT NO.

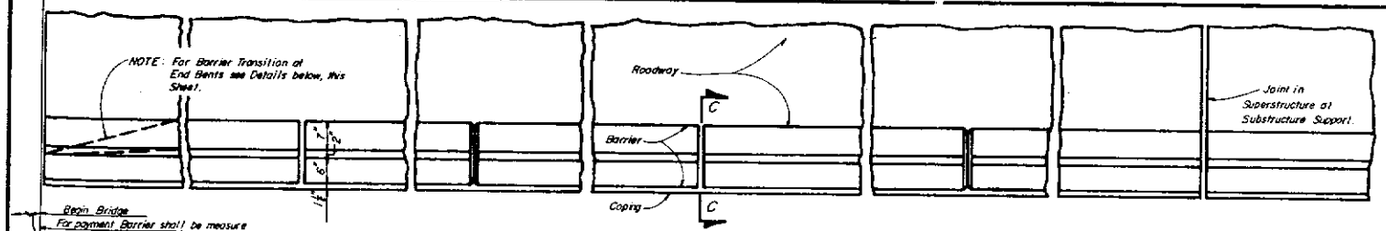
	Names	Dates
Designed by	W.L.D./J.F.L.	9/76
Checked by	R.D.S.	9/76
Quantities by		
Checked by		
Supervised by	P. BYRD	

APPROVED BY: T. W. Ali
Deputy Design Engineer, Structures

Drawing No.: 1 of 1

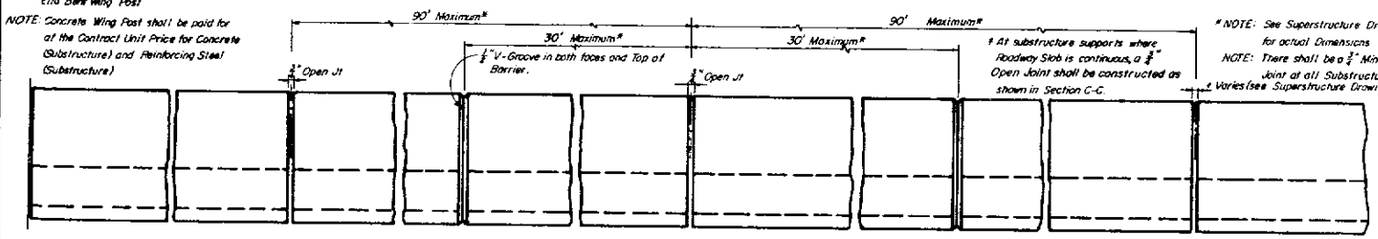
Index No.: 12087

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



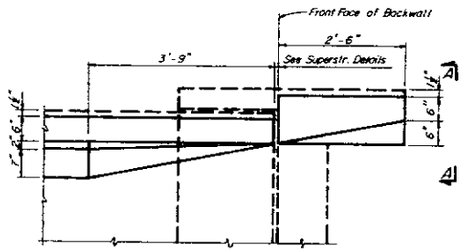
PLAN

NOTE: Concrete Wing Post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure)

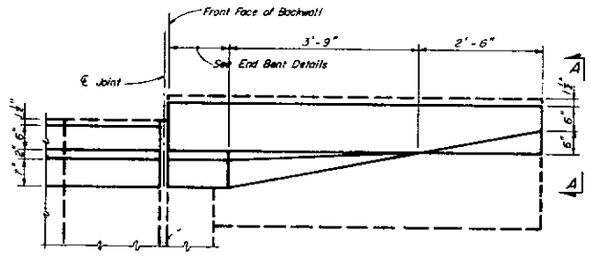


NOTE: For Reinforcing Steel in Transition Area on Slab Type Superstructure adjust and field bend as required for minimum cover.

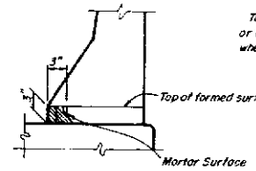
ELEVATION



PLAN OF WING FOR SLAB TYPE SUPERSTRUCTURE



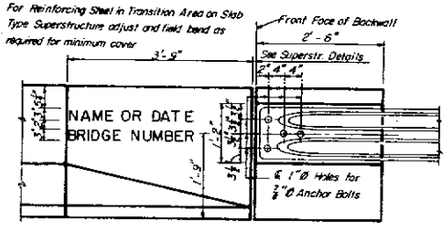
PLAN OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE



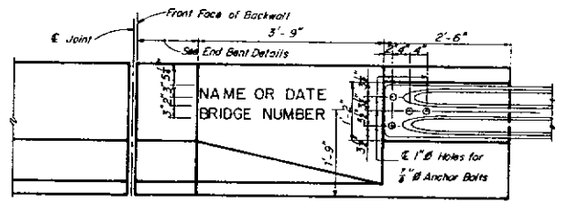
SECTION C-C

NOTE: When using fixed forms to construct the barrier the vertical face at the gutter-side shall be filled (3" above the roadway surface) either by forming or by filling the bottom 3" height of the opening for a width of 3" minimum, as shown above, with mortar in accordance with Article 400-15.1. When barriers are slip-formed the opening shall be constructed for the limits described above for forming.

NOTE: For Reinforcing Steel in Transition Area on Slab Type Superstructure adjust and field bend as required for minimum cover



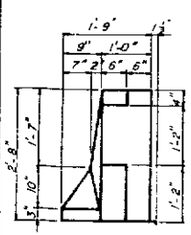
ELEVATION OF WING FOR SLAB TYPE SUPERSTRUCTURE



ELEVATION OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE

DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe see Standard Drawing in Roadway Plans

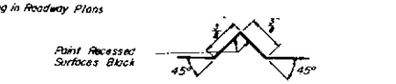


VIEW A-A

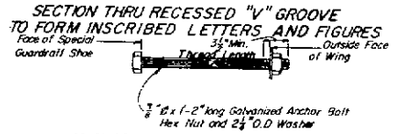
NOTES

The Name and Bridge Number to be placed on the Barrier shall be seen on the drivers right when approaching Bridge. The Date to be placed on the drivers left when approaching Bridge. The Date shall be the Year the Bridge is constructed.

Block Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by 3/4" "V" Grooves. "V" Grooves shall be formed by preformed Letters and Figures.



SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES



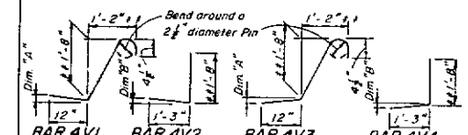
ANCHOR BOLT DETAIL

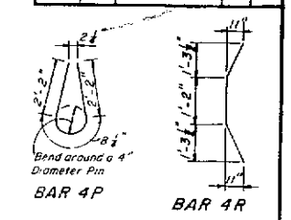
NOTE: Cost of Anchor Bolts to be included in the Contract Unit Price for Guardrail

BENDING DIAGRAMS

TABLE OF VARIABLE DIMENSIONS

RDWY X-SLOPE	DIM "A" (Bars V1 & V3)	DIM "B" (Bars V2 & V4)
0.00 to 0.02 ft/ft	0"	0"
0.02 < to 0.06 ft/ft	6"	6"
0.06 < to 0.10 ft/ft	1'	1'





NOTE: Bars 4V1 & 4V2 are for low side gutter. NOTE: Bars 4V3 & 4V4 are for high side gutter.

‡ Adjust length of Bars 4V as required for slab thickness. (Dimensions shown are based on a 7" slab, see Superstructure Drawings. For thicker slabs adjust the 1'-8" vertical and the 1'-2" horizontal dimensions as follows. Add the amount that the slab depth exceeds 7" to the 1'-8" vertical dimension and add .45 of this excess to the 1'-2" horizontal dimension.

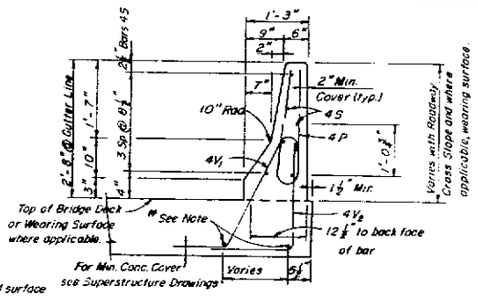
Example 12" Slab
Excess = 12 - 7 = 5"
Vertical Dimension = [1'-8"] + [5"] = 2'-1"
Horizontal Dimension = [1'-2"] + [5 x .45] = 1'-4 1/2"

TYPICAL BARRIER QUANTITIES

NOTE: Quantities based on 7" slab and .02'/ft. Roadway Cross Slope.

CLASS II CONCRETE: 0.07594 C.Y. per linear ft of Barrier
REINFORCING STEEL = 15.26 lbs per linear ft of Barrier for slab, 14.55 lbs. per linear ft of Barrier for Wall.

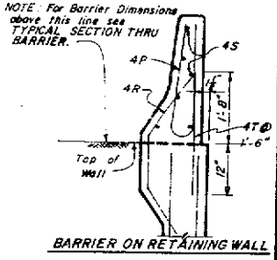
NOTE: All bar dimensions are out-to-out.



TYPICAL SECTION THRU BARRIER

NOTE: See sheet No. 1 of 5 Index No. 13356 for Retaining Wall Barrier Details.

NOTE: For Barrier Dimensions above this line see TYPICAL SECTION THRU BARRIER.



BARRIER ON RETAINING WALL

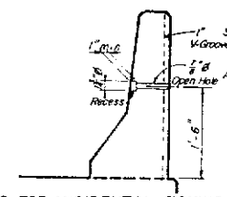
NOTE ‡‡: Place normal bottom slab longitudinal Reinforcing Steel at each position as shown above to facilitate tying anchor bars in Concrete Handrail Barrier. Do not add Reinforcing Steel for tie purposes. For Precast Slab Units place Bars 4V on top of the prestressed strands and tie.

REINFORCING STEEL NOTES:

All Reinforcing Steel in Barrier shall be No. 4's. Bars 4P, 4R, & 4V shall be spaced at 9" c.c. At all open joints all reinforcing steel shall have 2" minimum cover. At all construction joints Bars 4S may be either continuous or spliced. All splices in Bars 4S shall be 1'-4" minimum

GENERAL NOTES

CONCRETE: Class II Concrete shall be used in Barrier.
REINFORCING STEEL: Reinforcing Steel shall be Grade 60.
PAYMENT: Barrier shall be paid for per linear foot, which shall include all Concrete and Reinforcing Steel. Barrier shall be measured along the centerline of the top surface of the Barrier.
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days.
MARKERS: Markers recording the Elevation shall be placed on top of the Barrier at End Bents. On Bridges longer than 100 ft. one marker shall be placed at each end of Bridge. On Bridges less than 100 ft. long, one marker shall be placed at one end of the Bridge only. Markers are to be furnished by the Department Of Transportation and installed by the Contractor. The Cost of Installing the Markers shall be included in the Contract Unit Price for Concrete Barrier.
SLIP-FORMING: At the option of the Contractor, Barrier walls may be constructed by slip-forming subject to the following: the width may be increased a maximum of 2 inches provided that the front face at the base of each barrier intringes on the clear roadway width no more than 1/2" and that any additional materials required are at the expense of the Contractor. The shape of the Barrier on the Roadway Side shall not be altered.
SUPERELEVATED BRIDGES: At the Option of the Contractor, Handrail Barriers and End Bent wingwalls on Superelevated Bridges, may be constructed perpendicular to the roadway surface. The cost of modifications shall be at the Contractors expense.
ANCHOR BOLTS: Anchor Bolts, Nuts, and Washers shall be hot dip galvanized in accordance with A.S.T.M. A-123.



HOLES FOR INCIDENTAL SIGNING

NOTE: Holes and grooves shall be placed on barrier type handrails of divided and undivided bridges as shown in the plans for designated type "C" single column, informational, guide, regulatory and warning sign locations (see signing plans) and at approximately 500' intervals along the right handrails of bridges between designated locations for future signs as directed by the Engineer. The cost of the extra holes and grooves shall be included in the contract unit price for Contract Handrail (Barrier). If Signing Plans are not available the Project Engineer should secure necessary information from the District Maintenance or Traffic Operations Office

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

CONCRETE HANDRAIL BARRIER

REVISIONS	
Dates	Descriptions

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	[illegible]	4-93
Checked by	[illegible]	10-93
Quantities by		
Checked by		
Supervised by	[illegible]	

APPROVED BY
District Design Engineer, Structures

Drawing No.	Index No.
1 of 1	13857

FED. ROAD DIV. NO.	STATE	FEDERAL PROJECT NO.	FINAL SHEET NO.
3	FLA.		

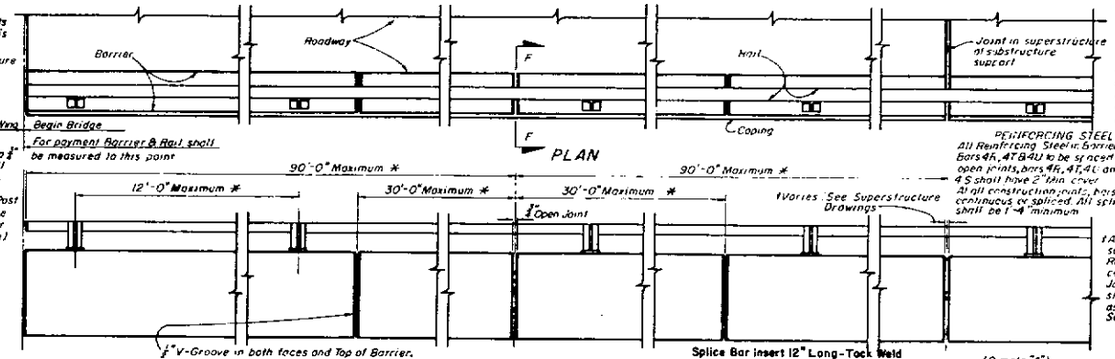
NOTE: For Barrier Transition at End Bents see Details below, this sheet.

* NOTE: See Superstructure Drawing for actual Dimensions.

NOTE: There shall be a 1/2" Min. Open Joint at all Substructure Supports.

NOTE: Concrete Wing Post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure).

NOTE: Rail shall be continuous over a minimum of 3 Posts before splicing.



PLAN

ELEVATION

NOTE: All contacting surfaces between the Compression Seal and the concrete shall be thoroughly cented with a lubricating adhesive.

Provide extra 4" of Seal Cut away all but top of Shell to provide end flap. Bend down and seal with a lubricating adhesive

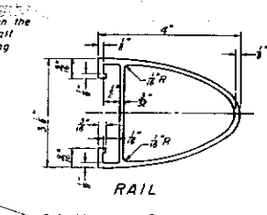
Polychlorprene Compression Seals used in 1/2" Open Joints shall be 1" wide minimum.

SECTION F-F

REINFORCING STEEL NOTES

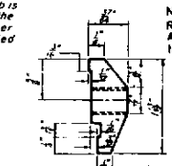
All Reinforcing Steel in Barrier shall be Gr. 4S. Bars 4R, 4T & 4U to be spaced at 6" c.c. At all open joints, bars 4R, 4T, 4U and the ends of bars 4S shall have 2" Min. cover. At all construction joints, bars 4S may be either continuous or spliced. All splices in bars 4S shall be 1'-4" minimum.

† All substructure supports where Roadway Slab is continuous, the Joint in Barrier shall be sealed as shown in Section F-F.



RAIL

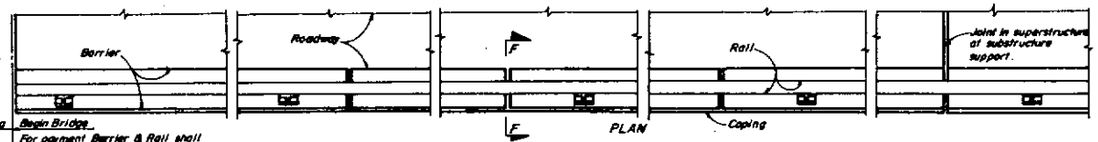
NOTE "A"-Rough Cut Ends and Edges of Aluminum Rails shall be Ground or Filed Smooth to Remove All Sharp Edges, Nicks or Burrs that would be Injurious to the Human Touch.


1/2"
1/4"
1/4"
1/4

FED. ROAD DIV. NO.	STATE	PROJECT NO.	SHEET NO.
3	FLA.		

NOTE: For Barrier Transition at End Bents see Details below, this sheet

NOTE: See Superstructure drawing for actual dimensions.



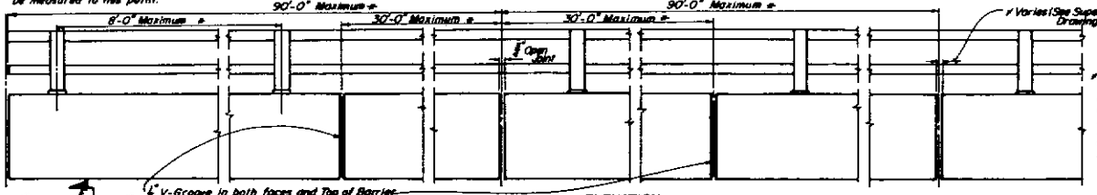
End Bent Wing Post — Begin Bridge

For payment Barrier & Rail shall be measured to this point.

NOTE: There shall be a ½" Wide Open Joint at all Substructure Supports.

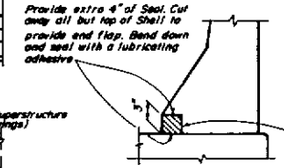
NOTE: Concrete Wing post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure)

NOTE: Rail shall be continuous over a minimum of 3 posts before splicing.

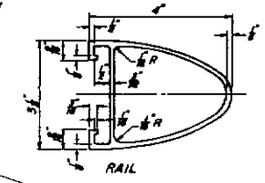


At substructure supports where Roadway Slab is continuous, the joint in Barrier shall be sealed as shown in Section F-F.

NOTE: All contacting surfaces between the Compression Seal and the concrete shall be thoroughly coated with a lubricating adhesive.

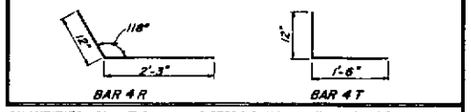


Polychloroprene Compression Seals used in ½" Open Joints shall be 1" wide minimum.

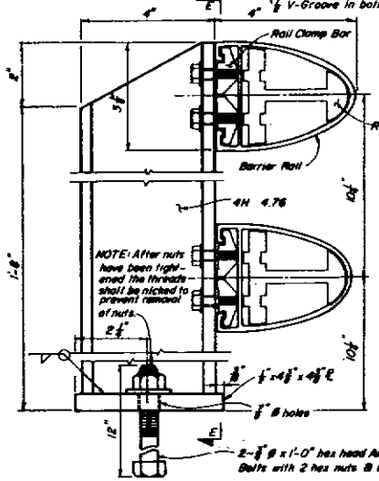


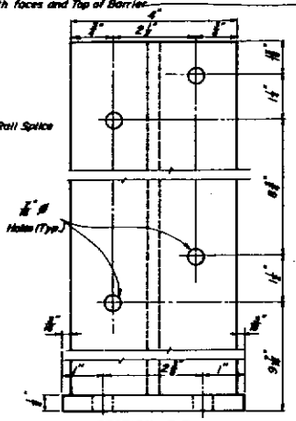
BENDING DIAGRAM

NOTE: All bar dimensions are out-to-out.

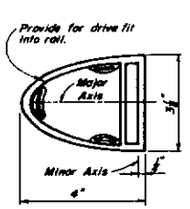


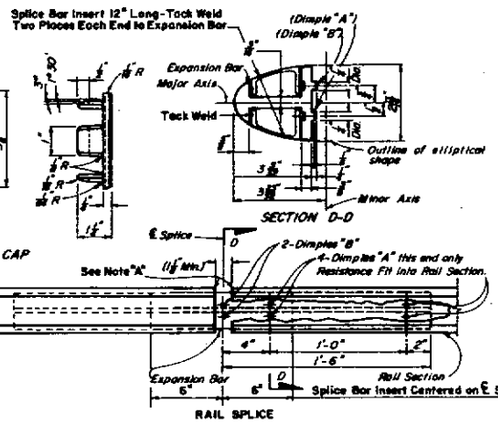
QUANTITIES: Class II Concrete = 0.07594 Cu.Yds. per linear ft. of Barrier (Based on Roadway Cross Slope of .02'/ft)
REINFORCING STEEL = 15.782 lbs. per linear ft. of Barrier.



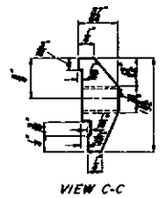


NOTE: At the option of the Contractor, the bottom nut shown in "Section Thru Rail" may be used in conjunction with top nut to secure Anchor Bolt to form work during pour.



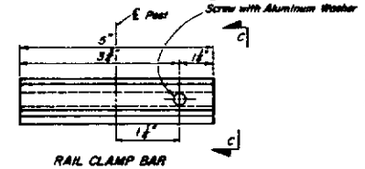


NOTE "A"-Rough Cut Ends and Edges of Aluminum Rails shall be Ground or Filed Smooth to Remove All Sharp Edges, Nicks or Burrs that would be injurious to the Human Touch.



REINFORCING STEEL NOTES

All Reinforcing Steel in Barrier shall be No.4's. Bars 4R, 4T & 4U to be spaced at 8" C.C. At all open joints, Bars 4R, 4T, 4U and the ends of bars 4S shall have 2" Min. cover. At all construction joints, bars 4S may be either continuous or spliced. All splices in bars 4S shall be 1'-4" minimum.

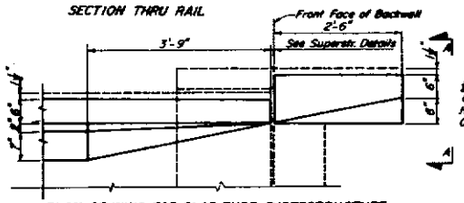


GENERAL NOTES

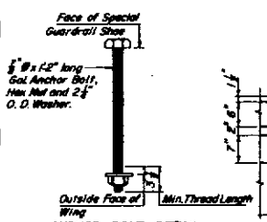
CONCRETE: Class II Concrete shall be used in Barrier.
REINFORCING STEEL: Reinforcing Steel shall be Grade 60.
PAYMENT: Barrier shall be paid for per linear foot, which shall include all Rail, Concrete and Reinforcing Steel. Barrier shall be measured along the centerline of the top surface of the Barrier.
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days.
MARKERS: Markers recording the Elevation shall be placed on top of the barrier at End Bents. On Bridges longer than 100 ft. one marker shall be placed at each end of the Bridge. On Bridges less than 100 ft. long, one marker shall be placed at one end of the Bridge only. Markers are to be furnished by the Department of Transportation and installed by the Contractor. The Cost of installing the markers shall be included in the Contract Unit Price for Concrete Barrier.

SPECIFICATIONS FOR BRIDGE RAIL

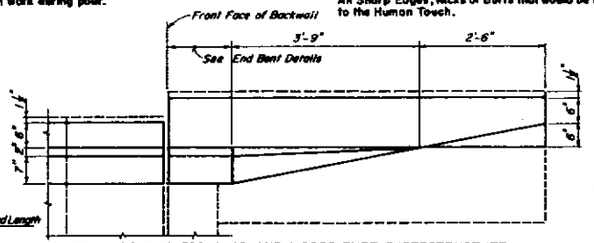
POST: Fabricated wrought aluminum A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5 with welding using filler wire 4043.
RAIL & RAIL SPLICE: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5
RAIL CLAMP BAR: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5
ANCHOR BOLTS: Anchor Bolts shall be in accordance with A.S.T.M. A-36 or A-307. Anchor Bolts, nuts and washers shall be hot-dip galvanized in accordance with A.S.T.M. Designation A-153.
RAIL END CAP: A.S.T.M. B 26 sand cast aluminum alloy, S 6 70A-F (Alum. Assoc. alloy designation A-356-F).
RAIL INSTALLATION: Rail Post shall be normal to Profile Grade. Posts shall be seated on ¼" thick resilient pads in accordance with Article 932-2.1. The dimension shall be the same as the post base. Rail expansion joints shall occur in the panel between posts on either side of Bridge expansion joints. Rail expansion joints shall be similar to rail splices with provision for movement equal to 1.5 times the bridge joint opening.
SHOP DRAWINGS: Complete details and description of materials of the proposed bridge rail shall be submitted by the contractor for the Engineers approval prior to fabrication.

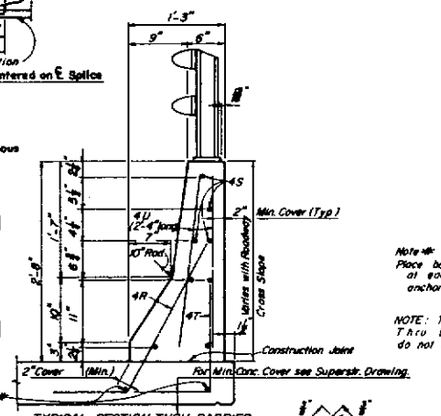


NOTE: For Reinforcing Steel in Transition Area on Slab Type Superstructure adjust and field bend as required for minimum cover.



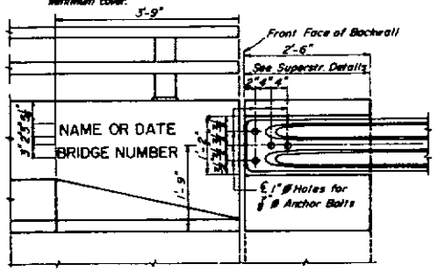
NOTE: Cost of Anchor Bolts to be included in the Contract Unit Price for Guardrail

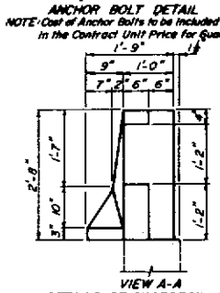




Note *: Place bottom slab longitudinal Reinforcing Steel at each position as shown to facilitate tying anchor bars in Concrete Handrail Barrier.

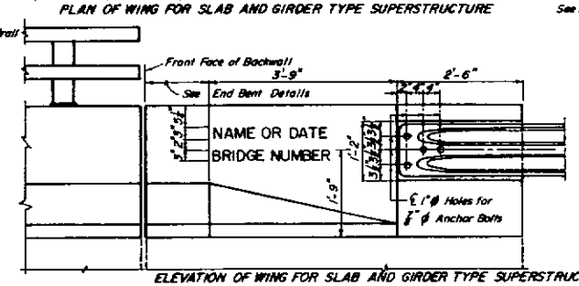
NOTE: The Longitudinal Reinforcing Steel shown in the slab of the Typical Section Thru Barrier shall be normal Longitudinal Slab Steel spaced as shown, do not add Reinforcing Steel for tie purposes.

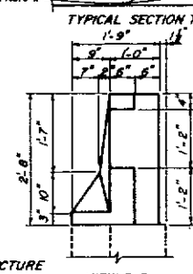




DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe see Road Design Standards Booklet.





SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

Black Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by ½" "V" Grooves. "V" Grooves shall be formed by preformed Letters and Figures

The Name and Bridge Number to be placed on the Barrier shall be seen on the drivers right when approaching Bridge. The date to be placed on the drivers left when approaching Bridge. The date shall be the Year the Bridge is constructed.

REVISIONS	
Dates	Descriptions
3-2-81	Added Anchor Bar Tie Welds.
3-19-81	Added Splice Bar Insert & Note "A"
3-17-81	CHGD Splice Bar Dimension
3-21-81	Change Anchor Bolt Dim.

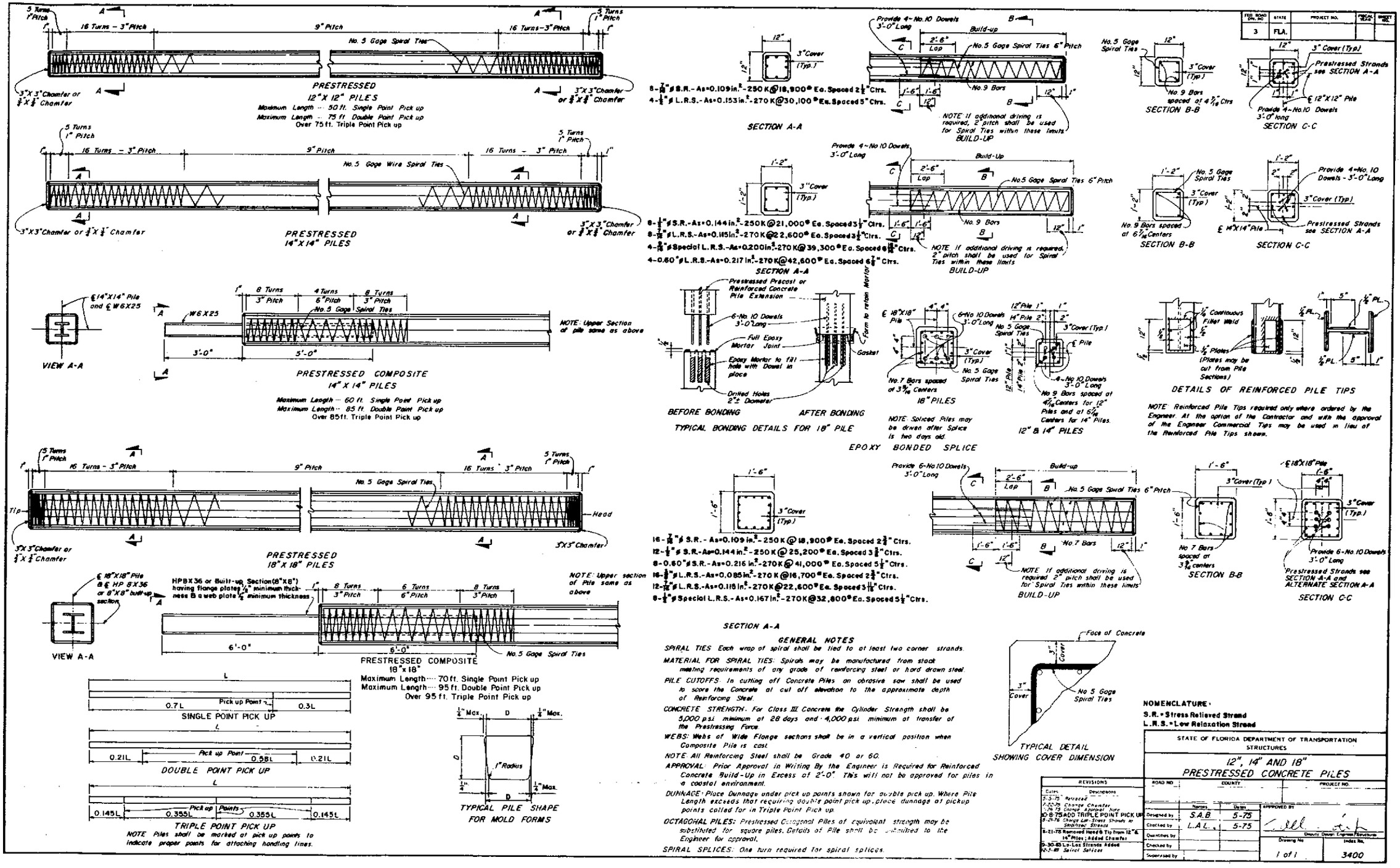
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

BICYCLE BARRIER

ROAD NO.	COUNTY	PROJECT NO.

	Initials	Dates	APPROVED BY
Designed by	CAC	1-79	T. [illegible]
Checked by	DEK	1-79	Deputy Design Engineer, Structures
Quantities by			Drawing No. / Index No.
Checked by			
Supervised by	SHN		1 of 1 / -12931

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



GENERAL NOTES

SPIRAL TIES: Each wrap of spiral shall be tied to at least two corner strands.

MATERIAL FOR SPIRAL TIES: Spirals may be manufactured from stock meeting requirements of any grade of reinforcing steel or hard drawn steel.

PILE CUTOFFS: In cutting off Concrete Piles an abrasive saw shall be used to score the Concrete at cut off elevation to the approximate depth of Reinforcing Steel.

CONCRETE STRENGTH: For Class III Concrete the Cylinder Strength shall be 5,000 psi minimum at 28 days and 4,000 psi minimum at transfer of the Prestressing Force.

WEBS: Webs of Wide Flange sections shall be in a vertical position when Composite Pile is cast.

NOTE: All Reinforcing Steel shall be Grade 40 or 60.

APPROVAL: Prior Approval in Writing By the Engineer is Required for Reinforced Concrete Build-Up in Excess of 2'-0". This will not be approved for piles in a coastal environment.

DUNNAGE: Place Dunnage under pick up points shown for double pick up. Where Pile Length exceeds that requiring double point pick up, place dunnage at pickup points called for in Triple Point Pick up.

OCTAGONAL PILES: Prestressed Octagonal Piles of equivalent strength may be substituted for square piles. Details of Pile shall be submitted to the Engineer for approval.

SPIRAL SPLICES: One turn required for spiral splices.

NOMENCLATURE:
S.R. = Stress Relieved Strand
L.R.S. = Low Relaxation Strand

REVISIONS	
Date	Descriptions
2-5-75	Revised
7-22-75	Change Chamfer
1-14-76	Change Approval Note
10-8-75	ADD TRIPLE POINT PICK UP
2-27-76	Change Lift-Stress Shown in Stagthread Strands
8-21-78	Removed Head & Tip from 12" & 14" Piles; Added Chamfer
9-30-83	L.R.-Low Stranded Added
10-3-83	Spiral Splices

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

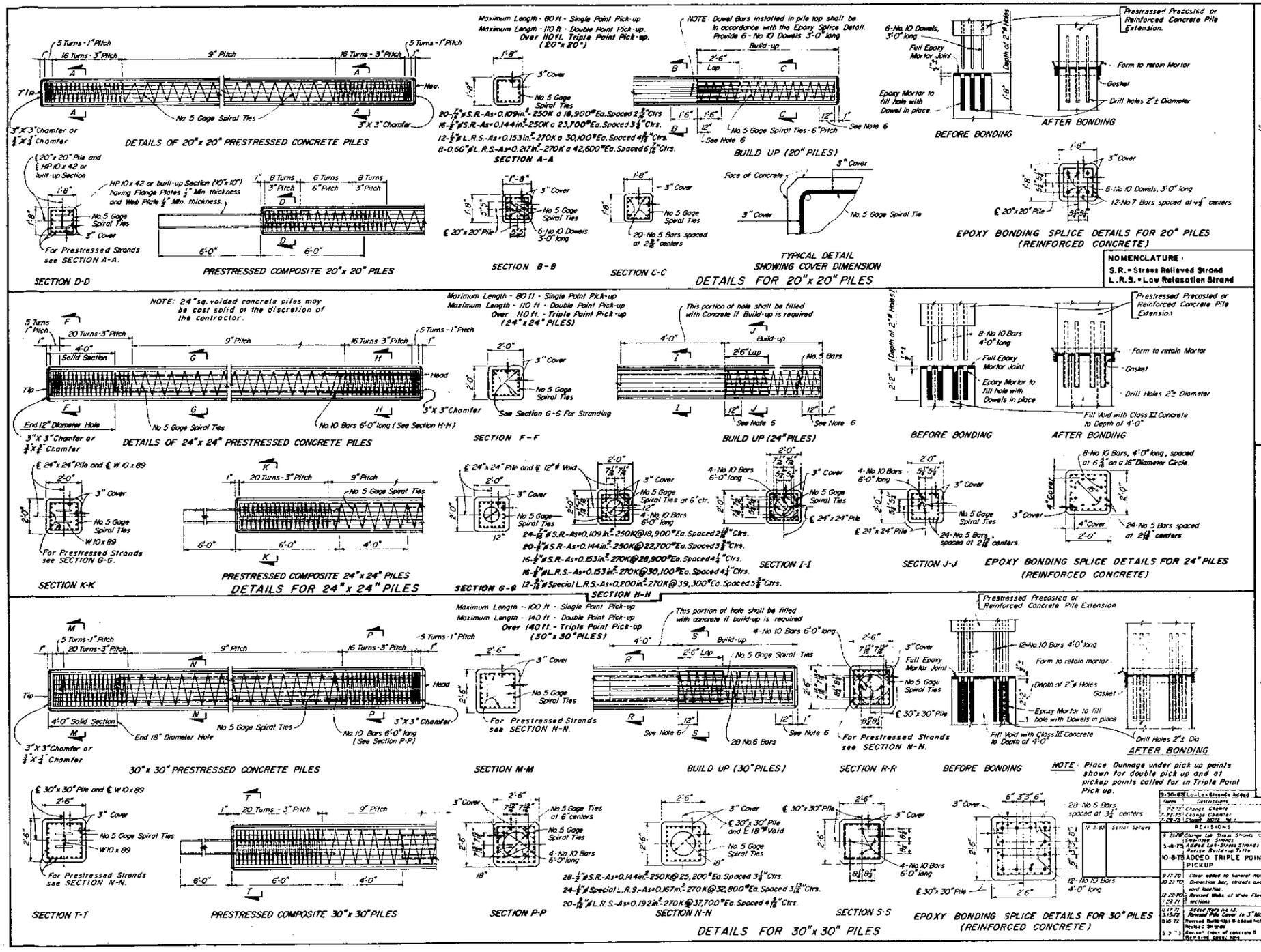
12", 14" AND 18" PRESTRESSED CONCRETE PILES

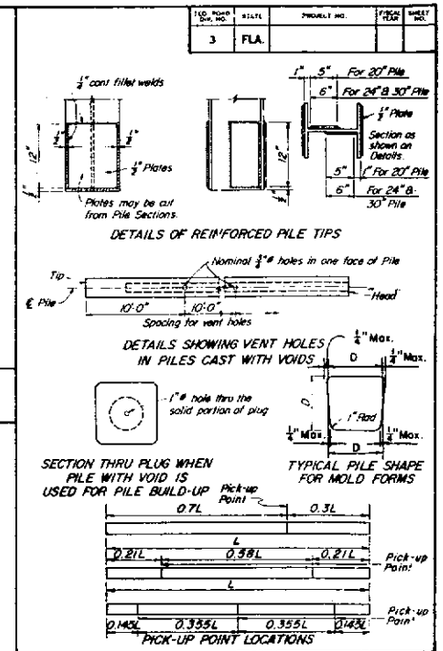
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	S.A.B.	5-75
Checked by	L.A.L.	5-75
Quantities by		
Checked by		
Supervised by		

APPROVED BY
Deputy Design Engineer/Structures

Drawing No.	Index No.
1 of 1	3400





GENERAL NOTES

1. Prior Approval in Writing By the Engineer is Required for Reinforced Concrete Build-Ups in Excess of 2'-0". This will not be approved for piles in a coastal environment.
1A. SPIRAL SPLICES: One turn required for Spiral Splices.
2. SPIRAL TIES: Each wrap of spirals shall be tied to at least two corner strands.
3. MATERIAL FOR SPIRAL TIES: Spirals may be manufactured from stock meeting requirements of any grade of reinforcing steel, or hard drawn steel.
4. PILE CUT OFF: In cutting off concrete piles an abrasive saw shall be used to score the concrete at the cut off elevation to the approximate depth of the reinforcing steel.
5. CONCRETE STRENGTH: For Class III Concrete the Cylinder Strength shall be 5,000 p.s.i. minimum at 28 days and 4000 p.s.i. minimum at transfer of the Prestressing Force.
6. ADDITIONAL DRIVING: If additional driving is required, 2" Pitch shall be used for spiral ties within these limits.
7. SPLICED PILES: Spliced piles may be driven after splice is two days old.
8. BUILD-UPS: All build-ups shall be made with Class III Concrete.
9. PICK-UP POINTS: Piles shall be marked at Pick-up Points to indicate proper points for attaching handling lines.
10. REINFORCED STEEL PILE TIPS: Reinforced Pile Tips required only where ordered by the Engineer. At the option of the Contractor and with the approval of the Engineer, Commercial Tips may be used in lieu of the Reinforced Pile Tips shown.
11. VOIDS: Form material used to form the hollow cores may be left in place at the option of the Contractor. The form material shall be neutral with respect to the generation of products harmful to the physical and structural properties of the piles. The contractor shall retain responsibility for any detrimental effects resulting from the presence of the form material within the pile.
12. WEBS: Webs of Wide Flange sections shall be in a vertical position when Composite Pile is cast.
13. REINFORCING STEEL: All Reinforcing Steel shall be Grade 40 or 60.

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

REVISIONS		
9-30-83	Lo-Lax Strands Added Turns	Descriptions
2-27-75	Change Chamfer	
2-24-75	Change Chamfer	
7-28-73	Added NOTE No. 1	
9-21-72	Change Lo-Lax Strands to Stabilized Strands	
5-18-73	Added Lo-Lax Strands & Revise Build-up Title	
10-8-73	ADDED TRIPLE POINT PICKUP	
9-17-70	Clarify added to General Notes	
10-21-70	Dimension bar, strands and vent holes	
12-22-70	Revised Webs of Wide Flange sections	
1-28-71		
11-17-71	Added Note No. 13.	
3-15-72	Revised Pile Cover to 3" Min.	
9-15-72	Revised Build-Ups & added Note 8	
	Replace Strands	
	Revised copy of concrete & Revised detail note	
4-3-83	Serial Splices	

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

20", 24" AND 30" PRESTRESSED CONCRETE PILES

ROAD NO.	COUNTY	PROJECT NO.

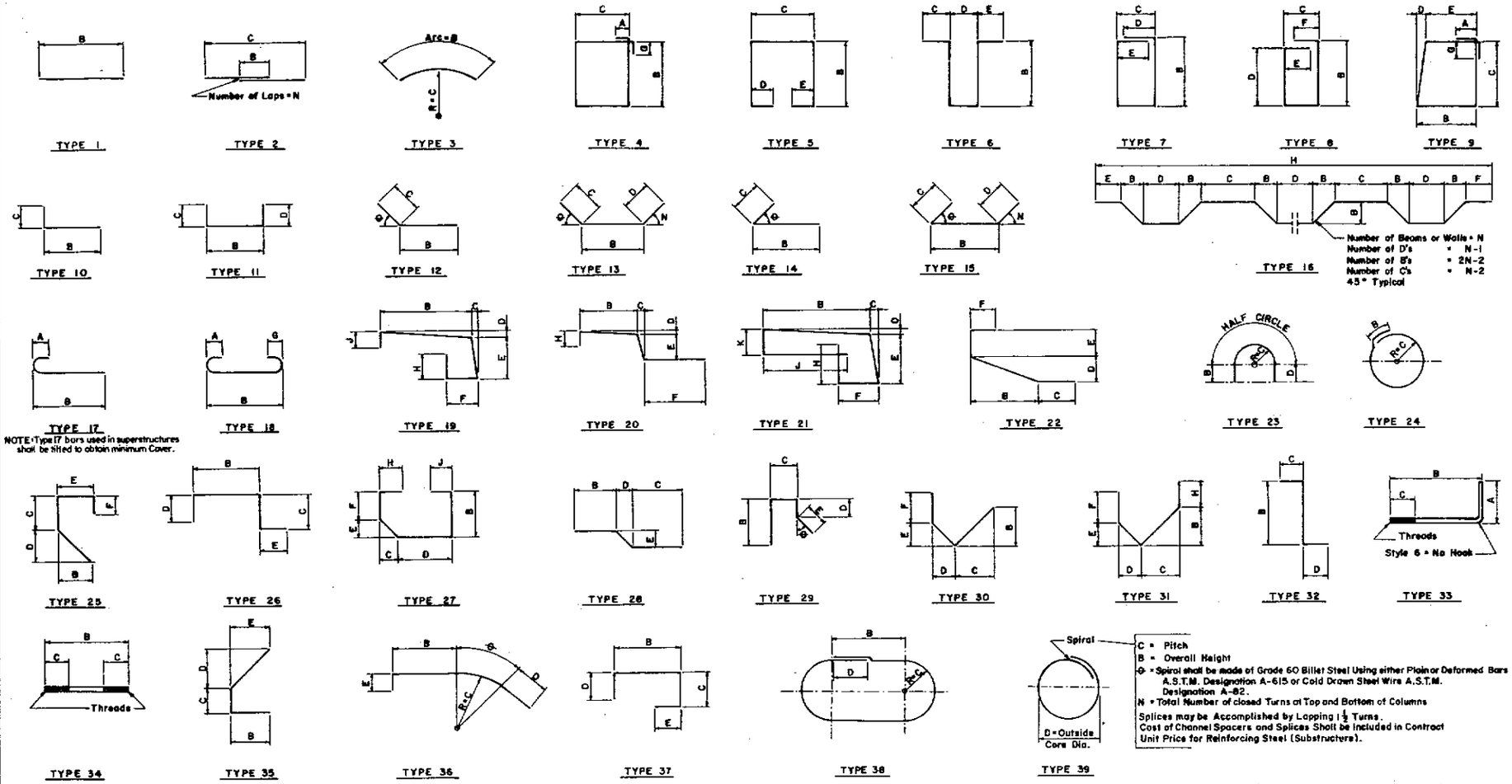
	Names	Dates
Designed by	HHJ	12-69
Checked by	PB	12-69
Quantities by		
Checked by		
Supervised by		

APPROVED BY: Deputy Chief Engineer - Structures

Drawing No. 1 of 1

Index No. 10289 F

FEDERAL AID

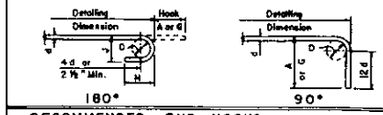


NOTE: For Bar Dimensions See Reinforcing Bar List Sheet.

REVISIONS	
Date	Description
4-81	GENERAL REVIEW
6-10-82	REMOVED (and Welding)

STATE	PROJECT NO.
FLA.	

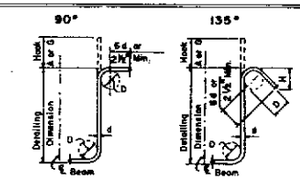
HOOK DETAILS



RECOMMENDED END HOOKS

All Grades
D = 6d for #3 through #8
D = 8d for #9, #10, and #11
D = 10d for #14 and #18

Bar Size	180° HOOKS		90° HOOKS
	A or G	J	A or G
#3	5	3	6
#4	6	4	8
#5	7	5	10
#6	8	6	1-0
#7	10	7	1-2
#8	11	8	1-4
#9	1-3	11 3/4	1-7
#10	1-5	1-1 1/2	1-10
#11	1-7	1-2 3/4	2-0
#14	2-3	1-9 3/4	2-7
#18	3-0	2-4 1/2	3-5
STYLE	1		3



STIRRUPS
(TIES SIMLAR)

RECOMMENDED STIRRUP & TIE HOOK DIMENSIONS

Bar Size	D (in.)	90° HOOK	135° HOOK	
		HOOK A or G	HOOK A or G	Approx. H
#3	1 1/2	4	4	2 1/2
#4	2	4 1/2	4 1/2	3
#5	2 1/2	6	5 1/2	3 3/4
#6	4 1/2	1-0	7 3/4	4 1/2
#7	5 1/4	1-2	9	5 1/4
#8	6	1-4	10 1/4	6
STYLE		4	5	

STYLE 6 = NO HOOK

Hook Styles Detailed on this Sheet are for Illustration Only. Actual Hook Style for any Particular Bar will be Shown Under A or G Heading on Reinforcing Bar List Sheet.

All Dimensions are Out To Out.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

STANDARD BAR BENDING DETAILS

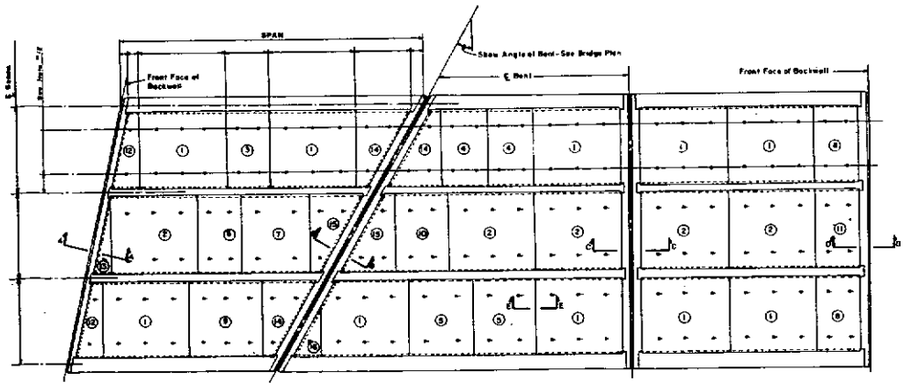
ROAD NO.	COUNTY	PROJECT NO.

	Name	Date
Designed by	M.B.	9-70
Checked by	C.W.B.	10-70
Quantities by		
Checked by		
Supervised by	L.B.A.	

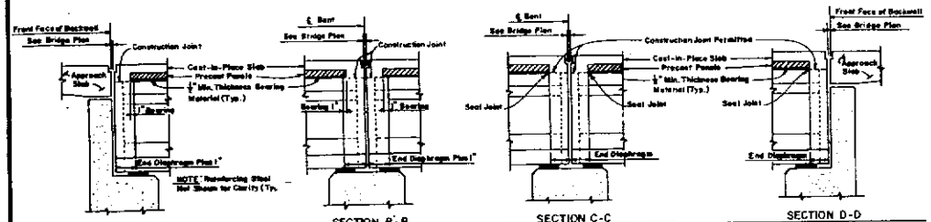
APPROVED BY
T. Allen
Deputy Design Engineer, Structures

Drawing No. 1 of 1
Index No. 10587

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



PLAN OF DECK PANELS
(SEE TABLE "A")

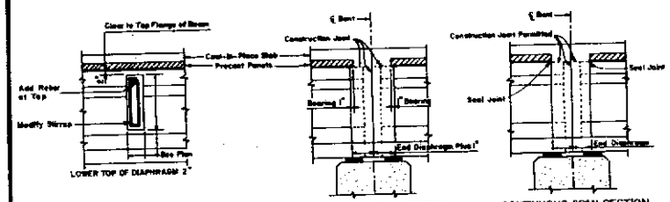


SECTION A-A
(AT SKEWED END BENT)

SECTION B-B
(AT SKEWED BENT)

SECTION C-C
(BENT PERPENDICULAR TO ROADWAY)

SECTION D-D
(END BENT PERPENDICULAR TO ROADWAY)

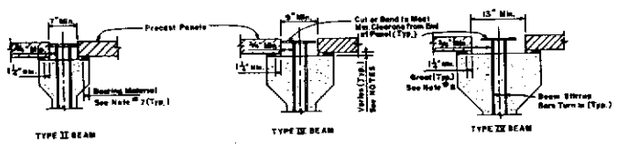


SECTION AT INTERMEDIATE DIAPHRAGMS

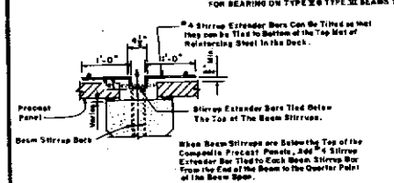
CONTINUOUS SPAN SECTION AT SKEWED BENT

CONTINUOUS SPAN SECTION AT PERPENDICULAR BENT

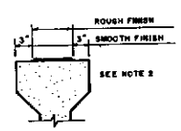
TABLE "A"	
PANEL NO.	REMARKS
① ②	Fabricators Standard Width Panel
③	Filler Panel, 2'-0" Minimum Width
④ ⑤	Filler Panels of Equal Widths Both 2'-0" or Wider
⑥ ⑦	Filler Panels - One 2'-0" (Min. Width) Unit, Other Panel Width as Required.
⑧ ⑨ ⑩ ⑪	Filler Panels - Width as Required >2'-0"
⑫ ⑭ ⑬ ⑮	End Panels at Skewed Bents See Cut from Rectangular Panel Bent Skewed Edge 1" on Support
⑯	Permissible Only Where Required by Extreme Skew Angle of Bent.



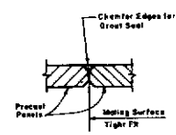
PANEL BEARING CONDITIONS
FOR BEARING ON TYPE II & TYPE III BEAMS SEE GENERAL NOTE #11



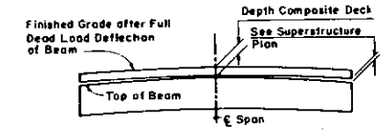
STIRRUP EXTENDER BARS



REQUIRED FINISH OF TOP FLANGE OF CONCRETE BEAM



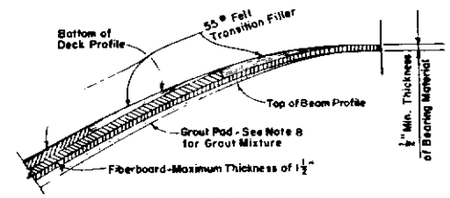
SECTION E-E



SKETCH SHOWING RELATIONSHIP OF BEAM AND DECK SLAB

PROFILE - DECK AND SUPPORT

Where beam camber differs from that shown in the Plans, adjust thickness of bearing material. Maximum thickness of fiberboard to be $1\frac{1}{2}$". When necessary to achieve a thickness greater than $1\frac{1}{2}$", fiberboard may be set on an approved grout pad so that the Deck thickness conforms to the Plan dimension. Transitions in bearing thickness shall be accomplished by using layers of 55 # roofing felt, fiberboard and grout pads so placed as to control the bottom of the Panel Profile so that it is Parallel to the finished grade profile, and the Plan Deck Thickness is Maintained. Adequate measures shall be taken to ensure the sealing of all contact surfaces between Precast, Prestressed Panels and Supporting Units. (See Enlarged Schematic)



SCHEMATIC - CAMBER ADJUSTMENT

GENERAL NOTES

1 - When Precast Prestressed Panels are Used on a Bridge Structure at the Option of the Contractor, it shall be the Sole Responsibility of the Contractor to Increase the Finished Grade Elevations and to make all Adjustments Required by this Increase.

