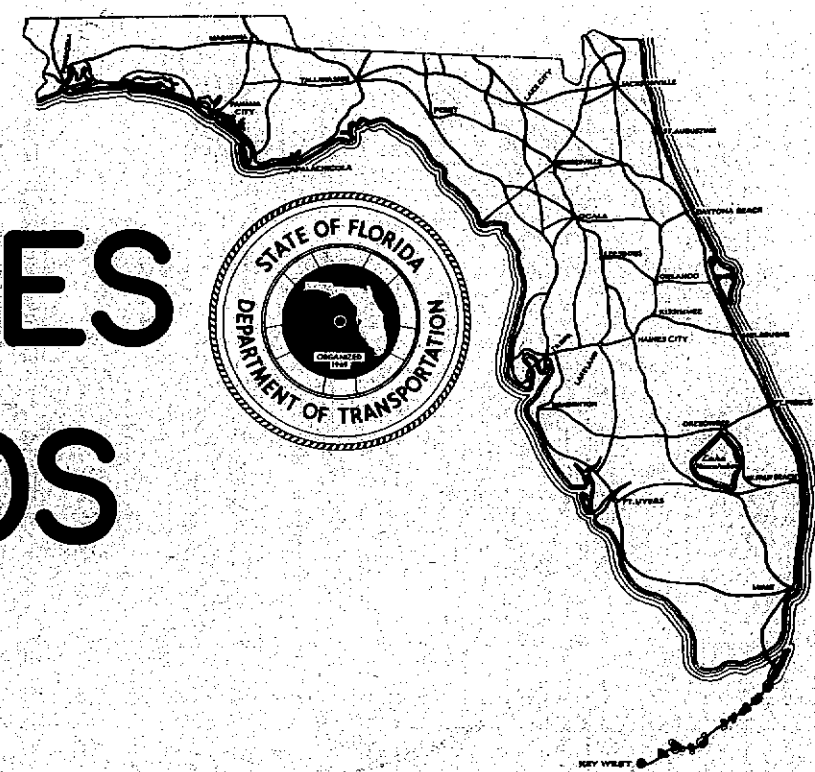


A. J. Garcia

STRUCTURES STANDARDS



JANUARY 1979

T A B L E O F C O N T E N T S

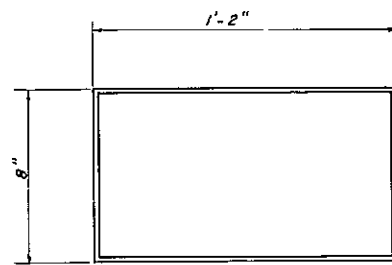
| INDEX | TITLE |
|----------------|---|
| | BEARING PADS |
| 12037 | COMPOSITE NEOPRENE BEARING PADS |
| | HANDRAIL |
| 12087 | ALUMINUM HANDRAIL (SIDEWALK) |
| 11407 | CONCRETE HANDRAIL BARRIER |
| 11460 | SIDEWALK BARRIER |
| | PILES |
| 3400 | 12", 14" AND 18" PRESTRESSED CONCRETE PILES |
| 10289F | 20", 24" AND 30" PRESTRESSED CONCRETE PILES |
| | REINFORCING STEEL |
| 10587 | STANDARD BAR BENDING DETAILS |
| | COMPOSITE DECK PANELS |
| 12641 (1 of 3) | PRECAST PRESTRESSED PANELS |
| 12641 (2 of 3) | FLAT PRECAST PANELS |
| 12641 (3 of 3) | RIBBED PRECAST PANELS |
| 12642 (1 of 3) | PRECAST PRESTRESSED PANELS |
| 12642 (2 of 3) | FLAT PRECAST PANELS |
| 12642 (3 of 3) | RIBBED PRECAST PANELS |

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

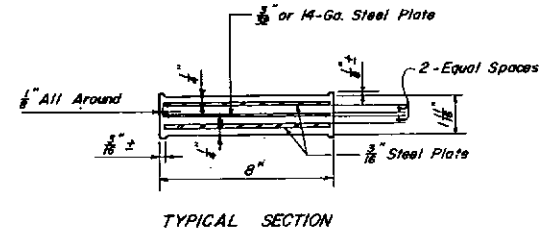
1-18-79
In the future, the standard drawings will not have to be included in the plans only listed