2 - Contractor shall Instruct the Producers of Concrete Beams to Provide a 3" Wide Smooth Finish at the Outside Edges of the Top Flange for Precast Panel Bearing and Grout Seal.

3 - When Precast Prestressed Panels are Substituted, Payment shall be made at the Contract Unit Prices for Concrete and Steel. The Quantities to be Paid for will be those Quantities which would be Paid for if Conventional Construction was Utilized. The Contract Unit Price for Concrete shall Include the Cost of All Bearing Materials.

4 - Precast Prestressed Panels shall not be used on Steel Beams.

5 - Precast Prestressed Panels shall not be used under Barrier Walls with Reinforcing Steel Projecting Into The Deck Slab.

6 - Before Any Precast Prestressed Panels are Placed in Position in Any Span, the Contractor shall Establish the Finished Grade Elevations and make the Required Camber Adjustments in a minimum of TWO Spans Ahead of the Span to be Set.

7 - The Erected Precast Panels shall Bear Uniformly on Continuous Layers of an Approved Material Such as Mastic, Felt, Fiberboard and/or Grout that will Provide a Mortar Tight Uniform Bearing. The Bearing Material Shall be Placed Along the Outer Edges of Each Beam and the Inside Edge of the End Diaphragms at Skewed Bents.

8 - After the Precast Prestressed Panels have been set to Proper Grade on Bearing Material, The remaining Space Between the end of the Panels and the Bearing Material [(½" Min. Width)] shall be filled with cement Grout. The Grout shall consist of one part portland cement to two parts clean sand with enough water to make a thick paste mixture. The Grout paste shall be placed by Trowel on Moisture Saturate Surfaces and Allowed to Set Before Placing Cast-In-Place Concrete. The Grout shall be Placed in a manner which will produce a leak proof seal.

9 - Precast Panels in their Final Position shall be Mortar Tight at Both the Outer Edges and the Mating Surfaces. The Top Surface of the Precast Panels Must be Free of Any Foreign Material to Insure Full Bond with the Cast-In-Place Concrete. Immediately Prior to Placing the Cast-In-Place Concrete the Precast Panels shall be Saturated with Fresh Water.

10 - End Diaphragms Shown in Sections are not Dimensioned in Width, See Bridge Plan for Sizes. Add One (1) Inch to Width of Diaphragms at Skewed Bents to Provide Bearing for Precast Panels. Reinforcing Steel in End Diaphragms will not Change.

11 - The Bearing Width on Type II and Type III Precast Prestressed Beams shall be $2\frac{1}{2}$" (−⅛", +0") Past the End of Transverse Reinforcing Steel in the Top Flange of the Beam.

12 - The Transverse Spacing of The Mechanical Interlock Reinforcing shall clear the Longitudinal Distribution Steel of the Poured in Place Concrete and the Transverse Spacing shall be Constant Thru Out Spans of Equal Beam Spacing.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR COMPOSITE DECK WITH $1\frac{1}{4}$" CLERANCE OF BOTTOM MAT OF STEEL

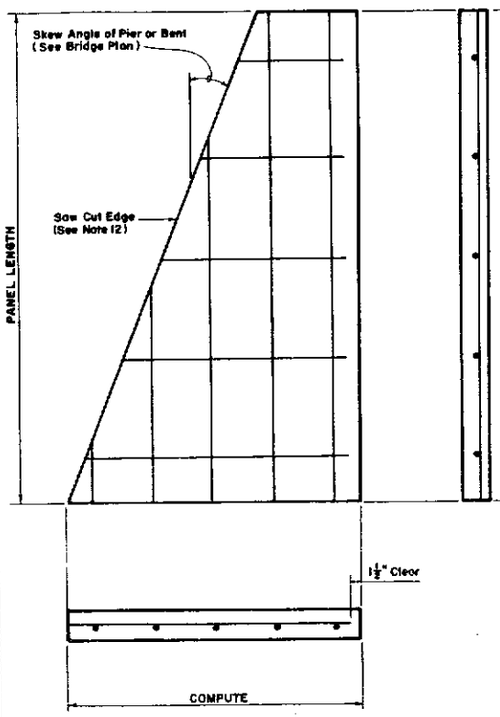
REVISIONS	
Dates	Descriptions

ROAD NO.	COUNTY	PROJECT NO.

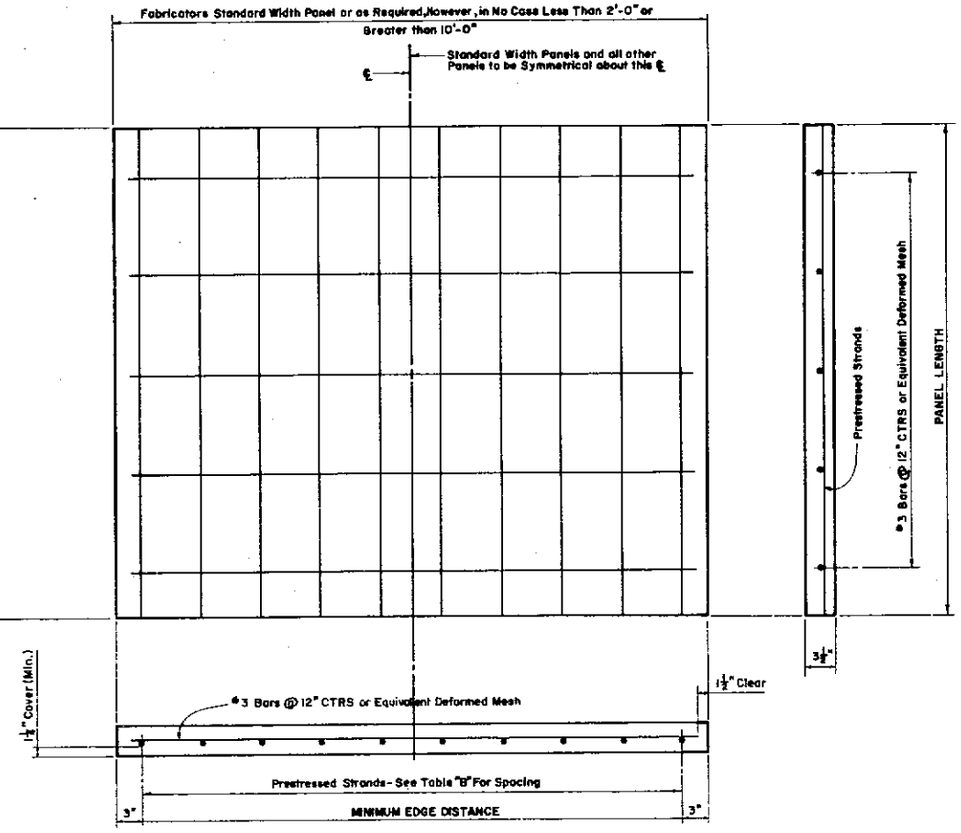
	Names	Dates
Designed by	CK	9-82
Checked by	AJH	9-82
Quantities by		
Checked by		
Supervised by	AJH	

APPROVED BY
Deputy Design Engineer
Drawing No. 1 of 3
Index No. 12641

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL-PRECAST PRESTRESSED PANELS-RECTANGULAR

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a-Concrete shall be Class III (f'c=5,000 p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 346.

b-Prestressing Strands shall be $\frac{3}{8}$"ø or $\frac{7}{16}$"ø 250K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A 416. See Table.

c-All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d-Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e-The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel-Class E) or Mortar Blocks, in Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Premitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) + $\frac{1}{4}$" to − $\frac{1}{4}$" ✱; Length of Panel ± 1"
Position of Strands + $\frac{1}{8}$", −0" Vertically ✱
± $\frac{1}{2}$" Horizontally
✱ Measured from Bottom of Panel.

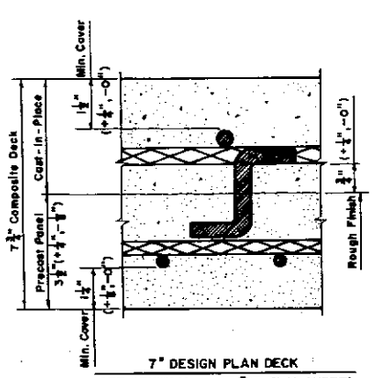
10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

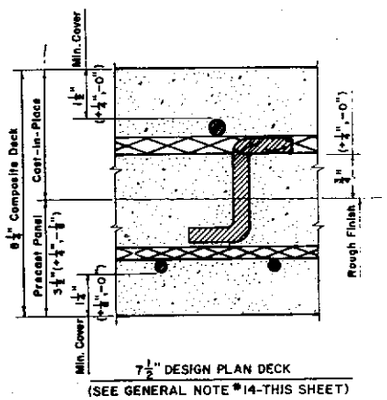
12- Saw Cut Edges, With Exposed Distribution Steel, Must Be Placed In Bearing On Top of the End Diaphragm In The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

13- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel In The Cast-In-Place Portion, This 7" Design Plan Deck will be Poured 7¾" Thick in all cases in the field at No Additional Increase in Contract Price.

14- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel In The Cast-In-Place Portion, This 7½" Design Plan Deck will be Poured 8½" Thick in all cases in the field at No Additional Increase in Contract Price.



7" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱13-THIS SHEET)



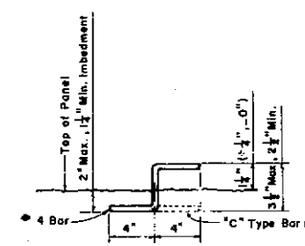
7½" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱14-THIS SHEET)

MINIMUM COVERAGE DETAILS

DESIGN TABLE "8"-3½" FLAT PANELS

CLEAR SPAN	DESIGN DECK THICKNESS	STRANDS	STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH UP TO AND INCLUDING 40'	7"	⅜"ø 250K	9.5"	7/16"ø 250K	13"
50'			9"		12"
60'			8"		11"
70'			7"		10"
80'			6"		9"
90'			5.5"		8"
100'			5"		7"
110'			4.5"		6"
60'	7½"		9"		12"
70'			8"		10"
80'			7"		9"
90'			6"		8"
100'			5.5"		7"
110'			4.75"		6"
120'			4"		5"

Prestressing Pull for ⅜"ø 250K Strands = 14,000 lbs. Each.
Prestressing Pull for 7/16"ø 250K Strands = 18,900 lbs. Each.



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of #4 Bar shall have a Minimum Imbedment of 1½" In Precast Panel and shall have a Minimum Cover of 1¼" (+⅛", −0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than 1½" (1¼", +¼", −0") Above the Top of the Panel.

FHWA APPROVED: 10-2-80

FLAT PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR 7" AND 7½" COMPOSITE DECK
1½" CLEAR AT BOTTOM - 1½" CLEAR AT TOP

REVISIONS	
Dates	Descriptions
8-79	Added Tolerances & Revised Design
8-80	Design Table Expanded

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	CK	5-78
Checked by	CWB	6-78
Quantities by		
Checked by		
Supervised by	AJH	

APPROVED BY
Deputy Design Engineer, Structures

Drawing No. 2 of 3
Index No. 12641

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FINISH YEAR	SHEET NO.
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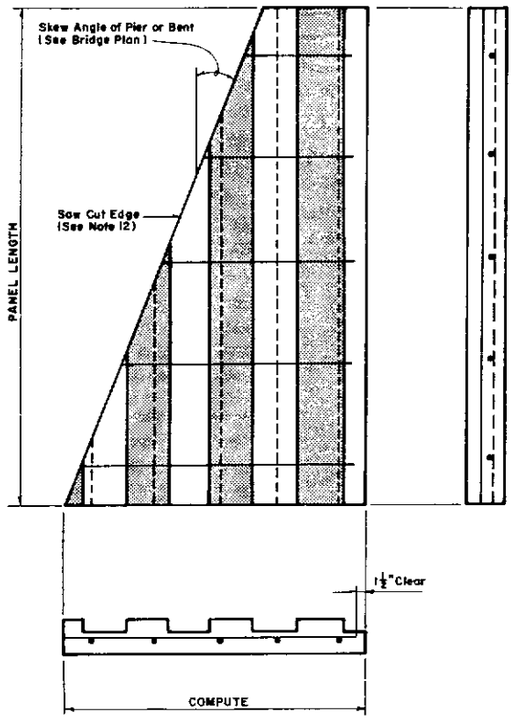
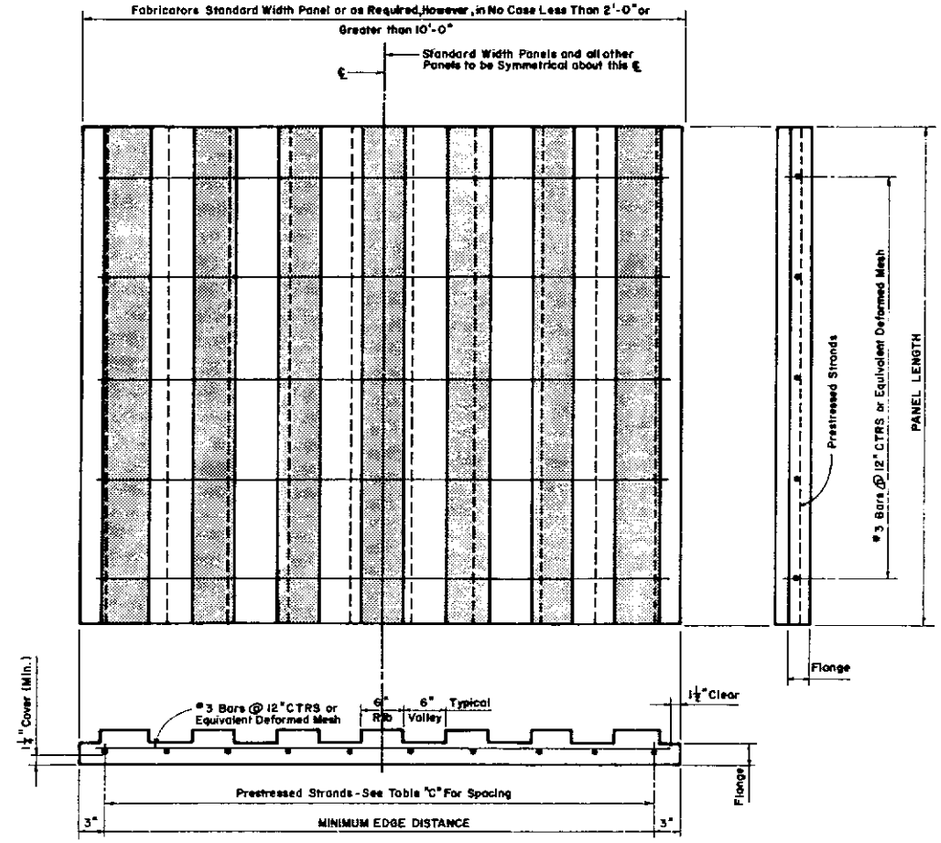
NOTE: Prestressing Strands Shown as Heavy Dashed Line In Plan and Side View for Clarity Prestressing Strands May Be Placed Under Ribs Only In A Symmetrical Pattern About The Center Line.



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL RIBBED-PRECAST PRESTRESSED PANELS - RECTANGULAR

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a-Concrete shall be Class III ($f'c$=5,000 p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 345.

b-Prestressing Strands shall be $\frac{3}{8}$"ø or $\frac{7}{16}$"ø 250K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A416. See Table.

c-All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d-Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e-The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel-Class E) or Mortar Blocks, In Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Premitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) $+\frac{1}{4}$" to $-\frac{1}{8}$" ✱, Length of Panel ±1"
Position of Strands $+\frac{1}{8}$", -0" Vertically ✱
±$\frac{1}{8}$" Horizontally
✱ Measured from Bottom of Panel.

10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

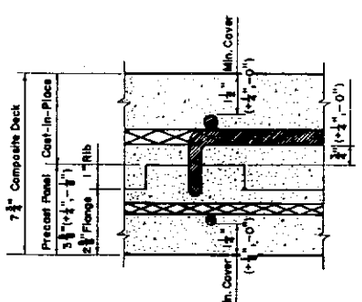
11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

12- Saw Cut Edges, With Exposed Distribution Steel, Must Be Placed In Bearing On Top of the End Diaphragm In The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

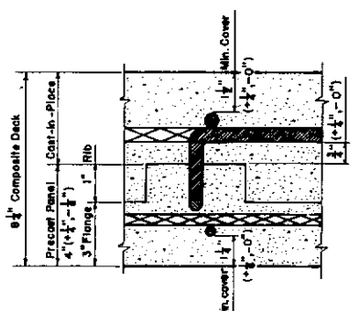
13- To Allow for all Tolerances in Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 7" Design Plan Deck will be Poured 7$\frac{3}{4}$" Thick in all cases in the field at No Additional Increase in Contract Price.

14- To Allow for all Tolerances in Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 7$\frac{1}{2}$" Design Plan Deck will be Poured 8$\frac{1}{4}$" Thick in all cases in the field at No Additional Increase in Contract Price.

15- The Fabricator May Elect to Fill One Valley on Each Side of the Center Line Symmetrically to Provide Coverage so that He Can Use A "Z", "C" or other Type of Mechanical Interlock Bar. See Sheet 2 of 3 for Details.



7" DESIGN PLAN DECK
(SEE GENERAL NOTE #13-THIS SHEET)



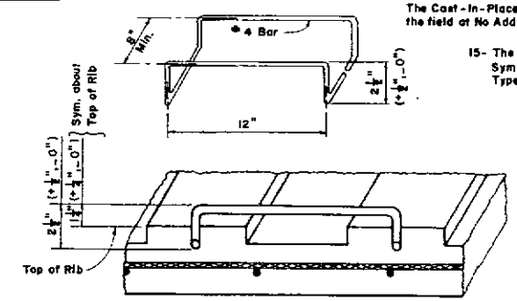
7½" DESIGN PLAN DECK
(SEE GENERAL NOTE #14-THIS SHEET)

MINIMUM COVERAGE DETAILS

DESIGN TABLE "C"-RIBBED PANELS

CLEAR SPAN		DESIGN DECK THICKNESS	STRANDS	STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH UP TO AND INCLUDING	40"	7"	$\frac{3}{8}$"ø 250K	9.5"	$\frac{7}{16}$"ø 250K	13"
	50"			9"		12"
	60"			8"		11"
	70"			7"		10"
	80"			6"		9"
	90"			5.5"		8"
	100"			5"		7"
	110"			4.5"		6"
	60"	7½"		9"		12"
	70"			8"		10"
	80"			7"		9"
	90"			6"		8"
	100"			5.5"		7"
	110"			4.75"		6"
	120"			4"		5"

Prestressing Pull for $\frac{3}{8}$"ø 250K Strands = 14,000 lbs. Each.
Prestressing Pull for $\frac{7}{16}$"ø 250K Strands = 18,900 lbs. Each.



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of #4 Bar shall have a Minimum Imbedment of 1½" in Precast Panel and shall have a Minimum Cover of 1¼" (+⅛", -0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than 1½" (1½", +¼", -0") Above the Top of the Panel.

FHWA APPROVED: 10-2-80

RIBBED PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR 7" AND 7½" COMPOSITE DECK
1½" CLEAR AT BOTTOM 1½" CLEAR AT TOP

REVISIONS	
Date	Descriptions
5-79	Added Tolerances & Revised Design
5-80	Design Table Expanded

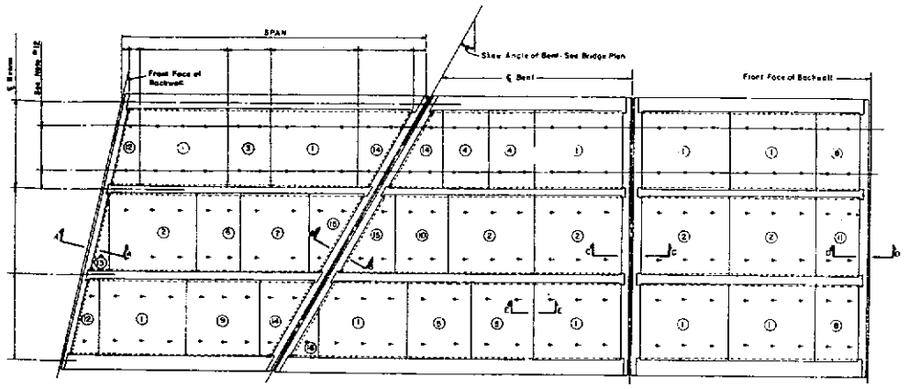
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	JMG	5-78
Checked by	CK	6-78
Quantities by		
Checked by		
Supervised by	AJH	

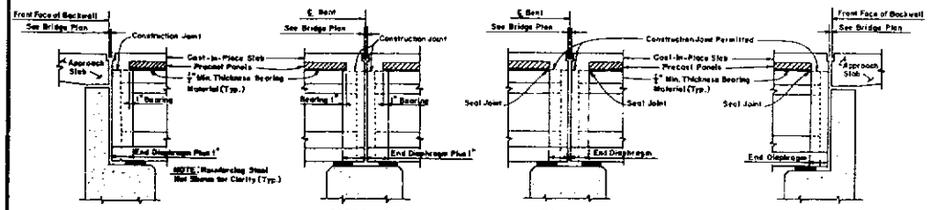
APPROVED BY: F. W. [illegible]
Deputy Design Engineer, Structures

Drawing No. 3 of 3
Index No. 12641

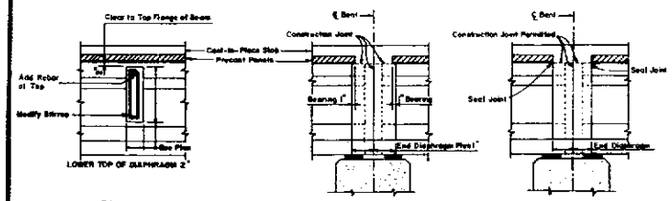
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



PLAN OF DECK PANELS
(SEE TABLE "A")



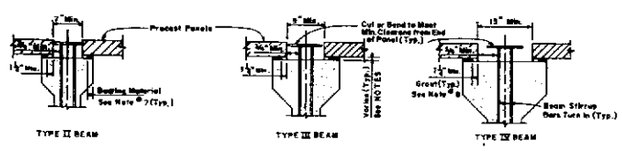
SECTION A-A (AT SKEWED END BENT)
SECTION B-B (AT SKEWED BENT)
SECTION C-C (BENT PERPENDICULAR TO ROADWAY)
SECTION D-D (END BENT PERPENDICULAR TO ROADWAY)



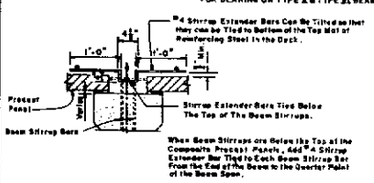
SECTION AT INTERMEDIATE DIAPHRAGMS
CONTINUOUS SPAN SECTION AT SKEWED BENT
CONTINUOUS SPAN SECTION AT PERPENDICULAR BENT

TABLE "A"

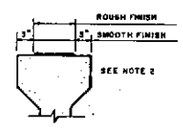
PANEL NO.	REMARKS
① ②	Fabricators Standard Width Panel
③	Filler Panel, 2'-0" Minimum Width
④ ⑤	Filler Panels of Equal Width Both 2'-0" or Wider
⑥ ⑦	Filler Panels - One 2'-0" (Min. Width) Unit, Other Panel Width as Required.
⑧ ⑨ ⑩ ⑪	Filler Panels - Width as Provided >2'-0"
⑫ ⑭ ⑬ ⑮	End Panels at Skewed Bents See Cut from Rectangular Panel Bent Skewed Edge 1" or Support
⑯	Permissible Only Where Required by Extreme Skew Angle of Bent.



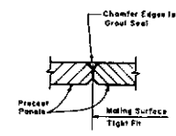
PANEL BEARING CONDITIONS
FOR BEARING ON TYPE II & TYPE III BEAMS SEE GENERAL NOTE #11



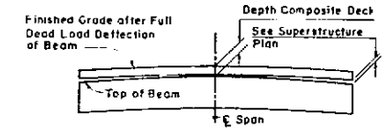
STIRRUP EXTENDER BARS



REQUIRED FINISH OF TOP FLANGE OF CONCRETE BEAM



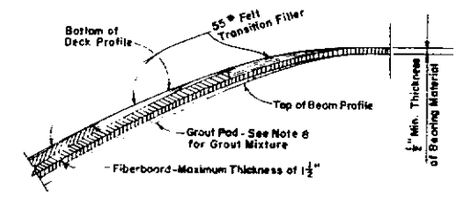
SECTION E-E



SKETCH SHOWING RELATIONSHIP OF BEAM AND DECK SLAB

PROFILE — DECK AND SUPPORT

Where beam camber differs from that shown in the Plans, adjust thickness of bearing material. Maximum thickness of fiberboard to be $1\frac{1}{2}$". When necessary to achieve a thickness greater than $1\frac{1}{2}$", fiberboard may be set on an approved grout pad so that the Deck thickness conforms to the Plan dimension. Transitions in bearing thickness shall be accomplished by using layers of 55 # roofing felt, fiberboard and grout pads so placed as to control the bottom of the Panel Profile so that it is Parallel to the finished grade profile, and the Plan Deck Thickness is Maintained. Adequate measures shall be taken to ensure the sealing of all contact surfaces between Precast, Prestressed Panels and Supporting Units. (See Enlarged Schematic)



SCHEMATIC - CAMBER ADJUSTMENT

GENERAL NOTES

1 - When Precast Prestressed Panels are Used on a Bridge Structure at the Option of the Contractor, it shall be the Sole Responsibility of the Contractor to Increase the Finished Grade Elevations and to make all Adjustments Required by this Increase.

2 - Contractor shall Instruct the Producers of Concrete Beams to Provide a 3" Wide Smooth Finish at the Outside Edges of the Top Flange for Precast Panel Bearing and Grout Seal.

3 - When Precast Prestressed Panels are Substituted, Payment shall be made at the Contract Unit Prices for Concrete and Steel. The Quantities to be Paid for will be those Quantities which would be Paid for if Conventional Construction was Utilized. The Contract Unit Price for Concrete shall Include the Cost of All Bearing Materials.

4 - Precast Prestressed Panels shall not be used on Steel Beams.

5 - Precast Prestressed Panels shall not be used under Barrier Walls with Reinforcing Steel Projecting Into The Deck Slab.

6 - Before Any Precast Prestressed Panels are Placed in Position in Any Span, the Contractor shall Establish the Finished Grade Elevations and make the Required Camber Adjustments in a minimum of TWO Spans Ahead of the Span to be Set.

7 - The Erected Precast Panels shall Bear Uniformly on Continuous Layers of an Approved Material Such as Mastic, Felt, Fiberboard and /or Grout that will Provide a Mortar Tight Uniform Bearing. The Bearing Material Shall be Placed Along the Outer Edges of Each Beam and the Inside Edge of the End Diaphragms at Skewed Bents.

8 - After the Precast Prestressed Panels have been set to Proper Grade on Bearing Material, The remaining Space Between the end of the Panels and the Bearing Material [1¼" Min. Width] shall be filled with cement Grout. The Grout shall consist of one part portland cement to two parts clean sand with enough water to make a thick paste mixture. The Grout paste shall be placed by Trowel on Moisture Saturate Surfaces and Allowed to Set Before Placing Cast-In-Place Concrete. The Grout shall be Placed in a manner which will produce a leakproof seal.

9 - Precast Panels in their Final Position shall be Mortar Tight at Both the Outer Edges and the Mating Surfaces. The Top Surface of the Precast Panels Must be Free of Any Foreign Material to insure Full Bond with the Cast-In-Place Concrete. Immediately Prior to Placing the Cast-In-Place Concrete the Precast Panels shall be Saturated with Fresh Water.

10 - End Diaphragms Shown in Sections are not Dimensioned in Width, See Bridge Plan for Sizes. Add One (1) Inch to Width of Diaphragms at Skewed Bents to Provide Bearing for Precast Panels. Reinforcing Steel in End Diaphragms will not Change.

11 - The Bearing Width on Type IV and Type VI Precast Prestressed Beams shall be $2\frac{1}{2}$"(-$\frac{1}{2}$", +0") Past the End of Transverse Reinforcing Steel in the Top Flange of the Beam

12 - The Transverse Spacing of The Mechanical Interlock Reinforcing shall clear the Longitudinal Distribution Steel of the Poured in Place Concrete and the Transverse Spacing shall be Constant Thru Out Spans of Equal Beam Spacing.

REVISIONS	
Date	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR COMPOSITE DECK WITH $1\frac{3}{4}$" CLEARANCE OF BOTTOM MAT OF STEEL

ROAD NO.	COUNTY	PROJECT NO.

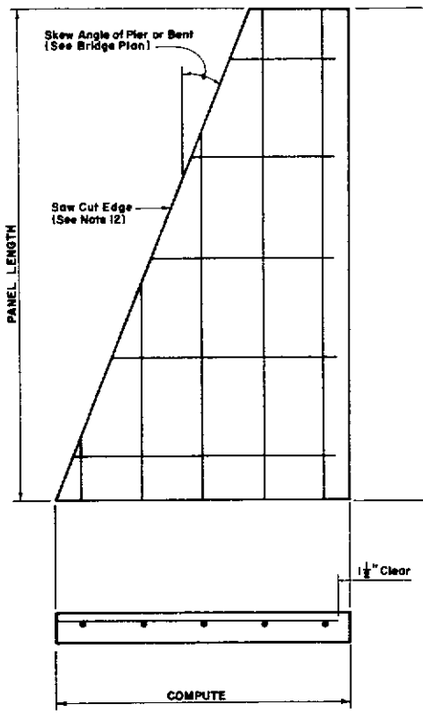
	Name	Date
Designed by	CK	9-82
Checked by	AJH	9-82
Quantities by		
Checked by		
Supervised by	AJH	

APPROVED BY
Deputy Design Engineer, Bridges

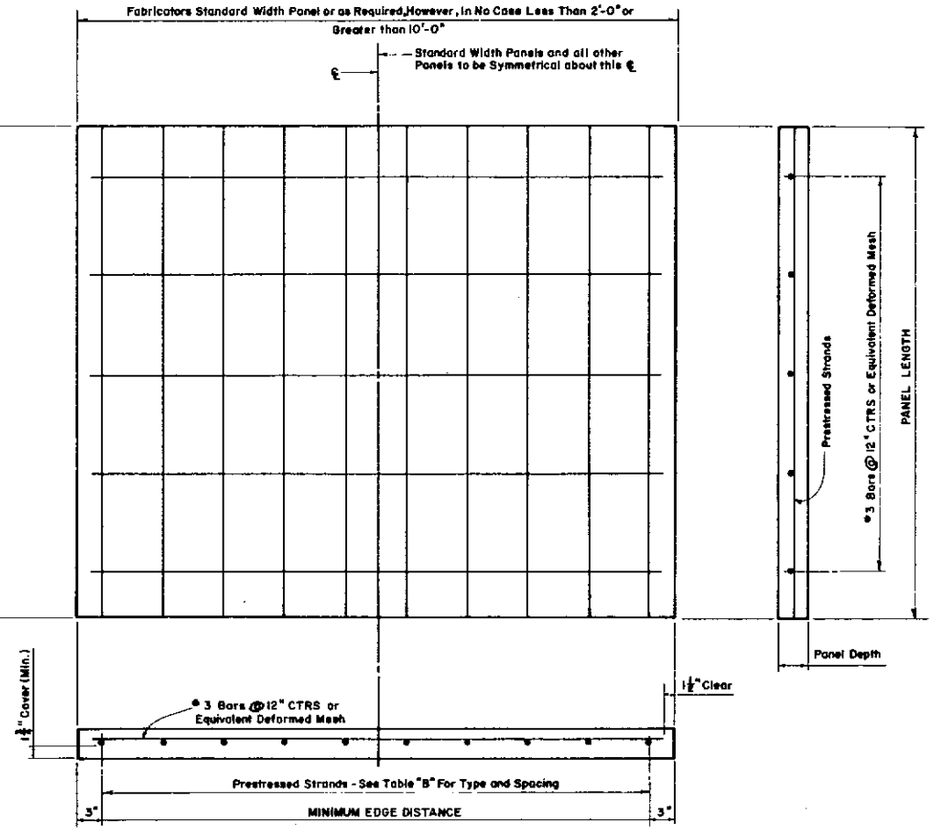
Drawing No.	Index No.
1 of 3	12642

J POLYTRACE 353

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL-PRECAST PRESTRESSED PANELS-RECTANGULAR

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a-Concrete shall be Class IV (f'_c=5,000 p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 345.

b-Prestressing Strands shall be $\frac{3}{8}$"ø or $\frac{7}{16}$"ø 250 K or 270 K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A416. See Table.

c-All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d-Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e-The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel-Class E) or Mortar Blocks, in Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Premitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) $+\frac{1}{4}$" to $-\frac{1}{8}$" ✱, Length of Panel ± 1"
Position of Strands $+\frac{1}{8}$", - 0" Vertically ✱
$\pm\frac{1}{8}$" Horizontally
✱ Measured from Bottom of Panel.

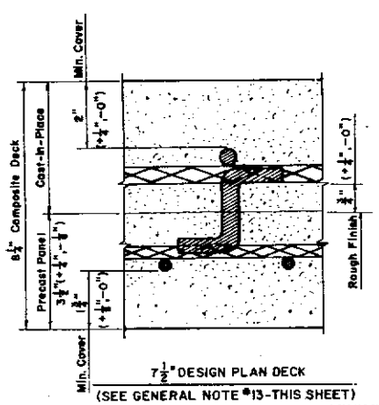
10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

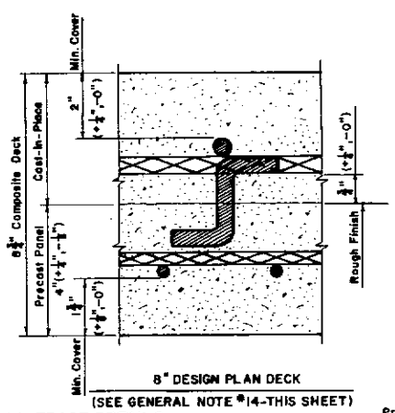
12- Saw Cut Edges, With Exposed Distribution Steel, Must be Placed in Bearing On Top of the End Diaphragm in The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

13- To Allow for all Tolerances in Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-in-Place Portion, This $7\frac{1}{2}$" Design Plan Deck will be Poured $8\frac{1}{4}$" Thick in all cases in the field at No Additional Increase in Contract Price.

14- To Allow for all Tolerances in Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-in-Place Portion, This 8" Design Plan Deck will be Poured $8\frac{3}{4}$" Thick in all cases in the field at No Additional Increase in Contract Price.



7½" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱13-THIS SHEET)

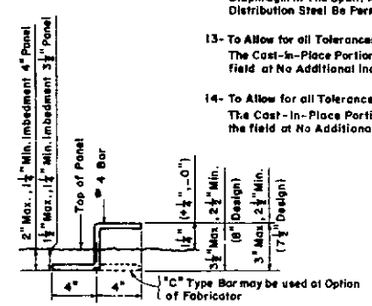


8" DESIGN PLAN DECK
(SEE GENERAL NOTE ✱14-THIS SHEET)

MINIMUM COVERAGE DETAILS

DESIGN TABLE "B"-3½" AND 4" FLAT PANELS						
CLEAR SPAN		DESIGN DECK THICKNESS	STRANDS	STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH	40"	7½"	⅜"ø 250K	9.5"	7/16"ø 250K	13"
UP TO AND INCLUDING	50"		⅜"ø 270K	8.75"		10"
	60"			6"		7.5"
	70"			5"		5.5"
	80"			4"		4.5"
	90"			3"		3.75"
	100"			2.5"		3"
	70"	8"		7"		8.25"
	80"			6"		7"
	90"			5"		5.75"
	100"			4.5"		5.25"
	110"			4"		4.5"
	120"			3.5"		4"
	130"			3"		3.5"

Prestressing Pull for ⅜"ø 250K Strands=14,000lbs.Each; Prestressing Pull for 7/16"ø 250K Strands=18,900lbs.Each, Prestressing Pull for ⅜"ø 270K Strands=16,100lbs.Each.



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of ✱4 Bar shall have a Minimum Imbedment of $1\frac{3}{4}$" in Precast Panel and shall have a Minimum Cover of $1\frac{3}{4}$"(+¼", -0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than $1\frac{1}{2}$"($1\frac{1}{4}$", +¼", -0") above the Top of the Panel.

FHWA APPROVED: 10-2-80

FLAT PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR $7\frac{1}{2}$" AND 8" COMPOSITE DECK
$1\frac{3}{4}$" CLEAR AT BOTTOM - 2" CLEAR AT TOP

REVISIONS	
Dates	Descriptions
6-79	Added Tolerances & Revised Design
8-80	Design Table Expanded

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	CK	5-78
Checked by	CWB	6-78
Quantities by		
Checked by		
Supervised by	AJH	

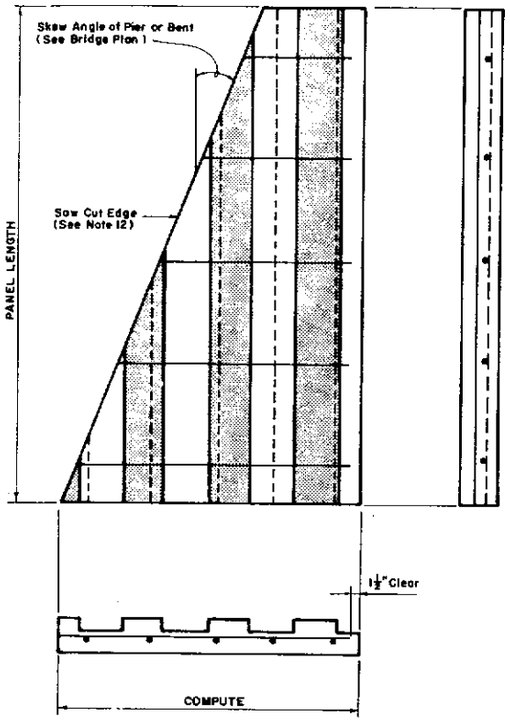
APPROVED BY: Deputy Design Engineer, Structures

Drawing No. 2 of 3

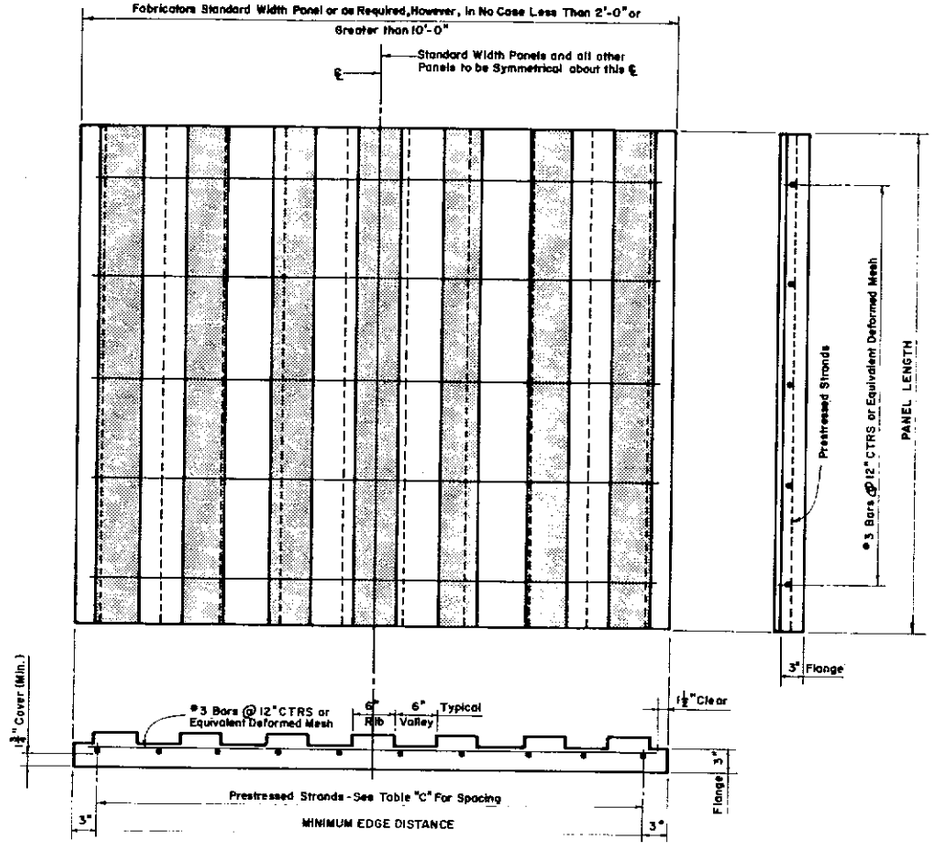
Index No. 12642

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

NOTE: Prestressing Strands Shown as Heavy Dashed Line in Plan and Side View for Clarity Prestressing Strands May Be Placed Under Ribs Only In A Symmetrical Pattern About The Center Line.



DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)



DETAIL RIBBED-PRECAST PRESTRESSED PANELS-RECTANGULAR

GENERAL NOTES FOR PRECAST PANELS

1- Shop Drawings shall be Submitted, Showing Complete Shop Details for the Precast Prestressed Panels. Details shall Include Mechanical Interlock Reinforcing, Lifting Devices, Panel Dimensions, Clearances, Reinforcing Steel, Prestress Strand Size, Type and Pull, Material Specifications and a Detensioning Schedule that will be Symmetrical about the Vertical Centerline of the Panel. Method of Placement and Method of Consolidation of Concrete Around Mechanical Interlock Reinforcing.

2- MATERIALS:

a-Concrete shall be Class IV (fc=5,000p.s.i.) No Prestressing Strand shall be Released Until the Concrete has Reached a Minimum Compressive Strength of 4,000 p.s.i. Concrete shall meet the Requirements of Standard Specification Section 345.

b-Prestressing Strands shall be $\frac{3}{8}$"ø or $\frac{7}{16}$"ø 250 K or 270 K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A 416. See Table.

c-All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.

d-Coarse Aggregate for Precast Panel Concrete shall be Grade 89, 7 and 57 and shall meet all other Requirements of Section 901.

e-The Prestressing Strands shall be Supported as Required by Either Reinforcing Steel Bar Supports (Stainless Steel-Class E) or Mortar Blocks, In Accordance with Section 415, Paragraph 415-5.10 and 415-5.13.

3- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.

4- Mechanical Interlock Reinforcing of 0.60 Square Inches of Reinforcing Steel Per Ten (10) Sq. Ft. of Panel Surface shall be Provided. Alternate Designs will be Permitted, Subject to the Approval of the Engineer. Shop Drawings shall show Location of all Mechanical Interlock Reinforcing.

5- Lifting Hooks or Devices will be Permitted But will be the Sole Responsibility of the Contractor. Any Hook or Device that Pulls Out of the Panel During Handling will be Cause for Rejection of the Panel. Lifting Devices shall not be Attached to or Hooked Under the Panel Reinforcing Steel or Prestressing Strands. Lifting Devices shall be shown on the Shop Drawings for the Approval of the Engineer.

6- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.

7- The Top Surface of the Precast Panels shall be Roughened at the Approximate time of Initial Set by Brushing, Brooming, Burlap Drag or Other Approved Method. This Surface shall be Kept Free of all Contaminants Such as Oil. (Particularly Bond-Breaking Substances)

8- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.

9- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
Depth (Thickness of Panels) $+\frac{1}{4}$" to $-\frac{1}{8}$" *; Length of Panel ± 1"
Position of Strands $+\frac{1}{8}$", -0" Vertically *
± $\frac{1}{2}$" Horizontally
*-Measured from Bottom of Panel.

10- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.

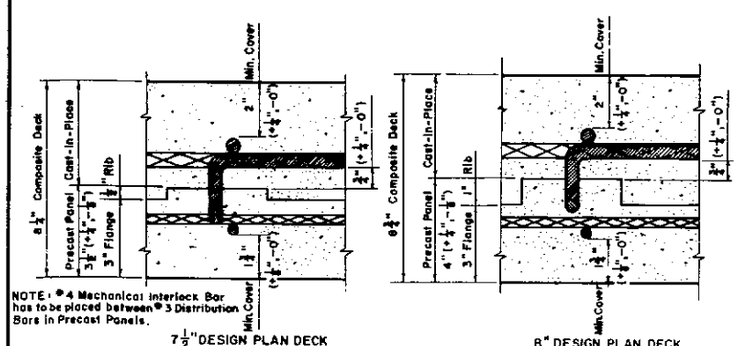
11- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.

12- Saw Cut Edges, With Exposed Distribution Steel, Must be Placed in Bearing On Top of the End Diaphragm In The Span. At No Other Place Within The Span Will A Saw Cut Edge With Exposed Distribution Steel Be Permitted.

13- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel In The Cast-In-Place Portion, This $7\frac{1}{2}$" Design Plan Deck will be Poured $8\frac{1}{4}$" Thick in all cases in the field at No Additional Increase In Contract Price.

14- To Allow for all Tolerances In Fabricating the Precast Panels and Placing the Reinforcing Steel in The Cast-In-Place Portion, This 8" Design Plan Deck will be Poured $8\frac{3}{4}$" Thick in all cases in the field at No Additional Increase In Contract Price.

15- The Fabricator May Elect to Fill One Valley on Each Side of the Center Line Symmetrically to Provide Coverage so that He Can Use A "Z", "C" or other Type of Mechanical Interlock Bar. See Sheet 2 of 3 for Details.



NOTE: #4 Mechanical Interlock Bar has to be placed between #3 Distribution Bars in Precast Panels.

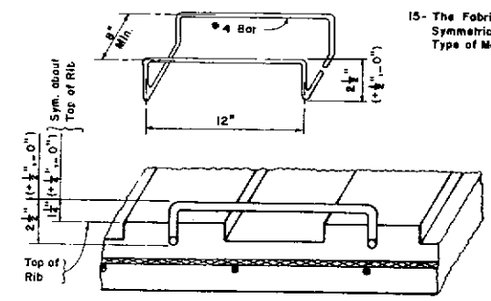
$7\frac{1}{2}$" DESIGN PLAN DECK
(SEE GENERAL NOTE #13-THIS SHEET)

8" DESIGN PLAN DECK
(SEE GENERAL NOTE #14-THIS SHEET)

MINIMUM COVERAGE DETAILS

DESIGN TABLE "C"- RIBBED PANELS						
CLEAR SPAN	DESIGN DECK THICKNESS	STRANDS	STRAND SPACING	STRANDS	STRAND SPACING
MINIMUM LENGTH 40"	$7\frac{1}{2}$"	$\frac{3}{8}$"ø 250K	9.5"	$\frac{7}{16}$"ø 250K	13"
UP TO AND INCLUDING 50"		$\frac{3}{8}$"ø 270K	8.75"		10"
60"			6"		7.5"
70"			5"		5.5"
80"			4"		4.5"
90"			3"		3.75"
100"			2.5"		3"
70"	8"		7"		8.25"
80"			6"		7"
90"			5"		5.75"
100"			4.5"		5.25"
110"			4"		4.5"
120"			3.5"		4"
130"			3"		3.5"

Prestressing Pull for $\frac{3}{8}$"ø 250K Strands=14,000lbs.Each; Prestressing Pull for $\frac{7}{16}$"ø 250K Strands=18,900lbs.Each.
Prestressing Pull for $\frac{3}{8}$"ø 270K Strands=16,100lbs. Each.



MECHANICAL INTERLOCK REINFORCING

(NOTE: Bottom Leg of #4 Bar shall have a Minimum Imbedment of $1\frac{1}{4}$" in Precast Panel and shall have a Minimum Cover of $1\frac{3}{4}$"(+$\frac{1}{8}$",-0") from the Bottom of the Panel. However the Top of the Bar shall not be Higher than $1\frac{1}{2}$"($1\frac{1}{4}$",+$\frac{1}{4}$",-0") Above the Top of the Panel.

REVISIONS	
Date	Descriptions
8-78	Added Tolerances & Revised Design
8-80	Design Table Expanded

FHWA APPROVED: 10-2-80

RIBBED PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR $7\frac{1}{2}$" AND 8" COMPOSITE DECK
$1\frac{3}{4}$" CLEAR AT BOTTOM - 2" CLEAR AT TOP

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	JMG	5-78
Checked by	CK	6-78
Quantities by		
Checked by		
Supervised by	AJH	

APPROVED BY
Deputy Design Engineer, Structures

Drawing No. 3 of 3

Index No. 12642

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: State of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Current Edition with approved Supplements thereto.

DESIGN SPECIFICATIONS: American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges, Current Edition with Approved Revisions thereto.

DESIGN LOADING: Designed in accordance with HS20-44 loading.

FUTURE WEARING SURFACE: An allowance of 15 lbs. per sq. ft. is included for future wearing surfaces.

REINFORCING STEEL: All reinforcing steel shall conform to ASTM A-615 Grade 40 or Grade 60 unless otherwise noted.

PILING: Piling shall be 18" sq. Prestressed Concrete Piles. For Quantities see Summary of Bridge Pay Items. Maximum pile loads shall be as follows:

BRIDGE WIDTH	SPAN LENGTH (FT)	LOCATION	PILE LOAD (TONS)
40 FT. ROADWAY	25 To 35	End Bent	30
	25 & 27.5	Intermediate Bent	40
	30 & 32.5	Intermediate Bent	45
	35	Intermediate Bent	50
44 FT. ROADWAY	25 To 35	End Bent	30
	25	Intermediate Bent	40
	27.5 & 30	Intermediate Bent	45
	32.5	Intermediate Bent	50
	35	Intermediate Bent	55

CONCRETE: Class II Concrete ($f'c$ = 3400 psi) shall be used throughout the Substructure. Class II Concrete ($f'c$ = 3400 psi) shall be used for field cast concrete in the Superstructure. Class III Concrete ($f'c$ = 5000 psi) shall be used for prestressed members.

CONCRETE FINISH: Concrete shall be finished in accordance with Specifications. All exposed top, inside and outside surfaces of End Bent Wingwalls, and Concrete Handrail Barrier and outside surfaces of Slab Units shall receive a "Class 5 Applied Finish Coating."

ENVIRONMENT: These plans shall only apply to structures located in noncorrosive (Non Coastal) environments.

LIMITATIONS FOR USE: These drawings shall not be used for Structures located in Superelevation Transition or for Structures on alignments where the slope (Camber not used) of the slab unit on the bearing is greater than 0.04 feet per foot.

BITUMINOUS MATERIAL: For Type of Bituminous Material, Estimated Quantities, and payment See Roadway Plans.

ALTERNATE SECTIONS: At the option of the Contractor, wider units may be furnished provided the amount of prestressing per foot of width is maintained.

PRESTRESSED MEMBERS

FINISH: The top of prestressed units shall be finished smooth by floating or brooming. All other surfaces of the units shall receive a "Class 3" surface finish. The edges of the top surface of the units shall be finished by use of a small radius tool.

CONCRETE STRENGTH: At transfer of the prestressing load, the cylinder strength of the concrete shall be 4000 psi.

HANDLING & STORAGE: During handling and storage, the prestressed units must be maintained in an upright position at all times. The units must be picked up at the ends of the units to prevent damage.

FORMS & PALLETS: All prestressed units shall be cast on concrete based pallets and in metal forms.

STRANDS: At the option of the Contractor, stabilized strands may be used in lieu of stress relieved strands. Calculations are to be submitted showing the substitution meets the following requirements:
1. The strands meet all requirements of ASTM A-416 Grade 270.
2. The net compressive stress in the concrete after all losses is at least as large as that provided by the 270K stress relieved strands.
3. The ultimate strength of the structure meets the requirements of the applicable AASHTO Specifications.

At the option of the Contractor, 250K stress relieved strands may be substituted in lieu of the 270K strands shown provided that calculations are submitted showing compliance with the requirements of items 2 and 3 above. Where alternate strands are proposed, the required calculations shall be submitted with the Shop Drawings.

STRAND EXTENSION: All strands shall extend $2\frac{1}{2}$" beyond the ends of the prestressed units.

TIE BARS: Tie bars shall be $1\frac{1}{4}$" ø Bars for post-tensioning and shall comply with the requirments of Section 933 of the Specifications. The tie bars shall be stressed and anchored at 125,000 lbs. per post-tensioned bar.

SHOP DRAWINGS: The contractor shall submit 7 sets of shop drawings, showing complete details of the proposed prestressed units. The drawings shall include reinforcing steel, prestressing steel, prestressing bed layout, tensioning and detensioning schedules, and all computations required to control the work.

BEARING PADS: Neoprene bearing pads shall be $\frac{1}{2}$" X 6" strips in accordance with section 932-2 of the Specifications. The pads may be continuous strips or multiple lengths of 2'-0" minimum length. The pads may be cut from commercially available sheets and shall be Grade 50.

PAYMENT: The contract unit price for the precast-prestressed units shall include the units, prestressed strands, reinforcing steel shipped with the units, tie bars and anchorages, neoprene bearing pads, premoulded expansion material, and epoxy mortar.

TIE BAR ANCHORAGES: The fabricator shall submit details of the Tie Bar Anchorage and Anchorage Reinforcement details for approval with the Shop Plans.

CONSTRUCTION NOTES

EQUIPMENT ON UNITS: Before heavy construction equipment is permitted on the structure during construction, sketches showing the axle spacing and anticipated loadings shall be submitted to and approved by the Engineer.