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 STRUCTURES

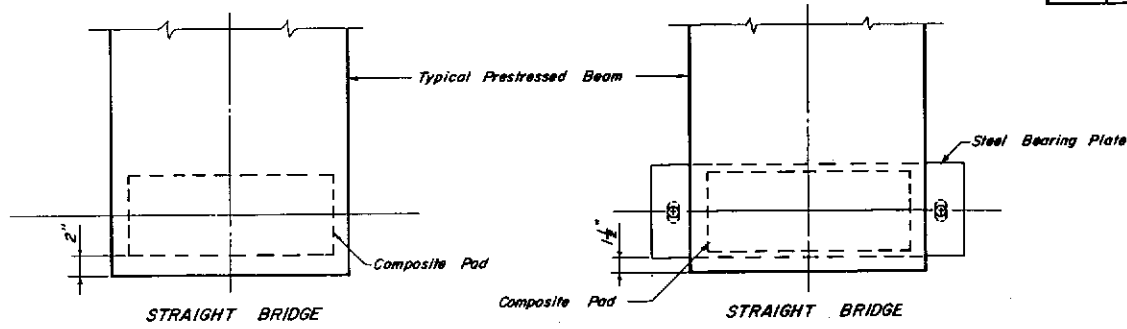
BRIDGE DESIGN STANDARDS



PLAN



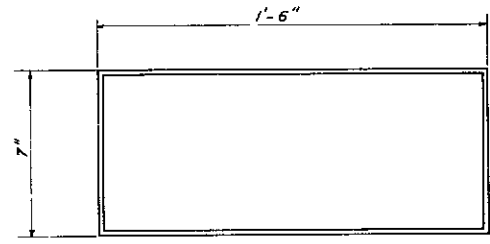
TYPICAL SECTION



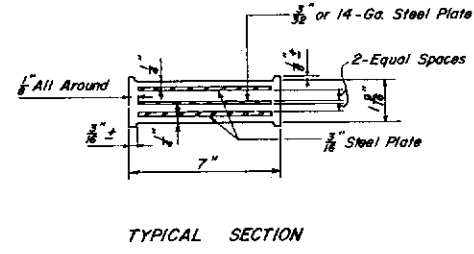
STRAIGHT BRIDGE

STRAIGHT BRIDGE

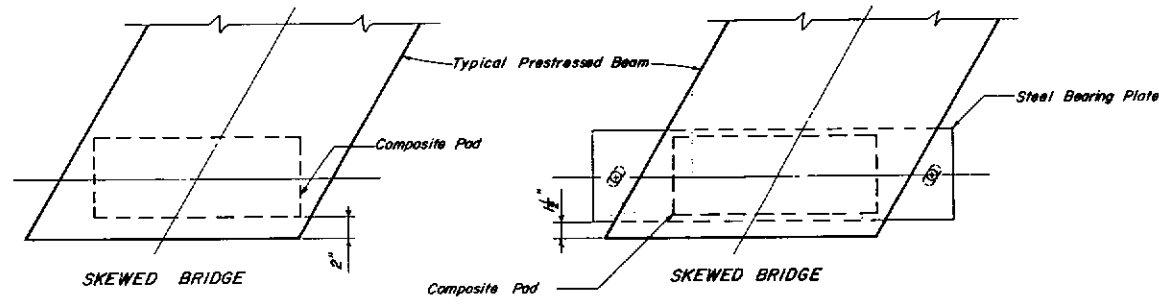
COMPOSITE PAD For Type II Beams



PLAN



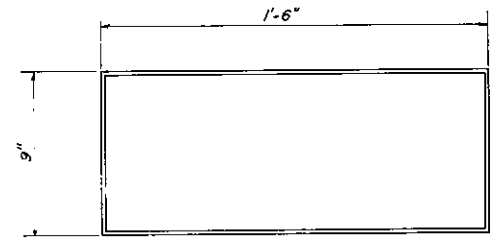