FILLING KEYWAYS: During placement of the units, or prior to filling the joints between the units and keyways with epoxy mortar, the bottom of the openings shall be sealed to prevent leakage during placement of the epoxy mortar. The seal shall extend upward from the bottom of the unit a maximum of 1 inch. The material proposed for the seal shall be shown on the shop plans for approval by the Engineer. After the seals are in place for the entire superstructure, the joints and keyways shall be filled with epoxy mortar (See Epoxy Mortar Note below). Careful attention shall be given to the areas where the tie bars and anchorages for the tie bars are to be installed to avoid filling these holes.

TIE BARS: The transverse post-tensioned tie bars shall not be tensioned until the epoxy mortar in the joints and keyways has been cured for a minimum of 72 hours. The bars shall be installed, post-tensioned and anchored to 125,000 lbs. each.

GROUTING BARS: The tie bars shall be grouted in accordance with section 450-11 of the Specifications. The grouted tie bars shall not be disturbed, nor shall appreciable loads be placed on the span for a period of 72 hours following grouting.

FILLING ANCHORAGE BLOCKOUTS: All recesses and blockouts for post-tensioned tie bars shall be filled with non-shrinking grout.

"CONTINUED"

PLACING BARRIER WALLS & SURFACING: After all tie bars have been grouted and the minimum 72 hours have passed for all tie bars, the barrier walls and wearing course shall be placed.

SAWED JOINTS: A control crack shall be provided by sawing at all supports a joint, the depth of the wearing surface, from gutter to gutter. The joint shall be centered over the centerline of the concrete joint and shall be sawed upon completion of the surfacing.

EPOXY MORTAR MIX: The epoxy mortar shall be composed of a mixed epoxy binder and sand as follows:

(a) BINDER
The binder shall be a two component (1:1 ratio hydro-ester) material meeting the following requirements:

(1.) The material shall be insensitive to moisture.

(2.) The material shall adhere to wet concrete.

(b) SAND
The sand filler shall be kiln dried silica sand meeting these gradation requirements:

STANDARD SAND

U.S. Sieve Size	% Passing
No. 4	100
No. 16	90-100
No. 30	30-50
No. 50	0-10
No. 100	0-5

ALTERNATE SAND

U.S. Sieve Size	% Passing
No. 4	100
No. 10	90-100
No. 20	0-5
No. 40	0

(c) MIXING
The epoxy mortar shall be machine mixed in strict accordance with the manufacturer's directions.

(1.) One part of binder shall be combined with a maximum of three parts of sand filler.

(2.) No more filler shall be mixed than can be placed into the joints and keyways in a period of 20 min. Any material so mixed and not used within the 20 minutes immediately following shall be discarded.

(3.) For joints where the above mix will not flow into the voids, the mix may be thinned by adding additional binder to the mix.

(d) STRENGTH
The strength of the epoxy mortar shall be considered acceptable provided that 2 inch cubes of the material demonstrate a compressive strength of 6500 psi when tested. The mix proportions for the test cubes shall consist of one part binder to one part sand filler. The specimen shall be cured at a temperature of 66°F to 74°F and shall be tested in accordance with Section 926-3.2(b) of the Specifications.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

GENERAL & CONSTRUCTION NOTES

REVISIONS	
Dates	Descriptions
10/80	Revised Environment Note added (Non Coastal)
11/3/80	Concrete Finish
5/81	Concrete Finish
6/82	Revised Strength Note.
9/82	Added Bearing Pad Grade.

ROAD NO.	COUNTY	PROJECT NO.

	Initials	Dates
Designed by	C.W.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M	

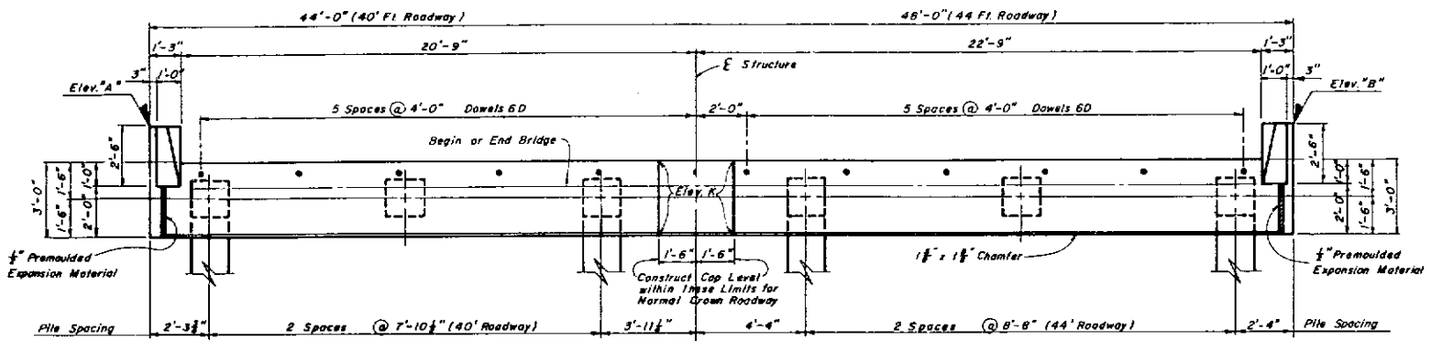
APPROVED BY
Deputy Design Engineer, Structures

Drawing No.	Index No.
1 OF 1	12661

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

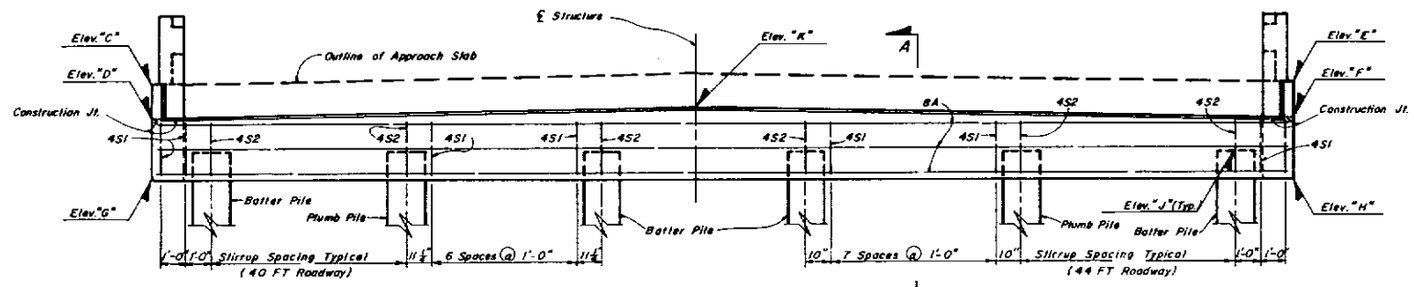
ESTIMATED QUANTITIES

WIDTH	ITEM	CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT. RDWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.0	1,724
	Spans = 30.5' & 35' Normal Cross Slope	14.1	1,729
	Spans = 25', 27.5' & 30' Superelevated Slope	12.9	1,724
	Spans = 32.5' & 35' Superelevated Slope	13.0	1,729
44 FT. RDWY	Spans = 25', 27.5' & 30' Normal Cross Slope	15.3	1,865
	Spans = 32.5' & 35' Normal Cross Slope	15.4	1,871
	Spans = 25', 27.5' & 30' Superelevated Slope	14.0	1,865
	Spans = 32.5' & 35' Superelevated Slope	14.1	1,871



HALF PLAN 40FT. ROADWAY

HALF PLAN 44FT. ROADWAY

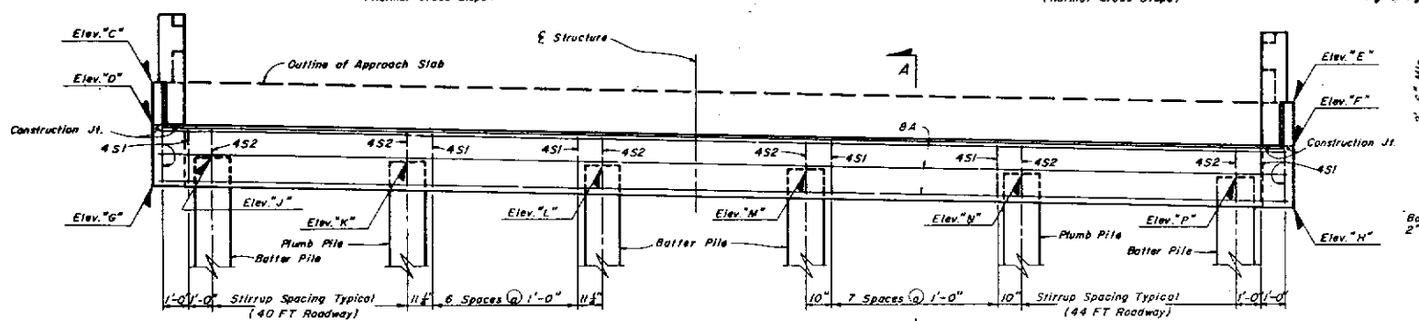


HALF ELEVATION 40 FT. ROADWAY

(Normal Cross Slope)

HALF ELEVATION 44 FT. ROADWAY

(Normal Cross Slope)



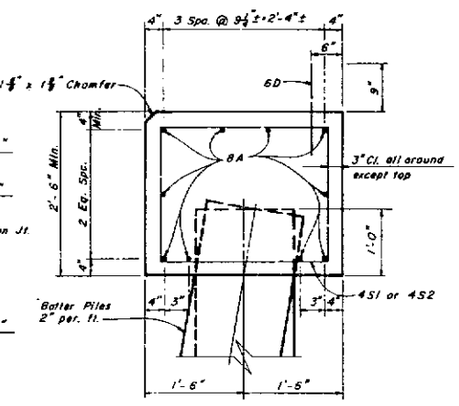
HALF ELEVATION 40 FT. ROADWAY

(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY

(Superelevated Section)

FOR WING DETAILS SEE
END BENT WING DETAILS
INDEX NO. 12665



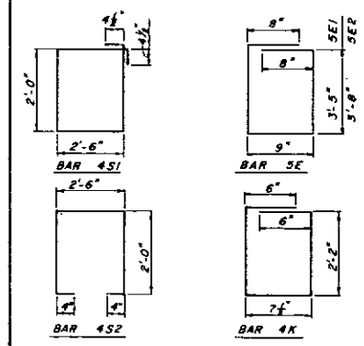
SECTION A-A

BILL OF REINFORCING

MARK	40 FT. ROADWAY NO.	40 FT. ROADWAY LENGTH	44 FT. ROADWAY NO.	44 FT. ROADWAY LENGTH	BENDING
8A	10	43'-6"	10	47'-6"	Straight
4C1	16	4'-0"	16	4'-0"	Straight
4C2	4	2'-0"	4	2'-0"	Straight
6D	11	1'-6"	12	1'-6"	Straight
*5E					
5F	18	3'-9"	18	3'-9"	Straight
4J	12	2'-2"	12	2'-2"	Straight
4K	4	6'-0"	4	6'-0"	See Bending
4T	6	2'-6"	6	2'-6"	Straight
4S1	39	9'-9"	44	9'-9"	See Bending
4S2	6	7'-2"	6	7'-2"	See Bending
5E1	10	8'-11"	10	8'-11"	See Bending
5E2	10	9'-5"	10	9'-5"	See Bending

NOTE: The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.

* Use Bars 5E1 for Spans = 25'-0", 27'-6" & 30'-0"
Use Bars 5E2 for Spans = 32'-6" & 35'-0"



Note: All bar dimensions are out to out.

TABLE OF ELEVATIONS

End Bent No.	Elev."A"	Elev."B"	Elev."C"	Elev."D"	Elev."E"	Elev."F"	Elev."G"	Elev."H"	Elev."J"	Elev."K"	Elev."L"	Elev."M"	Elev."N"	Elev."P"

REVISIONS	
Date:	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

END BENT ZERO DEGREE SKEW

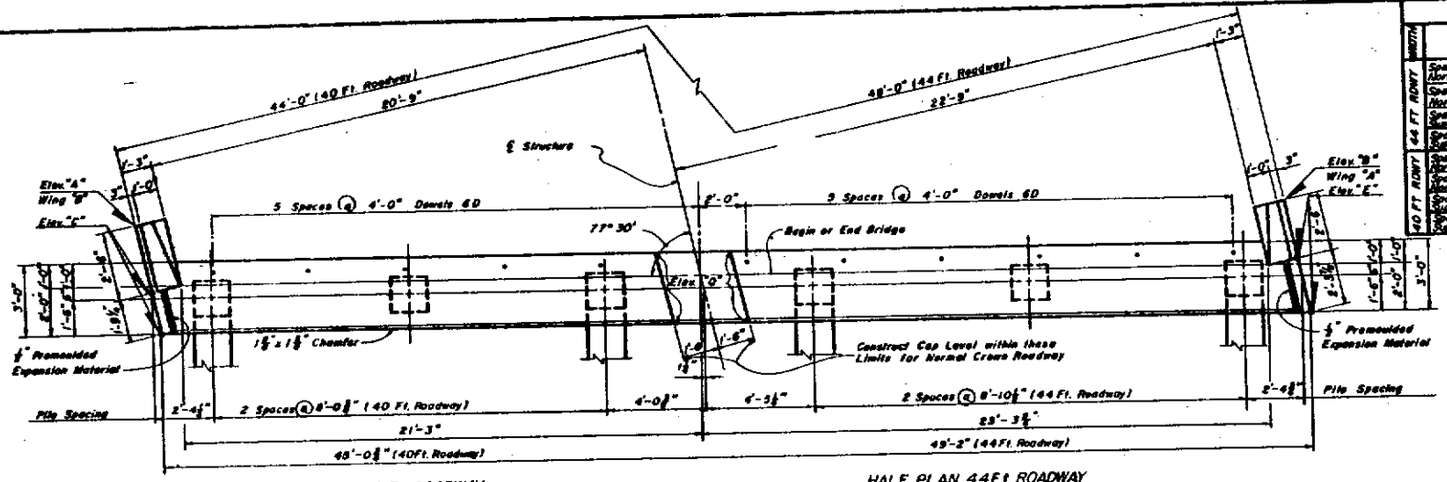
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

APPROVED BY: T. Ali Ed
Deputy Chief Engineer, Structures

Drawing No.: 1 of 1

Index No.: 12662

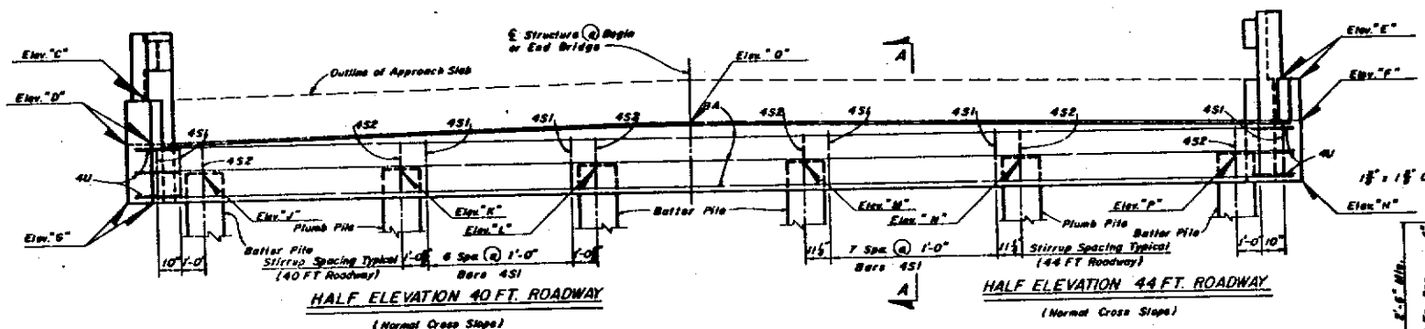


HALF PLAN 40 Ft. ROADWAY

HALF PLAN 44 Ft. ROADWAY

NOTE: Details Shown for Skew Right Bridge
Skew Left Bridge is Opposite Hand

FOR WING DETAILS SEE
ENJ: BENT WING DETAILS
INDEX NO. 12665

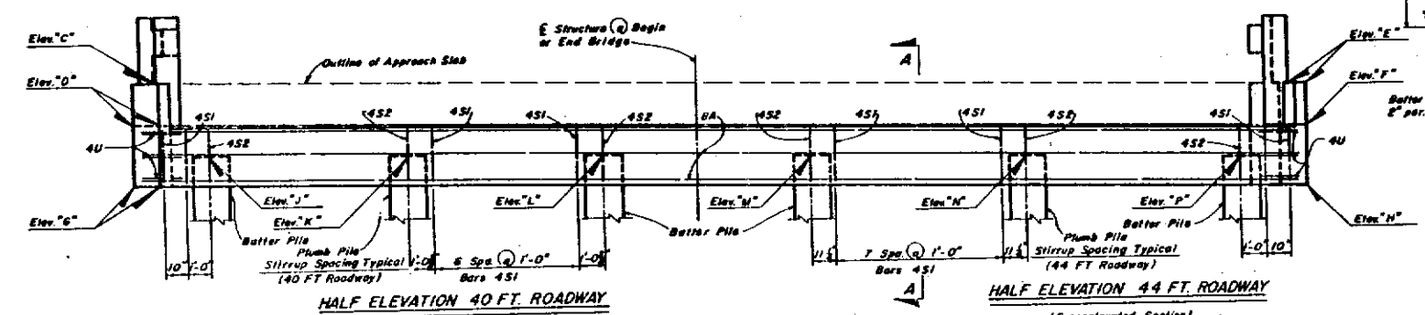


HALF ELEVATION 40 FT. ROADWAY

(Normal Cross Slope)

HALF ELEVATION 44 FT. ROADWAY

(Normal Cross Slope)

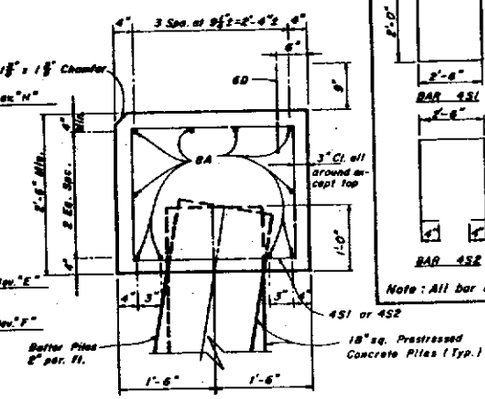


HALF ELEVATION 40 FT. ROADWAY

(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY

(Superelevated Section)



SECTION A-A

ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
44 FT. RDWY	Spans = 25', 27.5' & 30' Normal Cross Slope	15.6	1912
	Spans = 32.5' & 35' Normal Cross Slope	15.7	1917
	Spans = 25', 27.5' & 30' Superelevated Slope	14.4	1912
	Spans = 25', 27.5' & 30' Superelevated Slope	14.4	1917
40 FT. RDWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.3	1767
	Spans = 32.5' & 35' Normal Cross Slope	14.4	1772
	Spans = 25', 27.5' & 30' Superelevated Slope	13.2	1767
	Spans = 32.5' & 35' Superelevated Slope	13.3	1772

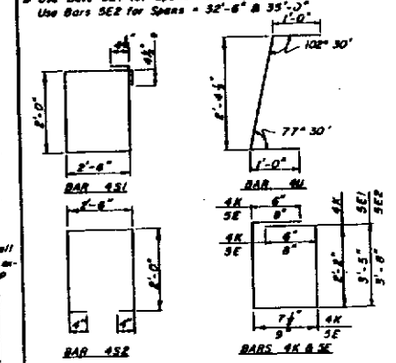
FED. ROAD DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	FLA.			

BILL OF REINFORCING

MARK	40 FT. ROADWAY NO.	40 FT. ROADWAY LENGTH	44 FT. ROADWAY NO.	44 FT. ROADWAY LENGTH	BENDING
8A	10	44'-6"	10	48'-8"	Straight
4C1	8	4'-1"	8	4'-1"	Straight
4C2	4	2'-0"	4	2'-0"	Straight
4C3	8	3'-9"	8	3'-9"	Straight
6D	11	1'-6"	12	1'-6"	Straight
*5E					
5F	18	3'-9"	18	3'-9"	Straight
4J	12	2'-2"	12	2'-2"	Straight
4K	4	6'-0"	4	6'-0"	See Bending
4T	5	2'-6"	5	2'-6"	Straight
4S1	39	9'-9"	44	9'-9"	See Bending
4S2	6	7'-2"	6	7'-2"	See Bending
4U	6	4'-6"	6	6'-6"	See Bending
5E1	10	8'-11"	10	8'-11"	See Bending
5E2	10	9'-5"	10	9'-5"	See Bending

NOTE: The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.

* Use Bars 5E1 for Spans = 25'-0", 27'-6" & 30'-0"
Use Bars 5E2 for Spans = 32'-6" & 35'-0"



Note: All bar dimensions are out to out.

TABLE OF ELEVATIONS

End Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"	Elev. "L"	Elev. "M"	Elev. "N"	Elev. "P"	Elev. "Q"

REVISIONS	
Date	Description
11-80	Length of Bars 8A, 4C1 & 4C3 Reinf. Steel Quantities

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

END BENT 12½ DEGREE SKEW.

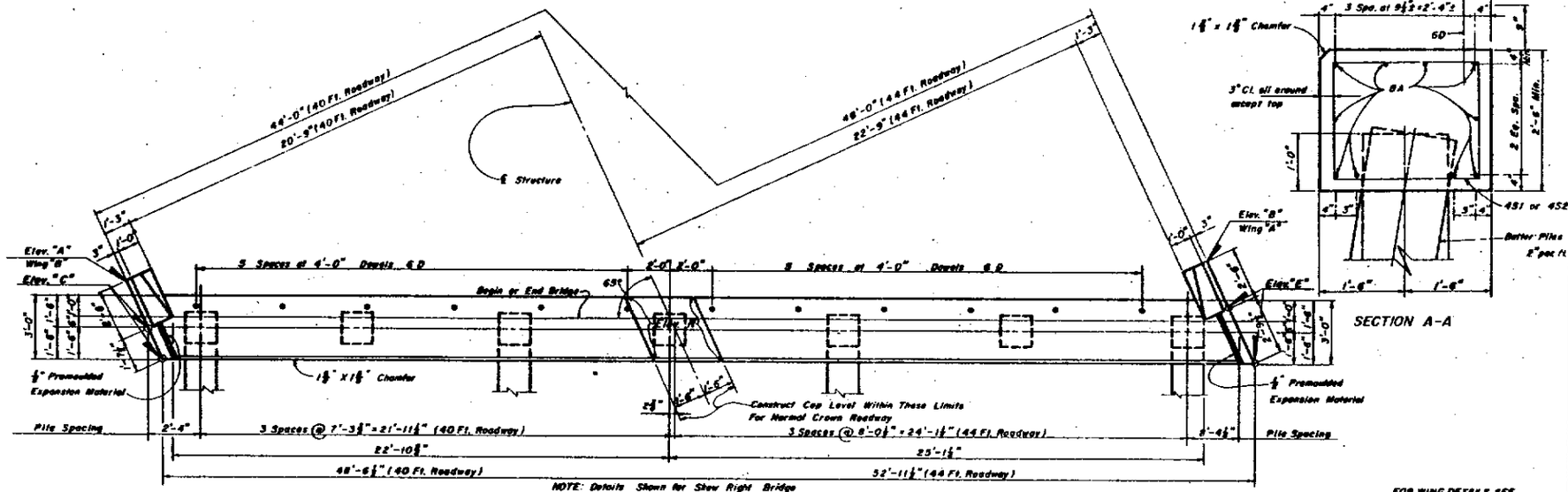
ROAD NO.	COUNTY	PROJECT NO.

	Name	Date
Designed by	R.H.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

Approved by: T. Hall C.O.
Estimate Design Engineer, Structures

Drawing No. 1 of 1

Index No. 12663



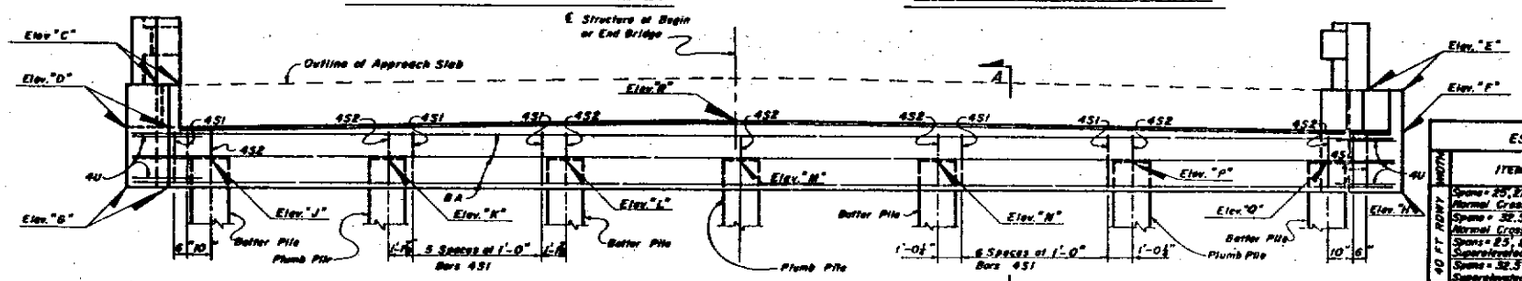
NOTE: Details Shown for Show Right Bridge
Show Left Bridge is Opposite Hand

HALF PLAN 40 FT. ROADWAY

HALF PLAN 44 FT. ROADWAY

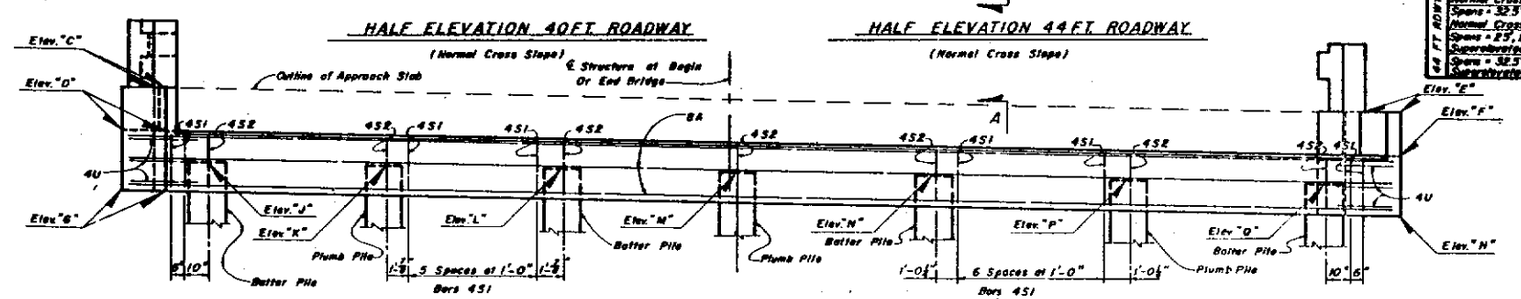
SECTION A-A

FOR WING DETAILS SEE END BENT WING DETAILS INDEX NO. 12665



HALF ELEVATION 40 FT. ROADWAY
(Normal Cross Slope)

HALF ELEVATION 44 FT. ROADWAY
(Normal Cross Slope)



HALF ELEVATION 40 FT. ROADWAY
(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY
(Superelevated Section)

TABLE OF ELEVATIONS

End Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"	Elev. "L"	Elev. "M"	Elev. "N"	Elev. "P"	Elev. "Q"	Elev. "R"	Elev. "S"

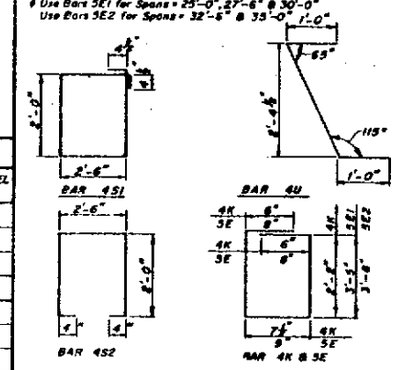
FED. ROAD DIST. NO.	STATE	PROJECT NO.	TOTAL SHEETS	SHEET NO.
3	FLA.			

BILL OF REINFORCING

MARK	40 FT. NO.	ROADWAY LENGTH	44 FT. NO.	ROADWAY LENGTH	BENDING
8A	10	48'-0"	10	52'-9"	Straight
4C1	8	4'-4"	8	4'-4"	Straight
4C2	4	2'-0"	4	2'-0"	Straight
4C3	8	3'-9"	8	3'-9"	Straight
6D	12	1'-6"	12	1'-6"	Straight
4SE					
5F	18	3'-9"	18	3'-9"	Straight
4J	12	2'-2"	12	2'-2"	Straight
4K	4	6'-0"	4	6'-0"	See Bending
4T	8	2'-6"	8	2'-6"	Straight
4S1	40	9'-9"	44	9'-9"	See Bending
4S2	7	7'-2"	7	7'-2"	See Bending
4U	6	4'-8"	6	4'-8"	See Bending
5E1	10	8'-11"	10	8'-11"	See Bending
5E2	10	9'-5"	10	9'-5"	See Bending

NOTE The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.

Use Bars 5E1 for Spans = 25'-0", 27'-6" @ 30'-0"
Use Bars 5E2 for Spans = 32'-6" @ 35'-0"



Note: All bar dimensions are out to out.

ESTIMATED QUANTITIES

	ITEM	CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT. ROWY WIDTH	Spans = 25', 27.5' @ 30' Normal Cross Slope	15.2	1875
	Spans = 32.5' @ 35' Normal Cross Slope	15.2	1880
	Spans = 25', 27.5' @ 30' Superelevated Slope	14.1	1875
	Spans = 32.5' @ 35' Superelevated Slope	14.2	1880
44 FT. ROWY	Spans = 25', 27.5' @ 30' Normal Cross Slope	16.6	2032
	Spans = 32.5' @ 35' Normal Cross Slope	16.7	2037
	Spans = 25', 27.5' @ 30' Superelevated Slope	15.3	2032
	Spans = 32.5' @ 35' Superelevated Slope	15.4	2037

REVISIONS	
Date	Description

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

END BENT 25 DEGREE SKEW

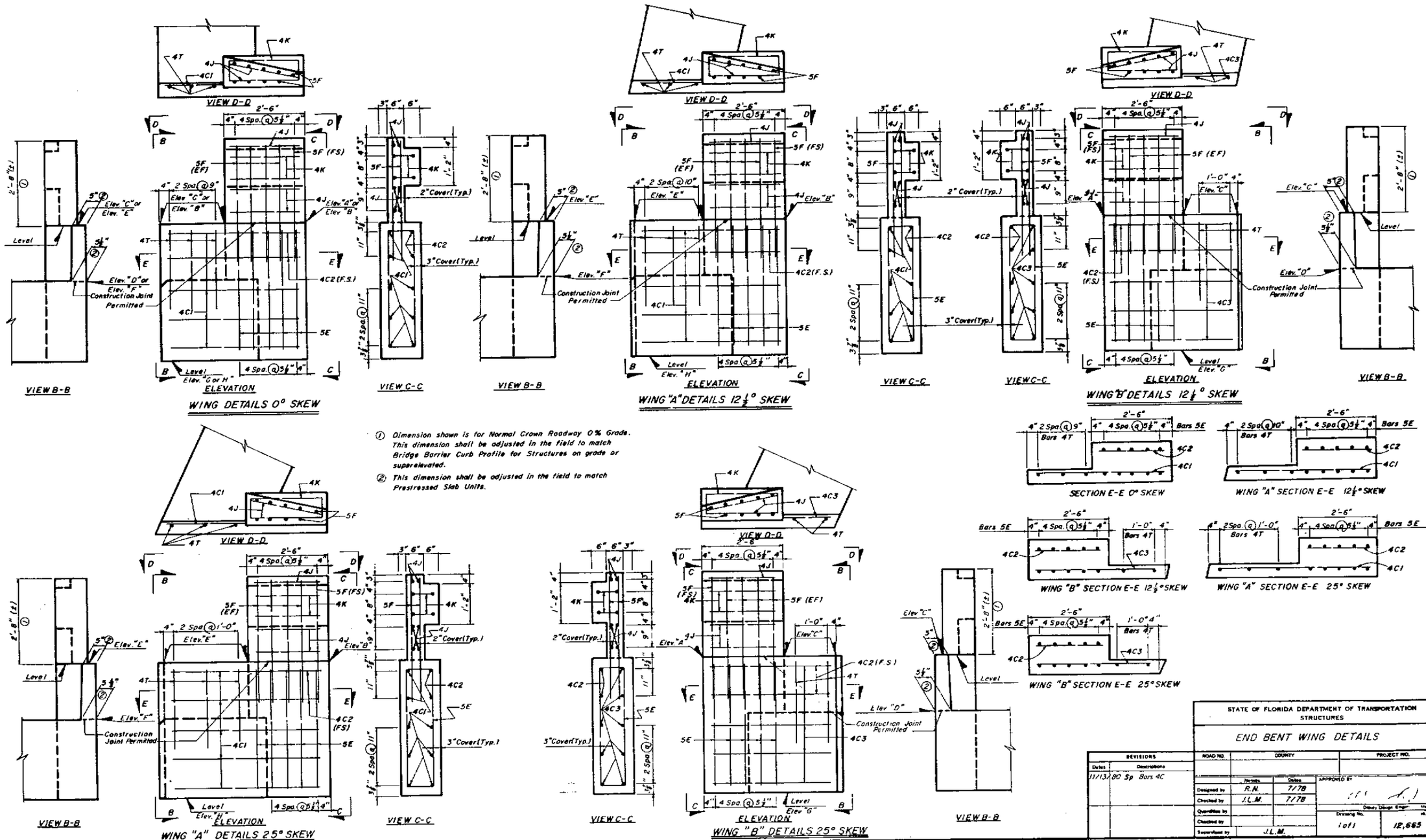
ROAD NO.	COUNTY	PROJECT NO.

	By Initials	Date
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Over-Written by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

APPROVED BY
Director, Design Engineer, Structures

Drawing No. 1 of 1
Index No. 12664

FED. ROAD DIV. NO.	STATE	PROJECT NO	SHEET NO.	TOTAL SHEETS
3	FLA.			



① Dimension shown is for Normal Crown Roadway 0% Grade. This dimension shall be adjusted in the field to match Bridge Barrier Curb Profile for Structures on grade or superelevated.

② This dimension shall be adjusted in the field to match Prestressed Slab Units.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

END BENT WING DETAILS

REVISIONS	
Dates	Descriptions
11/13/80	Sp Bars 4C

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M.	

APPROVED BY

Deputy Design Engr. Institute

Drawing No. 1 of 1

Sheet No. 12,665

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA			

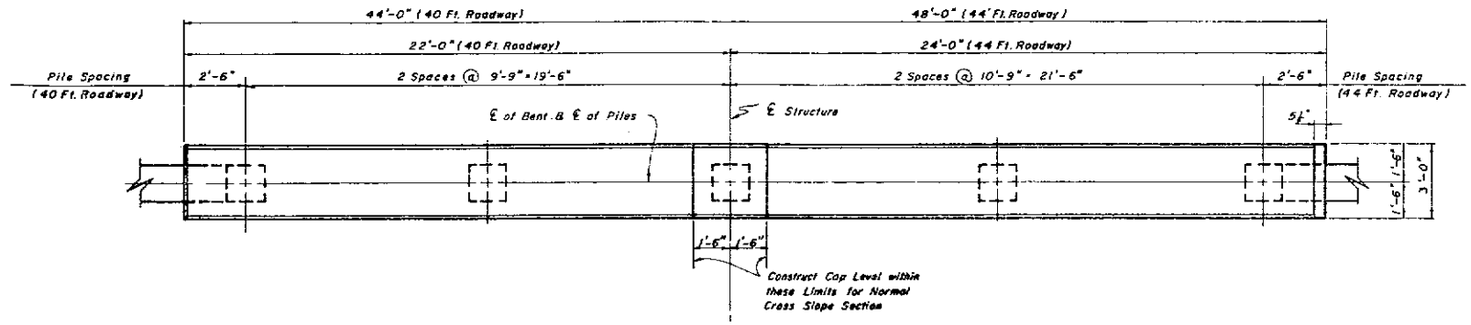
ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	12.9	1487
	Spans = 32.5' & 35' Normal Cross Slope	12.9	1487
	Spans = 25', 27.5' & 30' Superelevated Slope	11.8	1491
	Spans = 32.5' & 35' Superelevated Slope	11.8	1491
44 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.2	1626
	Spans = 32.5' & 35' Normal Cross Slope	14.2	1626
	Spans = 25', 27.5' & 30' Superelevated Slope	12.9	1629
	Spans = 32.5' & 35' Superelevated Slope	12.9	1629

REINFORCING STEEL

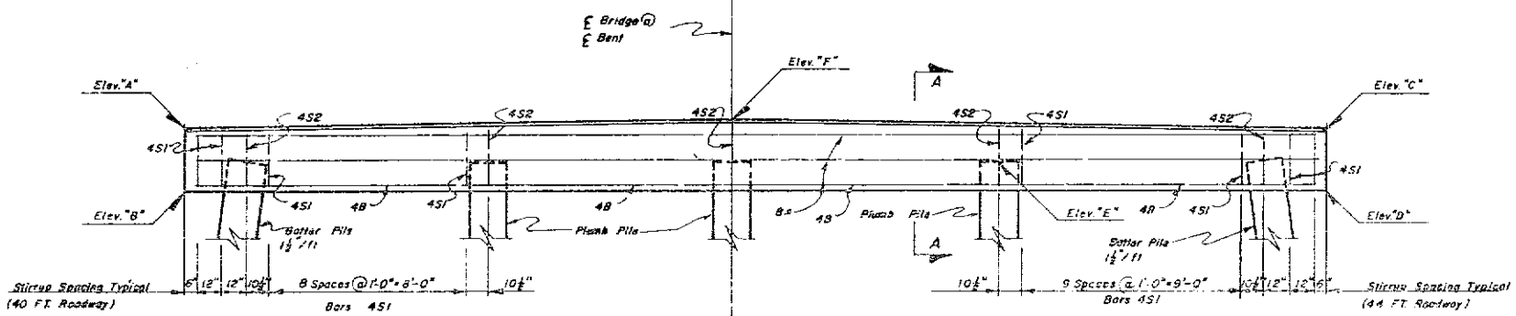
MARK	40 FT ROADWAY No.	40 FT ROADWAY Length	44 FT ROADWAY No.	44 FT ROADWAY Length	BENDING
8A	10	43'-6"	10	47'-6"	Straight
4B	8	7'-9"	8	8'-9"	Straight
4C	1	5'-6"	1	5'-6"	See Diagram.
4S1	40	9'-9"	44	9'-9"	See Diagram
4S2	5	7'-2"	5	7'-2"	See Diagram

NOTE: The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.



HALF PLAN 40 FT. ROADWAY

HALF PLAN 44 FT. ROADWAY

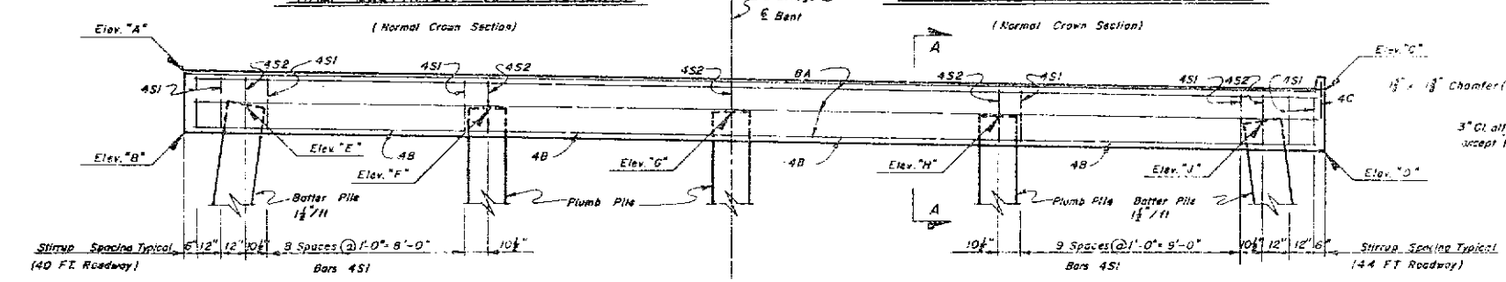


HALF ELEVATION 40 FT. ROADWAY

(Normal Crown Section)

HALF ELEVATION 44 FT. ROADWAY

(Normal Crown Section)

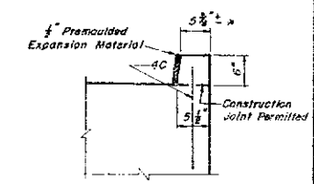


HALF ELEVATION 40 FT. ROADWAY

(Superelevated Section)

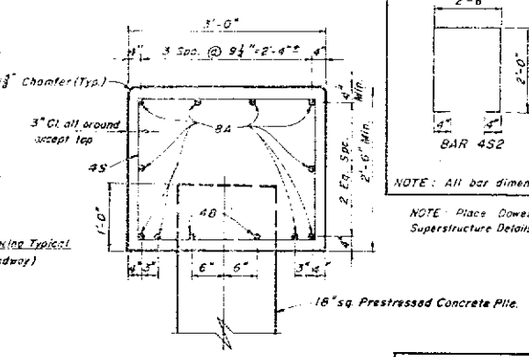
HALF ELEVATION 44 FT. ROADWAY

(Superelevated Section)



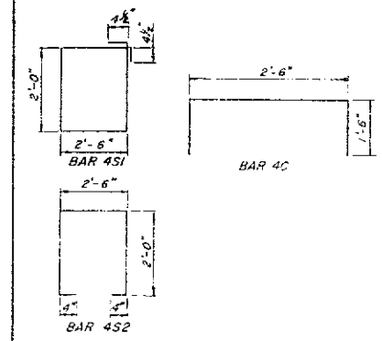
TYPICAL SECTION THRU KEEPER BLOCK

* This dimension shall be adjusted in the field for structures superelevated and shall apply only on the low side.



SECTION A-A

BENDING DIAGRAMS



NOTE: All bar dimensions are out to out

NOTE: Place Dowels "G" at Fixed (F) ends of Spans (See Superstructure Details and Plan and Elevation sheet.

TABLE OF ELEVATIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"

REVISIONS	
Dates	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

INTERMEDIATE BENT ZERO DEGREE SKEW

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

APPROVED BY: T. [illegible] J.L.
County Design Engineer, Structures

Drawing No.	Index No.
1 OF 1	12666

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			

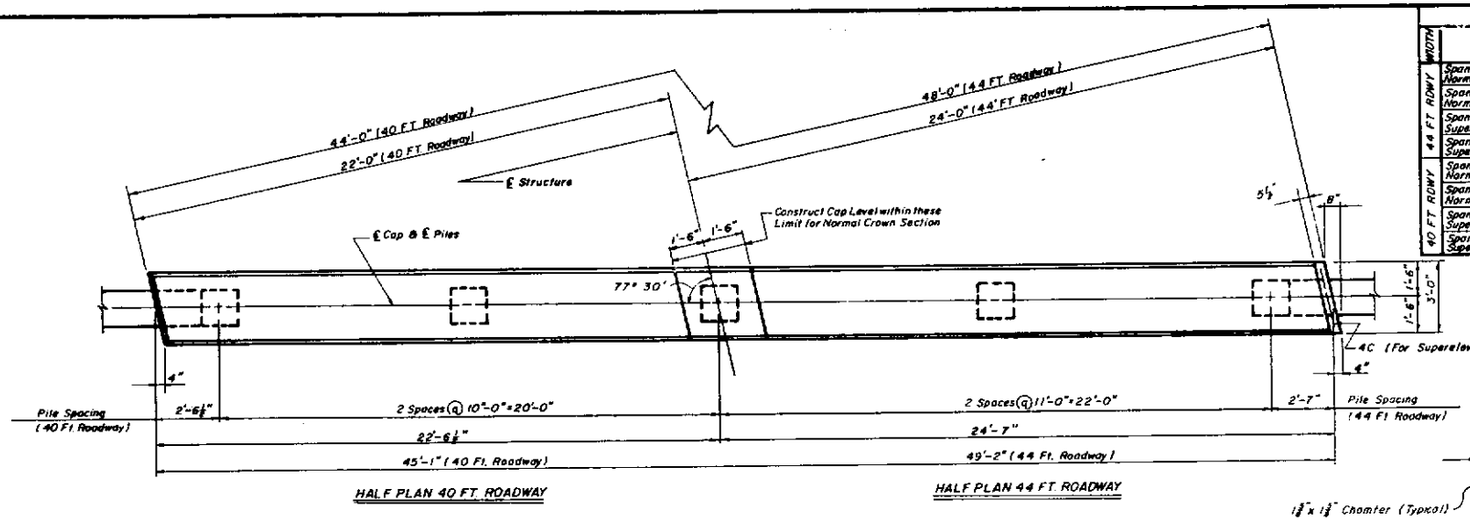
ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
44 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.5	1689
	Spans = 32.5' & 35' Normal Cross Slope	14.5	1689
	Spans = 25', 27.5' & 30' Superelevated Slope	13.3	1693
	Spans = 32.5' & 35' Superelevated Slope	13.3	1693
40 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	13.2	1549
	Spans = 32.5' & 35' Normal Cross Slope	13.2	1549
	Spans = 25', 27.5' & 30' Superelevated Slope	12.1	1553
	Spans = 32.5' & 35' Superelevated Slope	12.1	1553

REINFORCING STEEL

MARK	40 Ft. Roadway No.	40 Ft. Roadway Length	44 Ft. Roadway No.	44 Ft. Roadway Length	BENDING
8A	10	44'-7"	10	48'-8"	Straight
4B	8	8'-0"	8	9'-0"	"
4C	1	5'-7"	1	5'-7"	See Diagram
4S1	40	9'-9"	44	9'-9"	" "
4S2	5	7'-2"	5	7'-2"	" "
4U	6	4'-6"	6	4'-6"	" "
4S3	2	9'-11"	2	9'-11"	" "

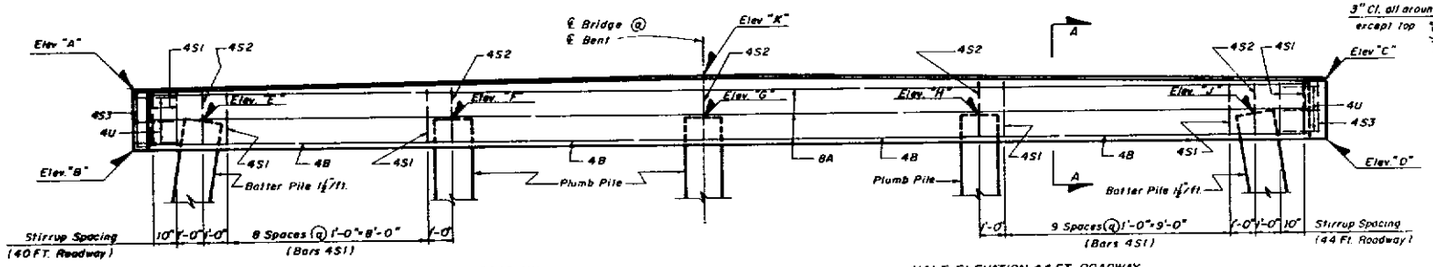
NOTE The Numeric Prefix of the Bar Mark Indicates the Bar Size, ie 8A is a Bar Size 8.



HALF PLAN 40 FT. ROADWAY

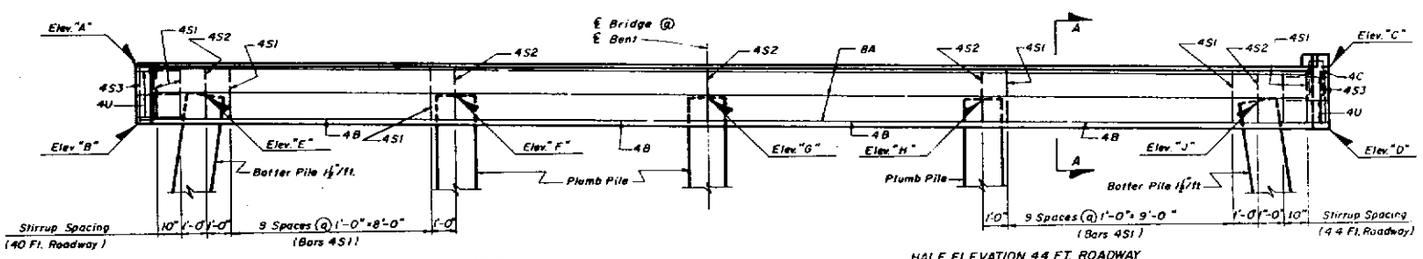
HALF PLAN 44 FT. ROADWAY

Note: Details Shown are for Skew Right Bridge. Skew Left Bridge is Opposite Hand.



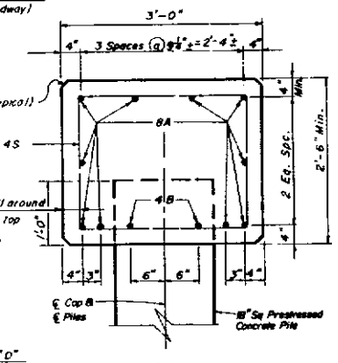
HALF ELEVATION 40 FT. ROADWAY
(Normal Crown Section)

HALF ELEVATION 44 FT. ROADWAY
(Normal Crown Section)

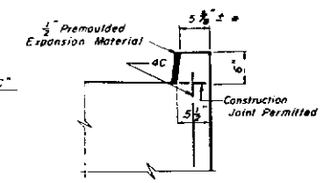


HALF ELEVATION 40 FT. ROADWAY
(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY
(Superelevated Section)



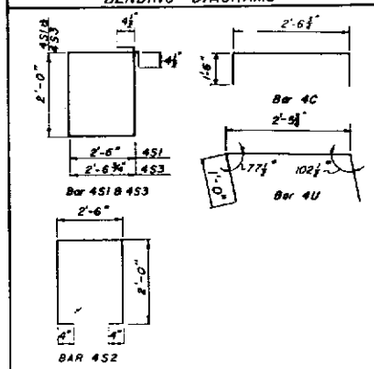
SECTION A-A



TYPICAL SECTION THRU KEEPER BLOCK

* This dimension shall be adjusted in the field for Structures superelevated and shall apply only on the low side.

BENDING DIAGRAMS



Note All bar dimensions are out to out.

NOTE Place Dowels "G" at Fixed (F) ends of Spans (See Superstructure Details and Plan and Elevation Sheet.

TABLE OF ELEVATIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"

REVISIONS	
Dates	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

INTERMEDIATE BENT 12½ DEGREE SKEW

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.H.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/78
Checked by	R.D.S.	9/80
Supervised by	J.L.M.	

APPROVED BY
Deputy Design Engineer, Structures

Drawing No.	Index No.
1 OF 1	12667

FED. ROAD DIV. NO.	STATE	PROJECT NO.	PREFIX	SHEET NO.
3	FLA.			