TYPICAL SECTION



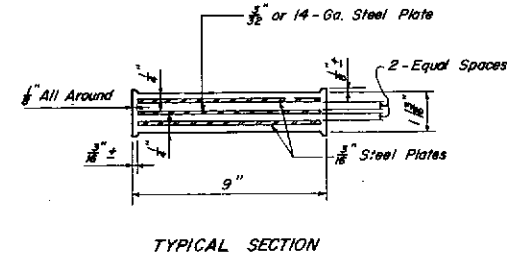
SKEWED BRIDGE

SKEWED BRIDGE

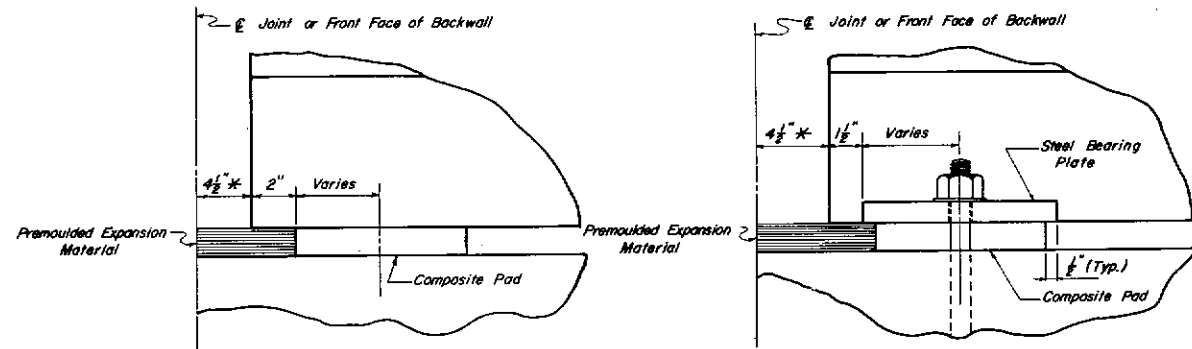
COMPOSITE PAD For Type III Beams



PLAN



TYPICAL SECTION

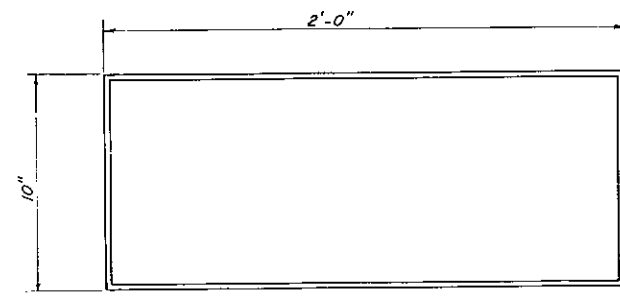


TYPICAL PAD DETAIL INTERIOR BEAM

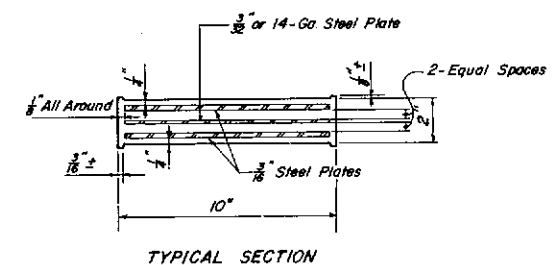
TYPICAL PAD DETAIL EXTERIOR BEAM

COMPOSITE PAD For Type IV Beams

* Unless otherwise noted on Beam Sheets.