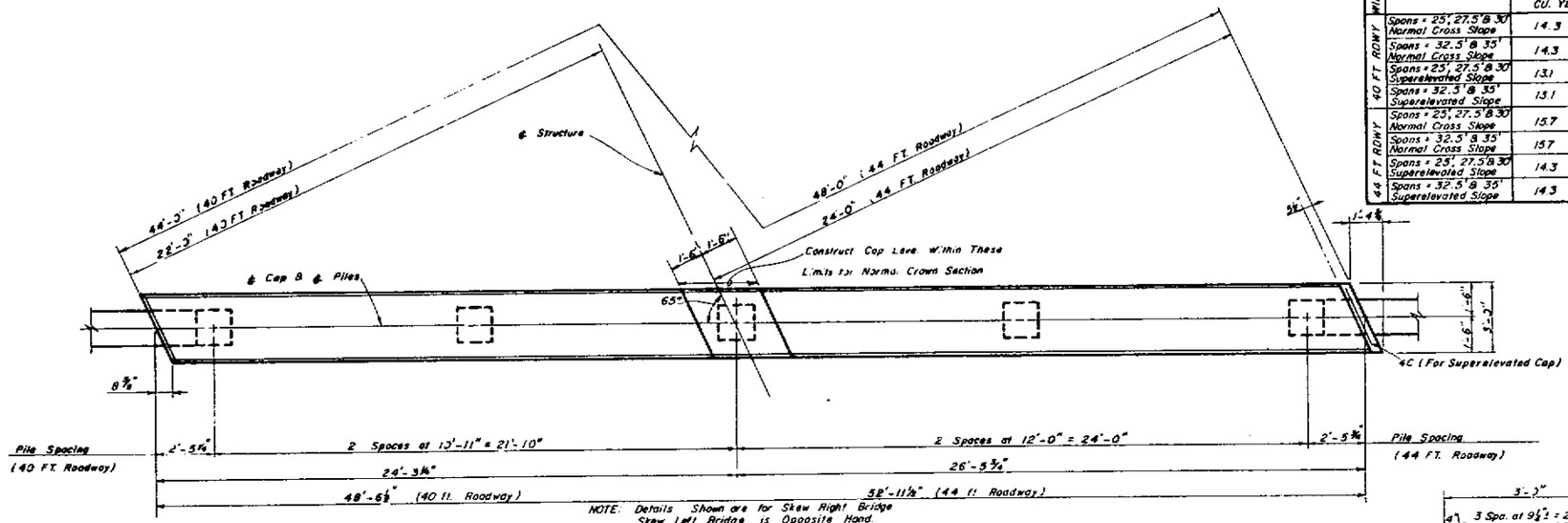
ESTIMATED QUANTITIES

WIDTH		CLASS II CONC. CU. YDS.	REINF. STEEL LBS.
40 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	14.3	1672
	Spans = 32.5' & 35' Normal Cross Slope	14.3	1672
	Spans = 25', 27.5' & 30' Superelevated Slope	13.1	1676
	Spans = 32.5' & 35' Superelevated Slope	13.1	1676
44 FT. ROWY	Spans = 25', 27.5' & 30' Normal Cross Slope	15.7	1822
	Spans = 32.5' & 35' Normal Cross Slope	15.7	1822
	Spans = 25', 27.5' & 30' Superelevated Slope	14.3	1826
	Spans = 32.5' & 35' Superelevated Slope	14.3	1826

REINFORCING STEEL

MARK	40 FT. ROADWAY NO	40 FT. ROADWAY LENGTH	44 FT. ROADWAY NO	44 FT. ROADWAY LENGTH	BENDING
8A	10	48'-0"	10	52'-5"	Straight
4B	9	8'-11"	8	10'-0"	Straight
4C	1	5'-7"	1	5'-7"	See Diagram
4S1	44	9'-9"	48	9'-9"	See Diagram
4S2	5	7'-2"	5	7'-2"	See Diagram
4U	6	4'-8"	6	4'-8"	See Diagram
4S3	2	10'-3"	2	10'-3"	See Diagram

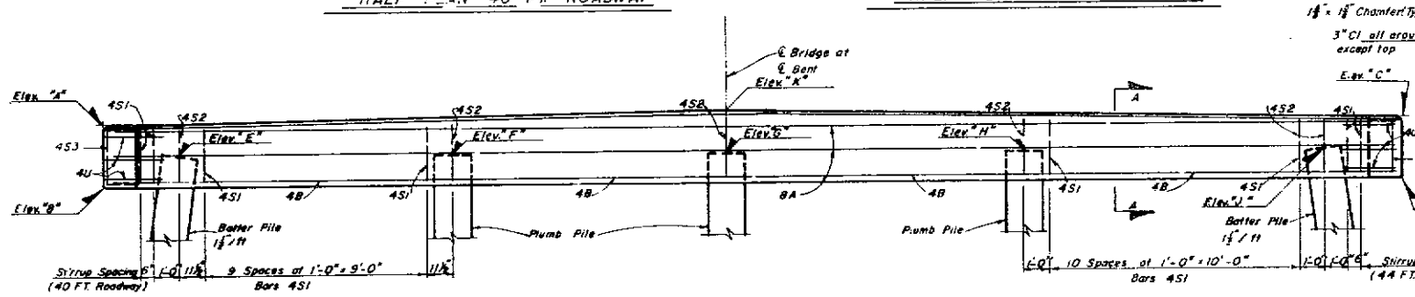
NOTE: The Numeric Prefix of the Bar Mark indicates the Bar size, ie 8A is a Bar size 8



NOTE: Details Shown are for Skew Right Bridge
Skew Left Bridge is Opposite Hand.

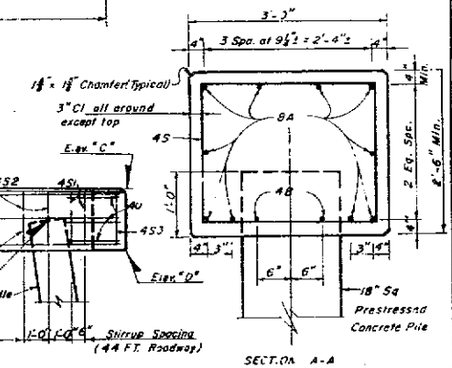
HALF PLAN 40 FT. ROADWAY

HALF PLAN 44 FT. ROADWAY

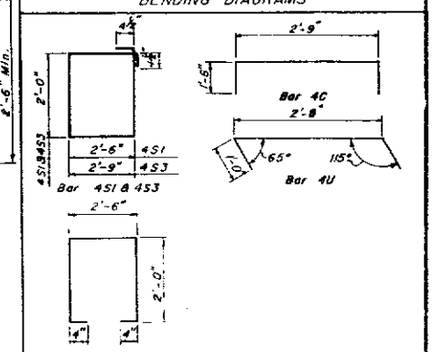


HALF ELEVATION 40 FT. ROADWAY
(Normal Crown Section)

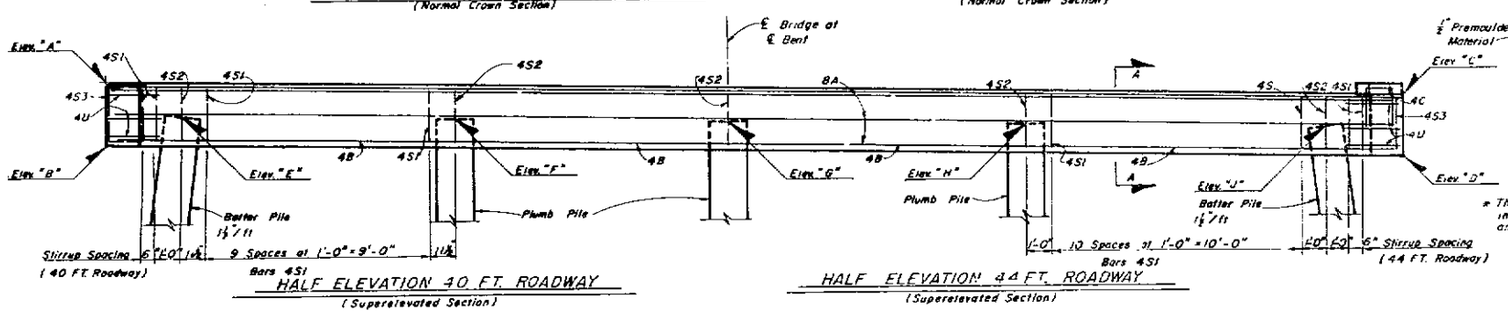
HALF ELEVATION 44 FT. ROADWAY
(Normal Crown Section)



BENDING DIAGRAMS

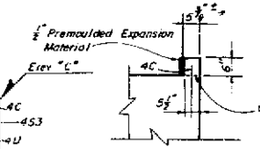


Note: All bar dimensions are out to out.



HALF ELEVATION 40 FT. ROADWAY
(Superelevated Section)

HALF ELEVATION 44 FT. ROADWAY
(Superelevated Section)



TYPICAL SECTION THRU KEEPER BLOCK

* This dimension shall be adjusted in the field for structures superelevated and shall apply only on the low side

NOTE: Place Dowels "G" at Fixed (F) ends of Spans See Superstructure Details and Plan and Elevation sheet.

TABLE OF ELEVATIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "J"	Elev. "K"

REVISIONS	
Date	Descriptions

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

INTERMEDIATE BENT 25 DEGREE SKEW

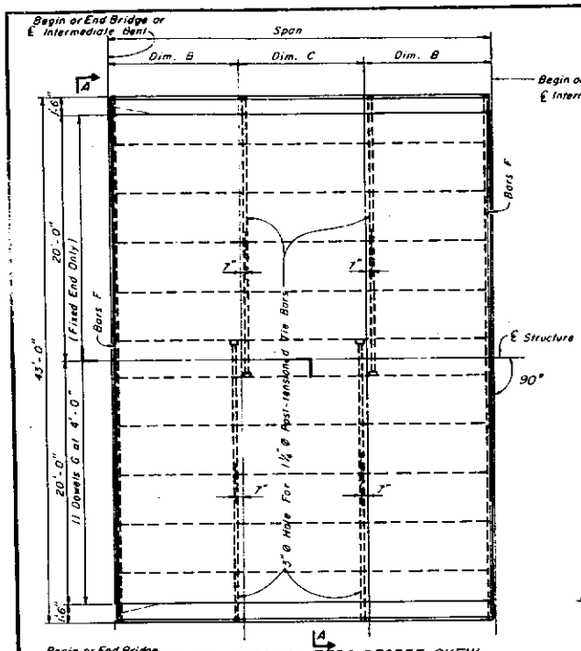
ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by	J.L.M.	7/80
Checked by	R.O.S.	9/80
Supervised by	J.L.M.	

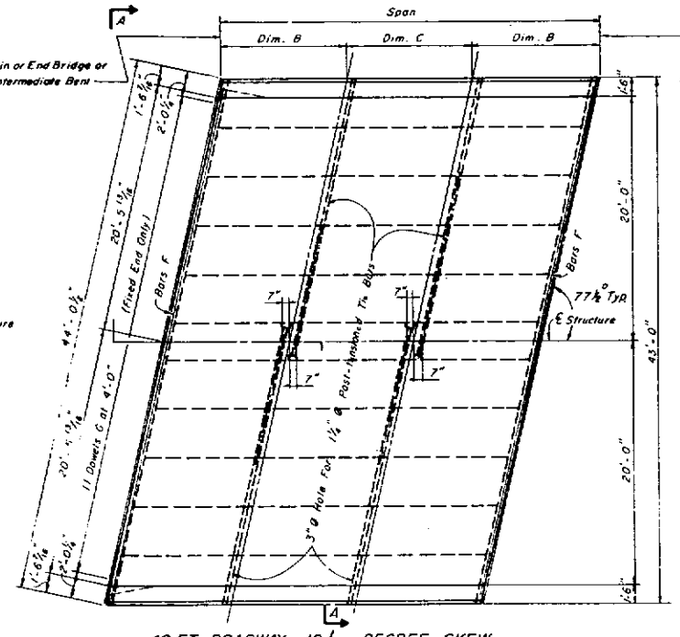
APPROVED BY
Deputy Design Engineer, Structures

Drawing No.	Index No.
1 of 1	12668

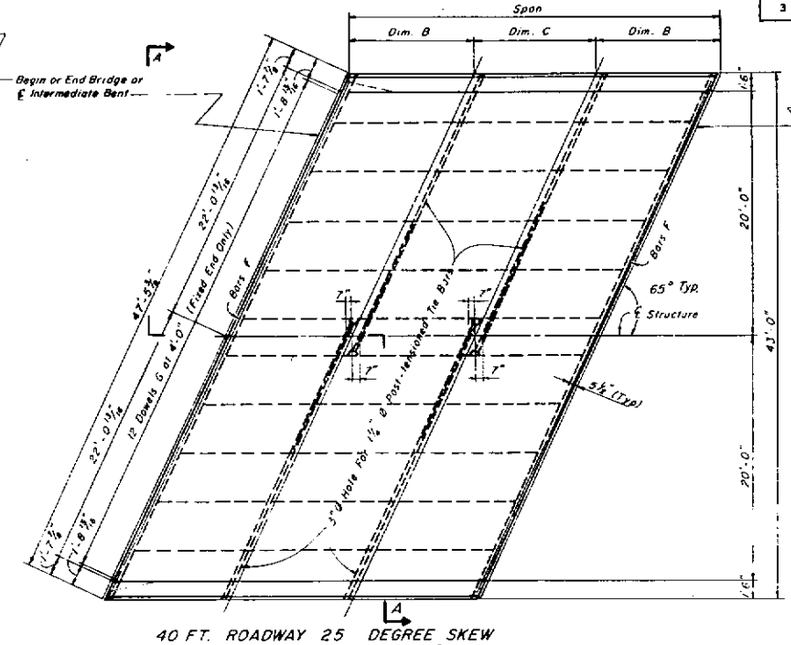
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



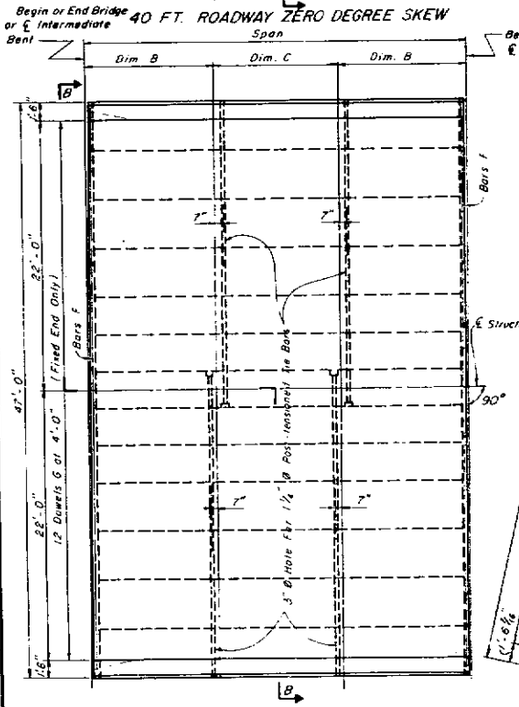
40 FT. ROADWAY ZERO DEGREE SKEW



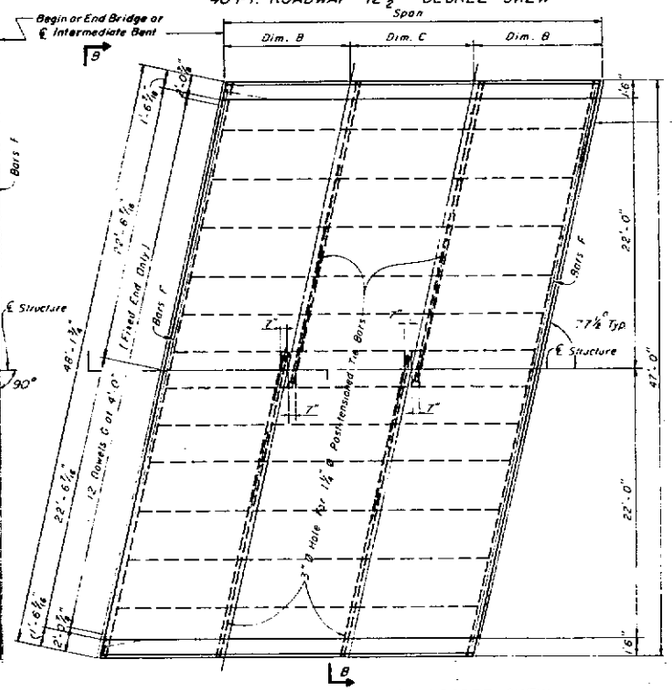
40 FT. ROADWAY 12½ DEGREE SKEW



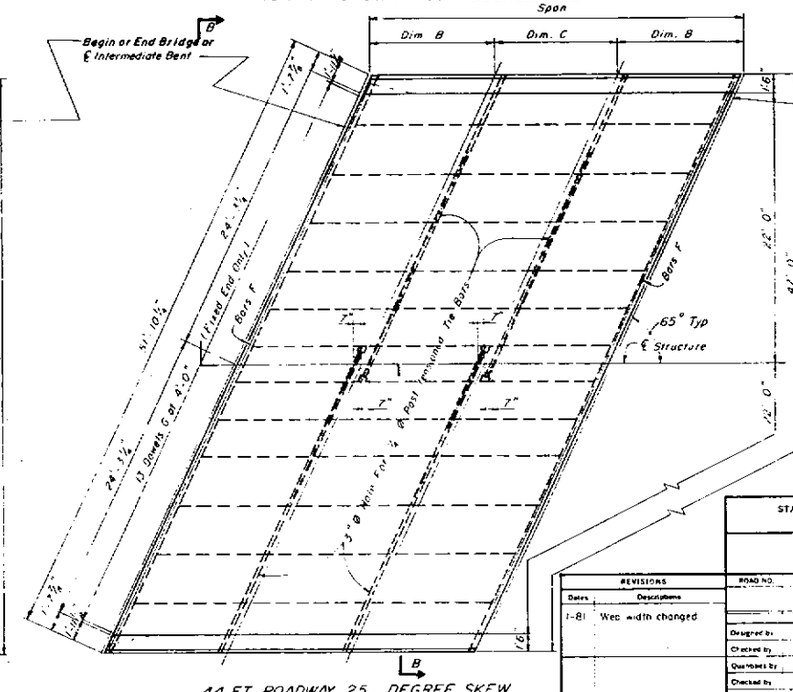
40 FT. ROADWAY 25 DEGREE SKEW



44 FT. ROADWAY ZERO DEGREE SKEW



44 FT. ROADWAY 12½ DEGREE SKEW



44 FT. ROADWAY 25 DEGREE SKEW

NOTE: For Details of Barrier Wall Transition at End Bents see "Concrete Handrail Barrier Sheet".

NOTE: Details Shown are for Skew Right Bridge. Skew Left Bridge is Opposite Hand.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SUPERSTRUCTURE

REVISIONS	
Dates	Descriptions
1-81	Web width changed

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	A.M.	7/78
Checked by	JLM	7/78
Quantities by		
Checked by		
Supervised by	JLM	

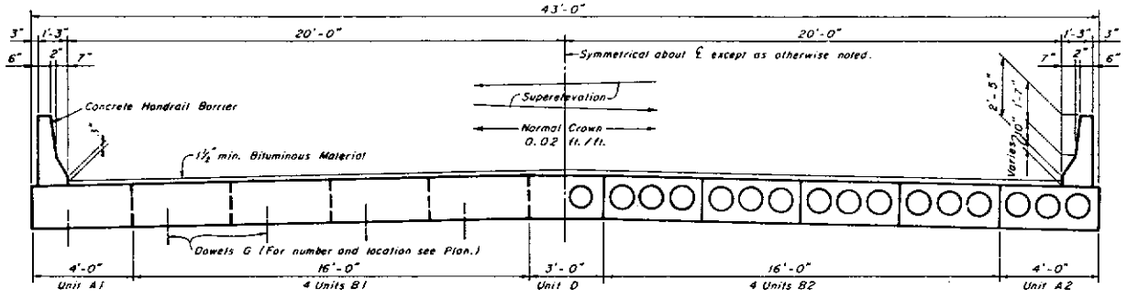
APPROVED BY

Deputy Chief Engineer, Structures

Drawing No. of 2

Index No. 12669

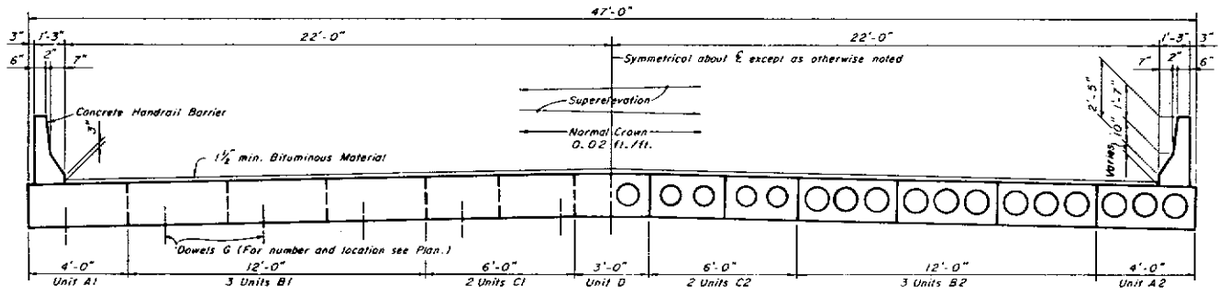
FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA.			



HALF END ELEVATION

HALF SECTION THRU ROADWAY

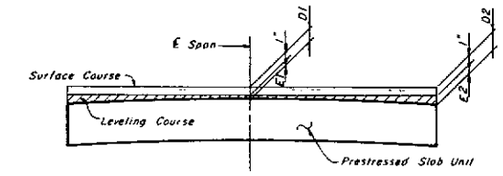
40 FT ROADWAY
SECTION A-A



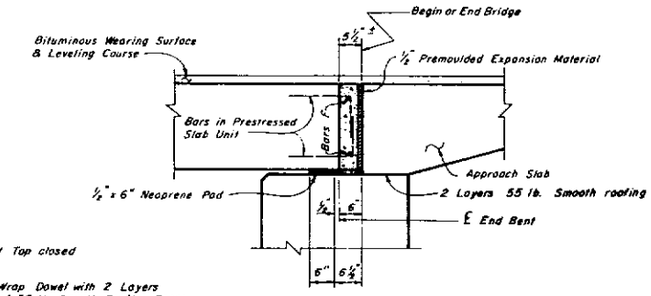
HALF END ELEVATION

HALF SECTION THRU ROADWAY

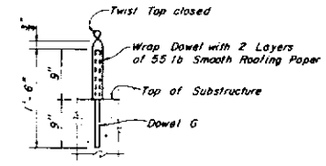
44 FT. ROADWAY
SECTION B-B



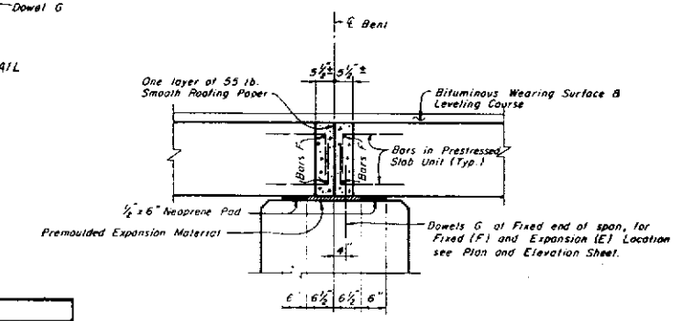
LEVELING COURSE FOR SURFACING



TYPICAL SECTION AT END BENT
(NORMAL TO ℄ BENT)



DOWEL DETAIL

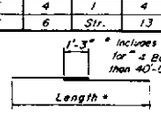


TYPICAL SECTION AT INTERMEDIATE BENT
(NORMAL TO ℄ BENT)

BILL OF REINFORCING STEEL

		Mark	Size	Type	No.	Length
40'-0"	0°	F	4	1	4	43'-11"
		G	6	Str.	11	1'-6"
	12½°	F	4	1	4	44'-11"
		G	6	Str.	11	1'-6"
	25°	F	4	1	4	48'-4"
		G	6	Str.	12	1'-6"
44'-0"	0°	F	4	1	4	47'-11"
		G	6	Str.	12	1'-6"
	12½°	F	4	1	4	49'-0"
		G	6	Str.	12	1'-6"
	25°	F	4	1	4	52'-9"
		G	6	Str.	13	1'-6"

Roadway Width — Skew Angle



* Includes Laps for 4 Bars more than 40'-0" Long.

TYPE I

TABLE OF VARIABLE DIMENSIONS & ESTIMATED QUANTITIES *

Skew ∠	Span	Variable Dimensions B	C	D1	**D2	E1	**E2	40 FT. ROADWAY Class II Conc. (Superstructure) End Span	Int. Span	Reinf. Steel (Superstructure)	Prestressed Units 48x15	48x18	36x15	36x18	44 FT. ROADWAY Class II Conc. (Superstructure) End Span	Int. Span	Reinf. Steel (Superstructure)	Prestressed Units 48x15	48x18	36x15	36x18
0 Degrees	25'-0"	8'-5½"	8'-1"	1½"	1 13/16"	½"	⅜"	1.74 C.Y.	1.82 C.Y.	142 Lbs.	240.8 LF	—	24.1 LF	—	1.90 C.Y.	1.99 C.Y.	155 Lbs.	192.7 LF	—	17.0.4 LF	—
	27'-6"	9'-3½"	8'-11"	"	1 15/16"	"	⅜"	"	"	"	265.8 LF	—	26.6 LF	—	"	"	"	212.7 LF	—	132.9 LF	—
	30'-0"	10'-1½"	9'-9"	"	2 1/16"	"	⅜"	"	"	"	290.8 LF	—	29.1 LF	—	"	"	"	232.7 LF	—	145.4 LF	—
	32'-6"	10'-11½"	10'-7"	"	2 3/16"	"	⅜"	2.09 C.Y.	2.19 C.Y.	"	—	315.8 LF	—	31.6 LF	2.28 C.Y.	2.39 C.Y.	"	—	252.7 LF	—	157.9 LF
	35'-0"	11'-9½"	11'-5"	"	2 5/16"	"	⅜"	"	"	"	—	340.8 LF	—	34.1 LF	"	"	"	—	272.7 LF	—	170.4 LF
12½ Degrees	25'-0"	8'-5½"	8'-1"	1½"	1 13/16"	½"	⅜"	1.78 C.Y.	1.87 C.Y.	145 Lbs.	240.6 LF	—	24.1 LF	—	1.95 C.Y.	2.04 C.Y.	158 Lbs.	192.5 LF	—	120.3 LF	—
	27'-6"	9'-3½"	8'-11"	"	1 15/16"	"	⅜"	"	"	"	265.6 LF	—	26.6 LF	—	"	"	"	212.5 LF	—	132.8 LF	—
	30'-0"	10'-1½"	9'-9"	"	2 1/16"	"	⅜"	"	"	"	290.6 LF	—	29.1 LF	—	"	"	"	232.5 LF	—	145.3 LF	—
	32'-6"	10'-11½"	10'-7"	"	2 3/16"	"	⅜"	2.14 C.Y.	2.24 C.Y.	"	—	315.6 LF	—	31.6 LF	2.34 C.Y.	2.45 C.Y.	"	—	252.5 LF	—	157.8 LF
	35'-0"	11'-9½"	11'-5"	"	2 5/16"	"	⅜"	"	"	"	—	340.6 LF	—	34.1 LF	"	"	"	—	272.5 LF	—	170.3 LF
25 Degrees	25'-0"	8'-5½"	8'-1"	1½"	1 13/16"	½"	⅜"	1.92 C.Y.	2.01 C.Y.	156 Lbs.	240.0 LF	—	24.0 LF	—	2.10 C.Y.	2.20 C.Y.	170 Lbs.	192.0 LF	—	120.0 LF	—
	27'-6"	9'-3½"	8'-11"	"	1 15/16"	"	⅜"	"	"	"	265.0 LF	—	26.5 LF	—	"	"	"	212.0 LF	—	132.5 LF	—
	30'-0"	10'-1½"	9'-9"	"	2 1/16"	"	⅜"	"	"	"	290.0 LF	—	29.0 LF	—	"	"	"	232.0 LF	—	145.0 LF	—
	32'-6"	10'-11½"	10'-7"	"	2 3/16"	"	⅜"	2.31 C.Y.	2.42 C.Y.	"	—	315.0 LF	—	31.5 LF	2.52 C.Y.	2.64 C.Y.	"	—	252.0 LF	—	157.5 LF
	35'-0"	11'-9½"	11'-5"	"	2 5/16"	"	⅜"	"	"	"	—	340.0 LF	—	34.0 LF	"	"	"	—	272.0 LF	—	170.0 LF

* Estimated Quantities are for one Span only

** These dimensions may vary due to vertical profile of bridge.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

SUPERSTRUCTURE

REVISIONS Dates	Descriptions
11-79	References to "Estimate" removed
1-81	Conc & Prestressed Unit Quantities Revised Web width changed, Grating
1-82	of Dowel changed 2 Layers 55 lb smooth roofing

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/79
Checked by	JLM	7/78
Quantities by	JLM/AMM	7/78
Checked by	RDS	9/80
Supervised by	JLM	

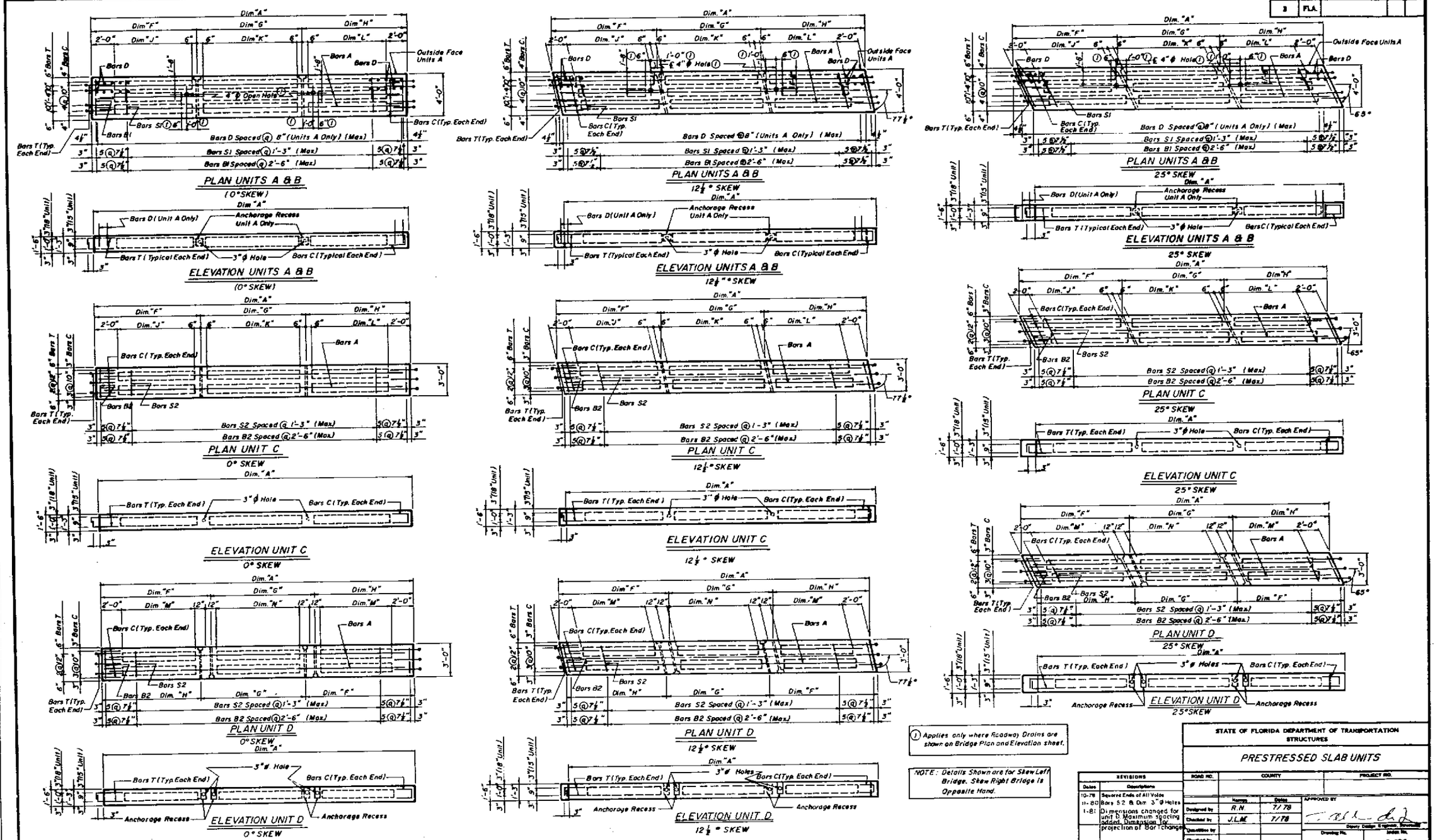
APPROVED BY

Deputy Design Engineer, Structures

Drawing No.	Index No.
2 OF 2	12669

DIETGEN CORP. 1983

FED. ROAD DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	FLA.			



(1) Applies only where Roadway Drains are shown on Bridge Plan and Elevation sheet.

NOTE: Details Shown are for Skew Left Bridge. Skew Right Bridge is Opposite Hand.

REVISIONS	
Dates	Descriptions
10-78	Squared Ends of All Voids
11-80	Bars S2 & Dim 3" ϕ Holes
1-81	Dimensions changed for unit D. Maximum spacing added. Dimension for projection of Bar changed.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRESTRESSED SLAB UNITS

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M.	

APPROVED BY

Deputy Design Engineer, Structures

Drawing No.	Index No.
1 of 3	12,670

FED. ROAD DIV. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	FLA.			

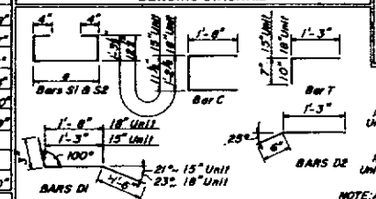
Optional Corner Detail For Mold Form

* See Bending Diagram

BILL OF REINFORCING STEEL

Mark	Size	No. Req'd Per Unit A1,B1,A2	B2,B,B2	C,B,D	Length	Mark	Size	No. Req'd Per Unit A1,B1,A2	B2,B,B2	C,B,D	Length
Span = 25'-0"						Span = 32'-6"					
A	3	3	3	2	25'-9"	A	3	3	3	2	32'-3"
B1	3	18	18	-	3'-7"	B1	3	21	21	-	3'-7"
B2	3	-	-	18	2'-7"	B2	3	-	-	21	2'-7"
C	3	10	10	8	4'-4"	C	3	10	10	8	4'-7"
D1	4	36	-	-	3'-0"	D1	4	48	-	-	3'-5"
D2	4	36	-	-	1'-9"	D2	4	48	-	-	1'-9"
S1	4	50	50	-	*	S1	4	62	62	-	*
S2	4	-	-	25	*	S2	4	-	-	31	*
T	4	16	16	12	1'-10"	T	4	16	16	12	2'-1"
Span = 27'-6						Span = 35'-0"					
A	3	3	3	2	26'-3"	A	3	3	3	2	33'-9"
B1	3	19	19	-	3'-7"	B1	3	22	22	-	3'-7"
B2	3	-	-	19	2'-7"	B2	3	-	-	22	2'-7"
C	3	10	10	8	4'-4"	C	3	10	10	8	4'-7"
D1	4	40	-	-	3'-0"	D1	4	51	-	-	3'-5"
D2	4	40	-	-	1'-9"	D2	4	51	-	-	1'-9"
S1	4	54	54	-	*	S1	4	66	66	-	*
S2	4	-	-	27	*	S2	4	-	-	33	*
T	4	16	16	12	1'-10"	T	4	16	16	12	2'-1"
Span = 30'-0"											
A	3	3	3	2	28'-9"						
B1	3	20	20	-	3'-7"						
B2	3	-	-	20	2'-7"						
C	3	10	10	8	4'-4"						
D1	4	44	-	-	3'-0"						
D2	4	44	-	-	1'-9"						
S1	4	58	58	-	*						
S2	4	-	-	29	*						
T	4	16	16	12	1'-10"						

BENDING DIAGRAM



	Mark S1 a	Mark S1 Length	Mark S2 a	Mark S2 Length
15" Unit Span 0	2'-5"	5'-2"	2'-9"	5'-6"
15" Unit Span 12½	2'-6"	5'-3"	2'-10"	5'-7"
15" Unit Span 25	2'-8"	5'-5"	3'-0"	5'-9"
18" Unit Span 0	2'-5"	5'-8"	2'-9"	6'-0"
18" Unit Span 12½	2'-6"	5'-9"	2'-10"	6'-1"
18" Unit Span 25	2'-8"	5'-11"	3'-0"	6'-3"

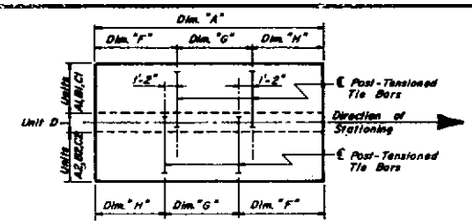
NOTE: All bar dimensions are out to out

TABLE OF DIMENSIONS

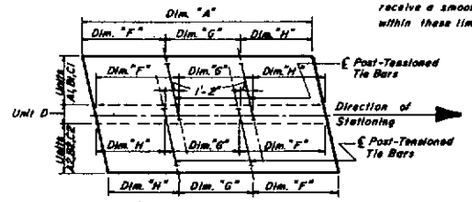
Skew	A	F	G	H	J*	K*	L*	M**	N**
25 FT. SPAN									
0°	24'-1"	8'-7"	8'-1"	7'-5"	6'-1"	7'-1"	4'-11"	5'-0"	6'-1"
12½°	24'-0"	8'-6½"	8'-1"	7'-6½"	6'-0½"	7'-1"	4'-10½"	4'-11½"	6'-1"
25°	24'-0"	8'-6½"	8'-1"	7'-6½"	6'-0½"	7'-1"	4'-10½"	4'-11½"	6'-1"
27.5 FT. SPAN									
0°	26'-7"	9'-5"	8'-11"	8'-3"	6'-11"	7'-11"	5'-9"	5'-10"	6'-11"
12½°	26'-6½"	9'-4½"	8'-11"	8'-4½"	6'-10½"	7'-11"	5'-8½"	5'-9½"	6'-11"
25°	26'-6"	9'-4½"	8'-11"	8'-4½"	6'-10½"	7'-11"	5'-8½"	5'-9½"	6'-11"
30 FT. SPAN									
0°	29'-1"	10'-3"	9'-9"	9'-1"	7'-9"	8'-9"	6'-7"	6'-8"	7'-9"
12½°	29'-0½"	10'-2½"	9'-9"	9'-0½"	7'-8½"	8'-9"	6'-6½"	6'-7½"	7'-9"
25°	29'-0"	10'-2½"	9'-9"	9'-0½"	7'-8½"	8'-9"	6'-6½"	6'-7½"	7'-9"

Skew	A	F	G	H	J*	K*	L*	M**	N**
32.5 FT. SPAN									
0°	31'-7"	11'-1"	10'-7"	9'-11"	8'-7"	9'-7"	7'-5"	7'-6"	8'-7"
12½°	31'-6"	11'-0½"	10'-7"	9'-10½"	8'-6½"	9'-7"	7'-4½"	7'-5½"	8'-7"
25°	31'-6"	11'-0½"	10'-7"	9'-10½"	8'-6½"	9'-7"	7'-4½"	7'-5½"	8'-7"
35 FT. SPAN									
0°	34'-1"	11'-11"	11'-5"	10'-6"	9'-5"	10'-5"	8'-3"	8'-4"	9'-5"
12½°	34'-0½"	11'-10½"	11'-5"	10'-5½"	9'-4½"	10'-5"	8'-2½"	8'-3½"	9'-5"
25°	34'-0"	11'-10½"	11'-5"	10'-5½"	9'-4½"	10'-5"	8'-2½"	8'-3½"	9'-5"

* All Units Except "D"
** Unit "D" Only

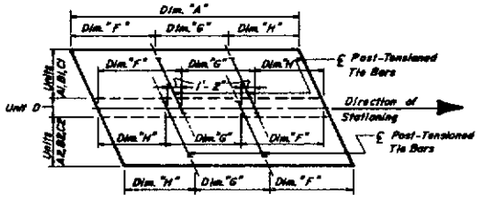


ZERO DEGREE SKEW



12½ DEGREE SKEW

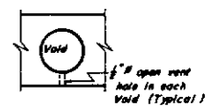
Note 1: Exterior Units A shall receive a smooth finish within these limits.



25 DEGREE SKEW

TIE BAR LOCATION DETAILS

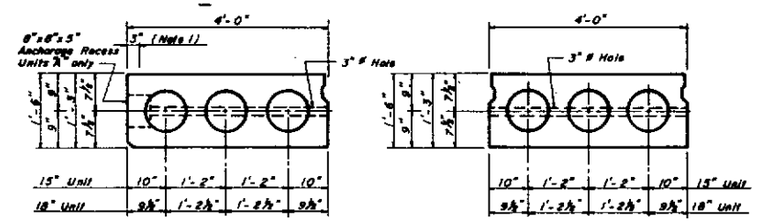
(Skew Left Details Shown. Skew Right Details Opposite Hand.)



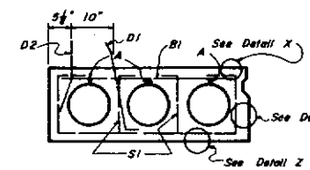
½"ø open vent hole in each Void (Typical)

VENT DETAIL
(Typical Each Void)

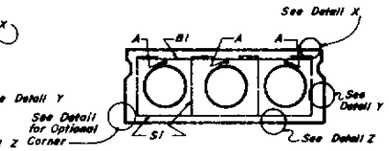
NOTE: Form Vent to Clear ½"ø Strands in Prestressed Slab Units.



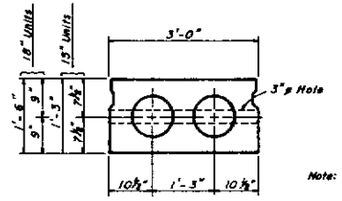
Note: Voids for 18" Units are 10" Diameter and for 15" Units are 8" Diameter.

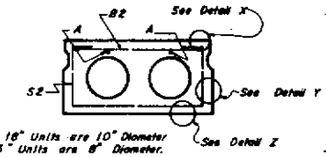


TYPICAL SECTION UNIT A



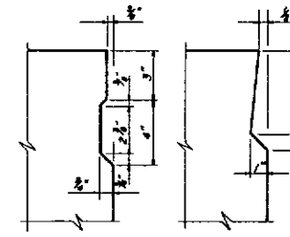
TYPICAL SECTION UNIT B



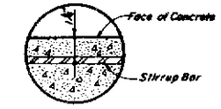


Note: Voids For 18" Units are 10" Diameter and for 15" Units are 8" Diameter.

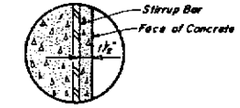
TYPICAL SECTIONS UNITS C & D



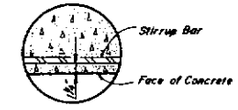
ALTERNATE SHEAR KEYS



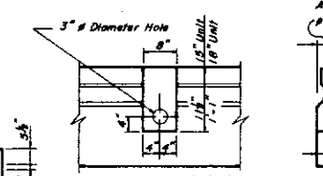
DETAIL X



DETAIL Y



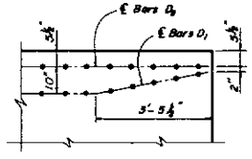
DETAIL Z



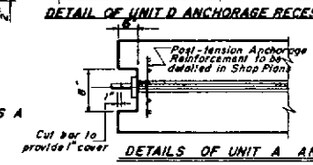
DETAIL OF UNIT D ANCHORAGE RECESS

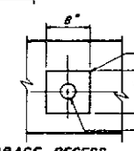
Adjust as required for the bearing plate to be normal to bar

Post-tension Anchorage Reinforcement to be detailed in Shop Plans.

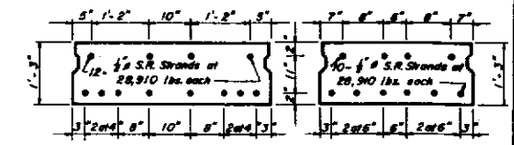


PLAN OF BARS "D" IN UNITS A ADJACENT TO END BENTS

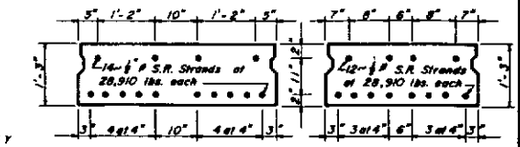




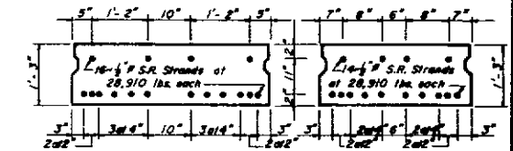
DETAILS OF UNIT A ANCHORAGE RECESS



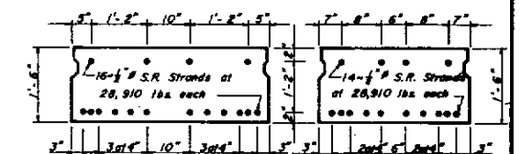
25 FT. SPAN



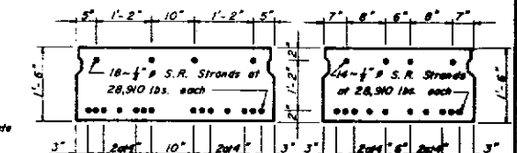
27.5 FT. SPAN



30 FT. SPAN



32.5 FT. SPAN



35 FT. SPAN

UNITS A & B — UNITS C & D

PRESTRESSING STRAND LOCATIONS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRESTRESSED SLAB UNITS

REVISIONS Dates	Descriptions
10-78	Detail Showing Cover Between Void & S.R. Strands Removed
11-80	Dim. Unit D (J & L)
1-81	Table of Dimensions Revised
10-81	Optional Corner Detail added
5-82	Unit A Anchorage Recess

ROAD NO.	COUNTY	PROJECT NO.

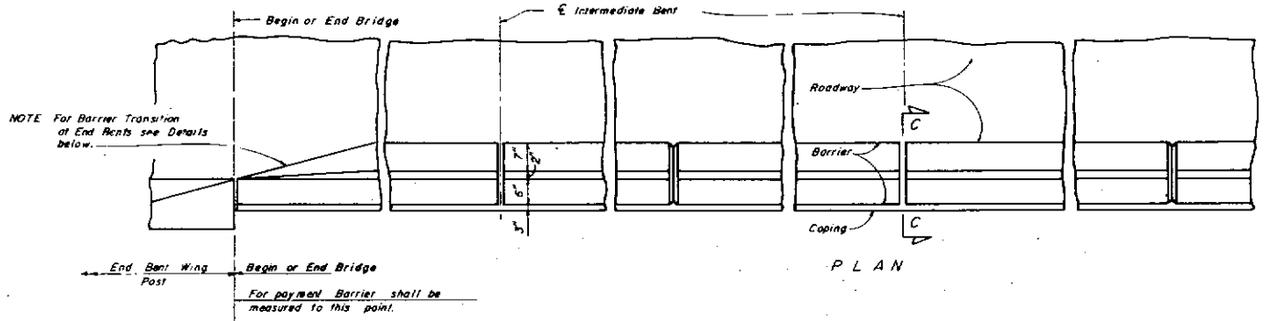
	Names	Dates
Designed by	R.N.	7/78
Checked by	J.L.M.	7/78
Quantities by		
Checked by		
Supervised by	J.L.M.	

APPROVED BY: T. Ali — Deputy Design Engineer, Structures

Drawing No. 2 of 3

Index No. 12,670

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
3	FLA			



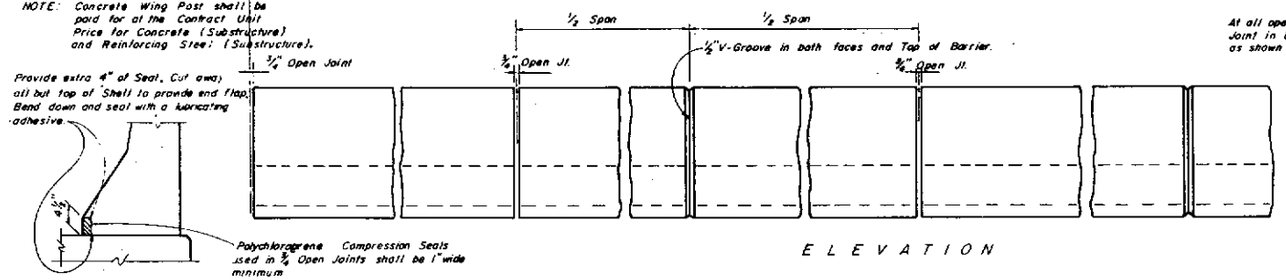
PLAN

NOTE: At the option of the Contractor, Barrier walls may be constructed by slip-forming subject to the following: the width may be increased a maximum of 2 inches provided that the Front Face at the Base of each Barrier infringes on the clear Roadway width no more than 1/8" and that any additional materials required are at the expense of the Contractor. The shape of the Barrier on the Roadway side shall not be altered.

NOTE: At the Option of the Contractor Handrail Barriers and End Bent Wingwalls, on Superelevated Bridges, may be constructed perpendicular to the roadway surface. The Cost of modifications shall be at the Contractors expense.

QUANTITIES: Class II Concrete = 0.0817 Cu. Yds. per linear ft. of Barrier (Based on Roadway Cross Slope of .02"/ft.)
REINFORCING STEEL = 10.19 lbs per linear ft of Barrier.

NOTE: Concrete Wing Post shall be paid for at the Contract Unit Price for Concrete (Substructure) and Reinforcing Steel (Substructure).

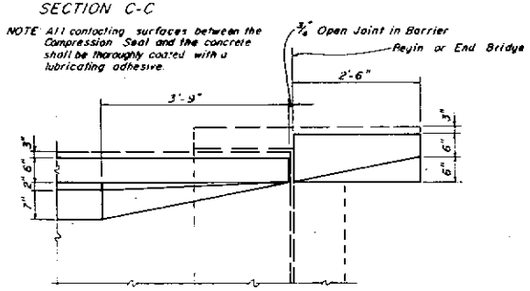


At all open joints the Joint in Barrier shall be sealed as shown in Section C-C.

ELEVATION

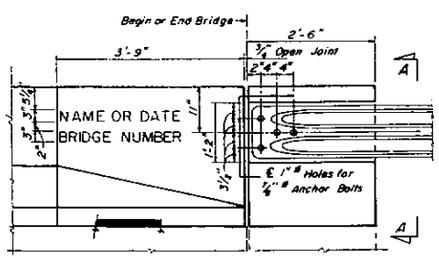
SECTION C-C

NOTE All contacting surfaces between the Compression Seal and the concrete shall be thoroughly coated with a lubricating adhesive.

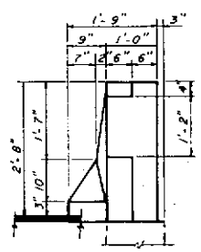


PLAN OF BARRIER TRANSITION AT END BENT

NOTE: Reinforcing Steel within transition area shall be adjusted or field bent as needed to obtain required minimum cover.



ELEVATION OF BARRIER TRANSITION AT END BENT



VIEW A-A

DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe and Attachment See Standard Drawing in Roadway Plans.

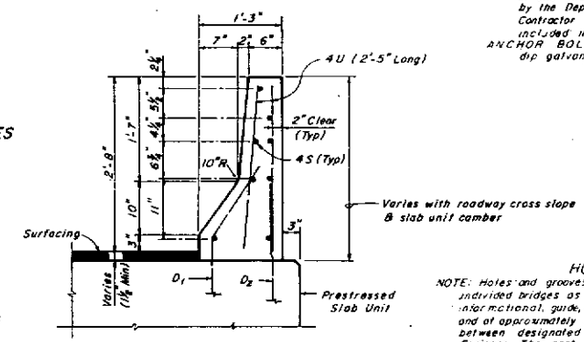
REINFORCING STEEL NOTES

Bars D1 & D2 shall be cast in the prestressed Slab unit. Payment for Bars D1 & D2 Shall be included in the Contract Unit Price for Prestressed Slab Units.

All reinforcing steel in Barrier shall be No. 4's. Bars 4U to be spaced at 8" c.c. (Spliced to Bars D).

At all open joints Bars 4U and the ends of Bars 4S shall have 2" min. cover.

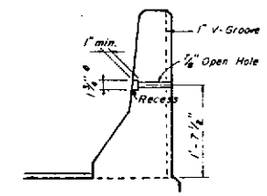
At all construction joints Bars 4S may be either continuous or lap spliced. All splices in Bars 4S shall be 1'-4" min.



TYPICAL SECTION THRU BARRIER

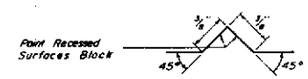
GENERAL NOTES

CONCRETE: Class II Concrete shall be used in Barrier.
REINFORCING STEEL: Reinforcing Steel shall be Grade 60.
PAYMENT: Barrier shall be paid for per linear foot, which shall include all Concrete and Reinforcing Steel. Barrier shall be measured along the centerline of the top surface of the Barrier.
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days.
MARKERS: Markers recording the Elevation shall be placed on top of the Barrier at End Bents. On Bridges longer than 100 ft one marker shall be placed at each end of the Bridge. On Bridges less than 100 ft. long, one marker shall be placed at one end of the Bridge only. Markers are to be furnished by the Department of Transportation and installed by the Contractor. The Cost of installing the Markers shall be included in the Contract Unit Price for Concrete Barrier.
ANCHOR BOLTS: Anchor Bolts, Nuts and Washes shall be hot dip galvanized in accordance with A.S.T.M. A-123



HOLES FOR INCIDENTAL SIGNING

NOTE: Holes and grooves shall be placed on barrier type handrails of divided and individed bridges as shown in the plans for designated type (single column, informational, guide, regulatory and warning sign locations see signing plans) and at approximately 500' intervals along the right handrails of bridges between designated locations for future signs as directed by the Engineer. The cost of the extra holes and grooves shall be included in the contract unit price for Concrete Handrail (Barrier). If Signing Plans are not available the Project Engineer should secure necessary information from the District Maintenance or Traffic Operations Office.



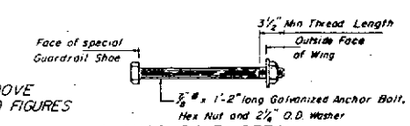
SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

NOTES

The Name and Bridge Number to be placed on the Barrier shall be seen on the drivers right when approaching Bridge. The Date to be placed on the drivers left when approaching Bridge. The Date shall be the Year the Bridge is constructed.

Black Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by 3/8" "V" Grooves.

"V" Grooves shall be formed by preformed Letters and Figures.



ANCHOR BOLT DETAIL

NOTE Cost of Anchor Bolts to be included in the Contract Unit Price for Guardrail.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

CONCRETE HANDRAIL BARRIER

REVISIONS			
Dates	Descriptions		
8-1-78	Slip-Forming Note added		
8-21-81	Change Anchor Bolt Dim.		
10-5-82	Superelevation note Added		
10-6-82	Superelevation note Changed		

ROAD NO.	COUNTY	PROJECT NO.

	Names	Dates
Designed by	D.D.D.	3/78
Checked by	P.B.	3/78
Quantities by		
Checked by		
Supervised by	P.B.	

APPROVED BY

Chief, Engr. Engineer, Structures

Drawing No.	Index No.
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