PLAN



TYPICAL SECTION

COMPOSITE PAD For Type V & VI Beams

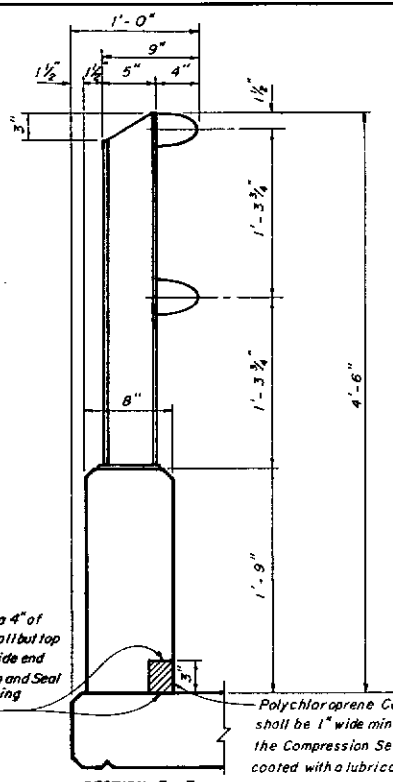
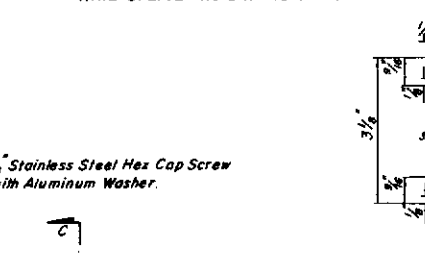
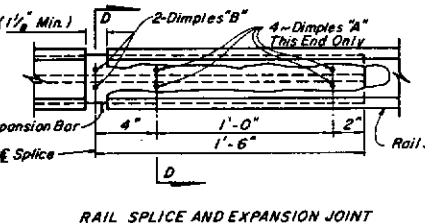
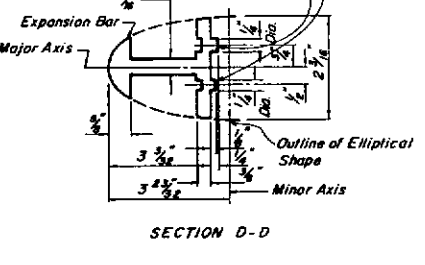
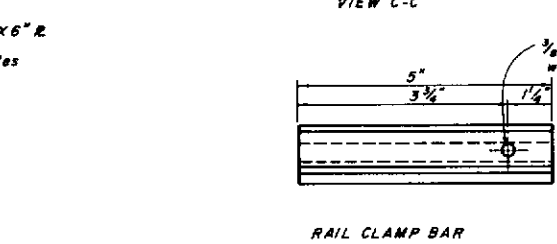
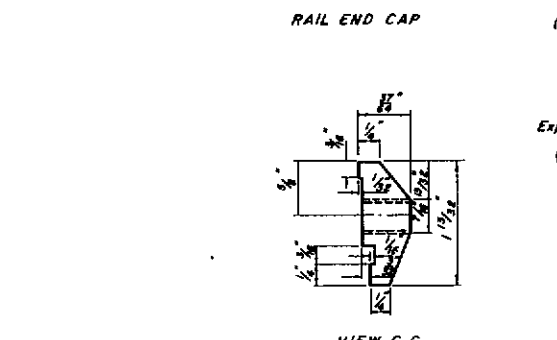
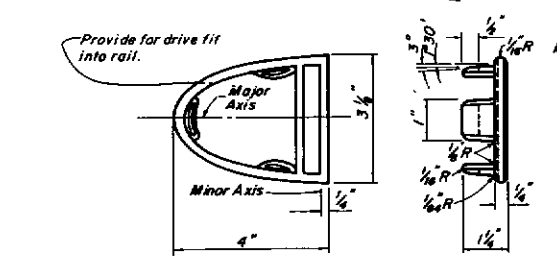
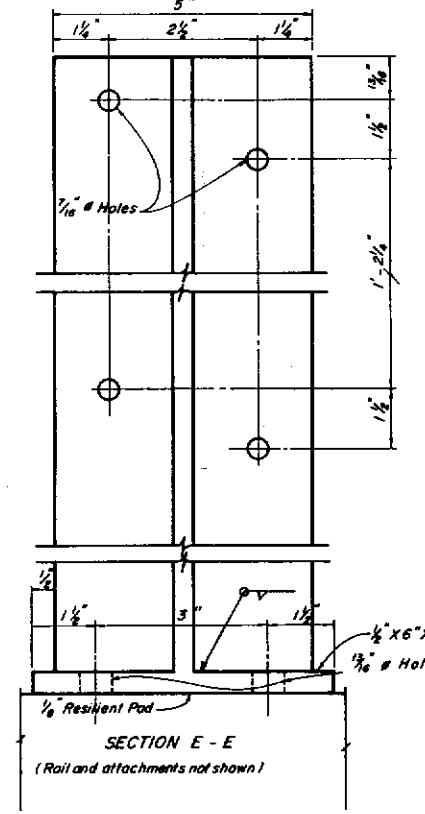
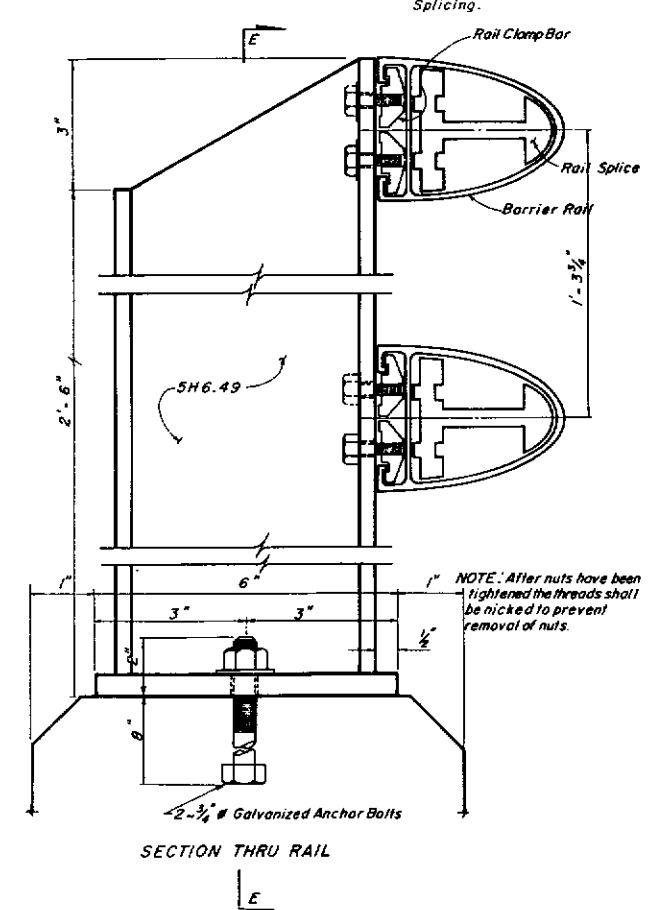
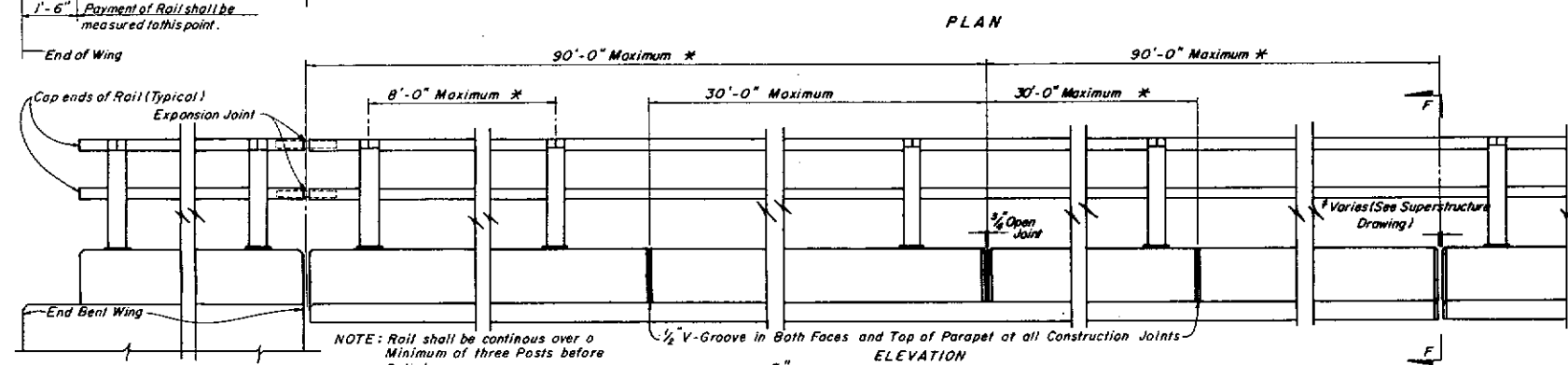
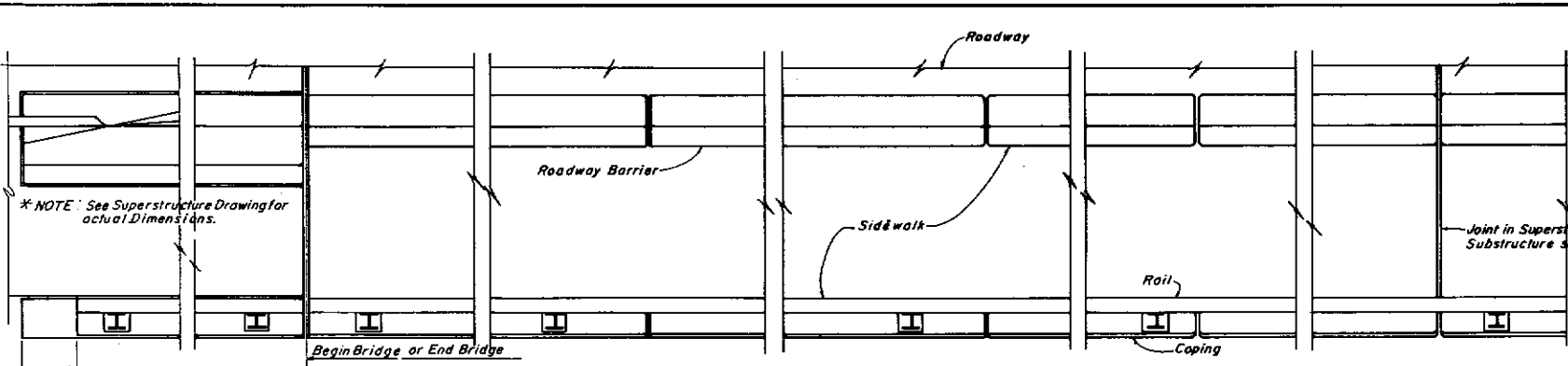
GENERAL NOTES

- 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 seal 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 | | ROAD NO. | COUNTY | PROJECT NO. |
|-----------|--------------|---------------|--------|-------------|
| Date | Descriptions | | | |
| | | | | |
| | | APPROVED BY | | |
| | | Names | Dates | |
| | | Designed by | W.E.H. | 9-76 |
| | | Checked by | DEK | 9-76 |
| | | Quantities by | | |
| | | Checked by | | |
| | | Supervised by | SHN | |
| | | Drawing No. | | Index No. |
| | | | 1 of 1 | 12037 |



GENERAL NOTES

- The cost of all materials in Parapet shall be included in Concrete (Superstructure) and Reinforcing Steel (Superstructure).
- 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.
- 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.

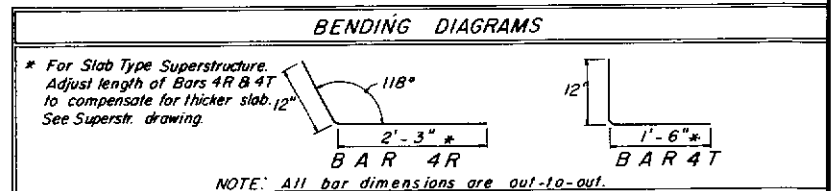
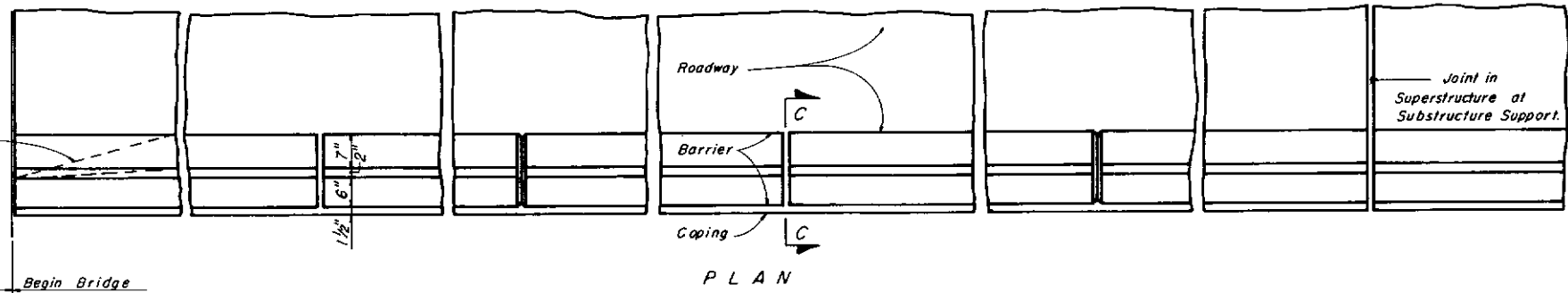
RAIL END CAP: A.S.T.M. B 26 sand cast aluminum alloy, SG 70A-F (Alum. Assoc. alloy designation A-356-F).

RAIL INSTALLATION: Rail Post shall be normal to Profile Grade. Posts shall be seated on 1/2" 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.

| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STRUCTURES | | | |
|---|---------------|--------|------------------------------------|
| ALUMINUM HANDRAIL (SIDEWALK) | | | |
| REVISIONS | ROAD NO. | COUNTY | PROJECT NO. |
| Date | | | |
| 1-4-75 Change Curb from 9" to 1'-9" | | | |
| Designed by | W.L.D./J.F.L. | 9/76 | APPROVED BY |
| Checked by | R.D.S. | 9/76 | <i>T. Paul</i> |
| Quantity by | | | Deputy Design Engineer, Structures |
| Checked by | | | Drawing No. |
| Supervised by | P. BYRD | | Index No. |
| | | | 1 of 1 |
| | | | 12,087 |

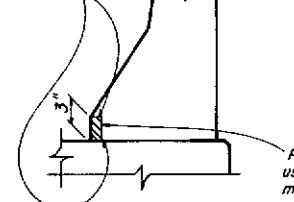
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|---------------------|-------|-------------|-------------|--------------|
| FED. ROAD DIST. NO. | STATE | PROJECT NO. | FISCAL YEAR | MARKET PRICE |
| 3 | FLA. | | | |



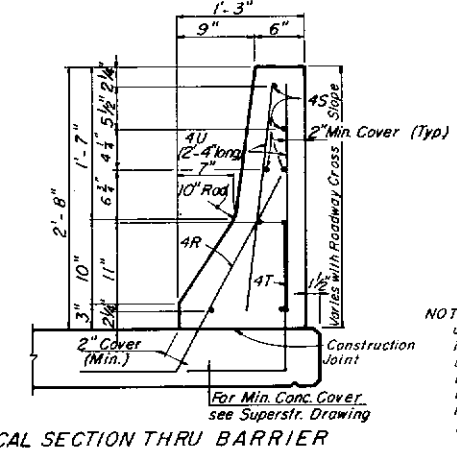
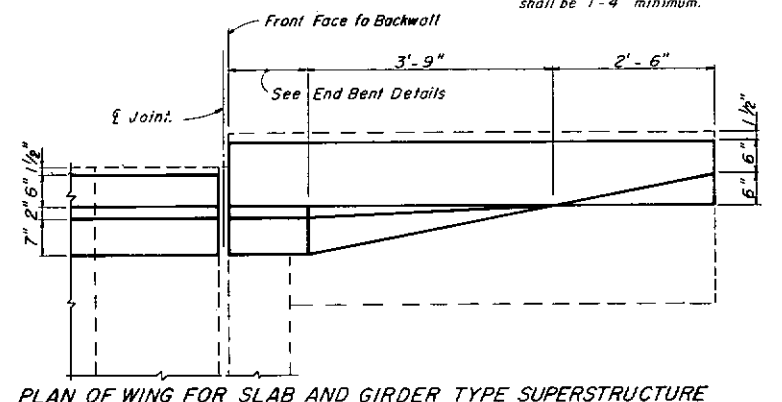
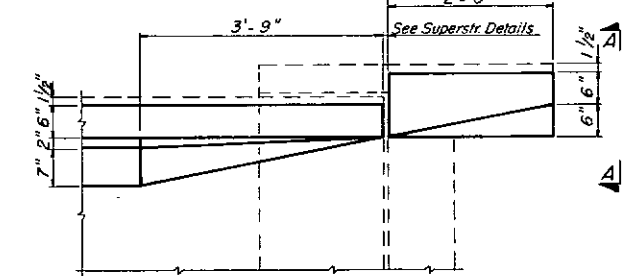
QUANTITIES: Class II Concrete = 0.07594 Cu Yds. per linear ft. of Barrier (Based on Roadway Cross Slope of 02'/ft).
REINFORCING STEEL = 15.782 lbs. per linear ft. of Barrier.

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

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



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



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 center line of the top surface of the Barrier.

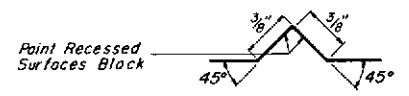
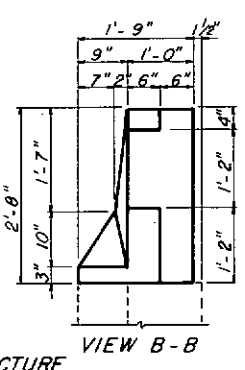
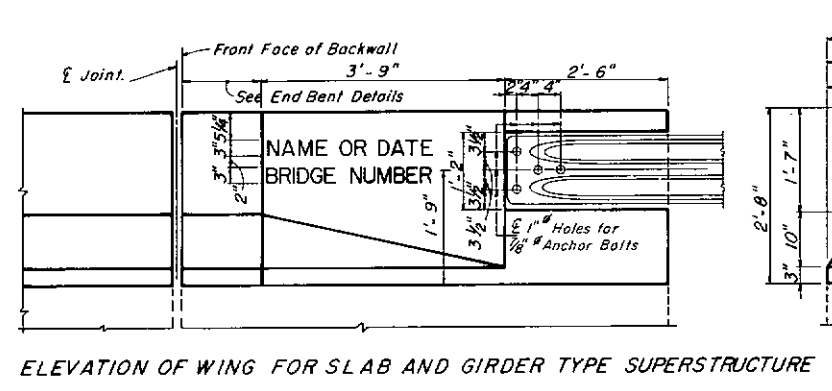
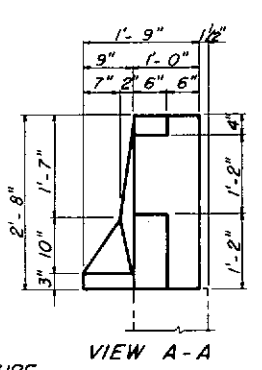
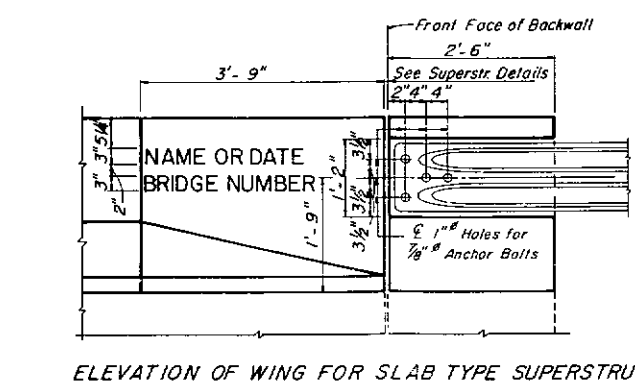
CYLINDER STRENGTH: The Cylinder Strength of the Concrete shall be 3,400 p.s.i. minimum at 28 days.

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 Washers shall be hot dip galvanized in accordance with A.S.T.M. A-123.

HOLES FOR INCIDENTAL SIGNING

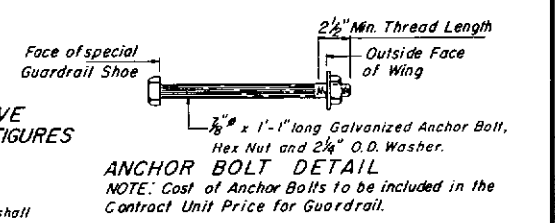
NOTE: Holes and grooves shall be placed on barrier type handrails of divided and undivided bridges as shown in the plans for designated type "C" single column, informational, guide, regulatory and warning sign locations (see signing plans) and at approximately 500' intervals along the right handrails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



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.



DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

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

| | | | |
|---|----------|---------------------------|------------------------------------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STRUCTURES | | CONCRETE HANDRAIL BARRIER | |
| REVISIONS | ROAD NO. | COUNTY | PROJECT NO. |
| Dates Descriptions 10-12-77 Change Anchor Bolt Detail 1-6-78 Hex Head on Anchor Bolt 9-22-78 Rein. Steel Revised & Deleted Reference to 1972 Supplement | | | |
| Designed by | D.O.D. | 3/78 | APPROVED BY |
| Checked by | P.B. | 3/78 | T. all |
| Quarities by | | | Deputy Design Engineer, Structures |
| Checked by | | | Drawing No. |
| Supervised by | P.B. | | 1 of 1 |
| | | | 11407 |

| | | | | |
|---|------|--|--|--|
| 3 | FLA. | | | |
|---|------|--|--|--|

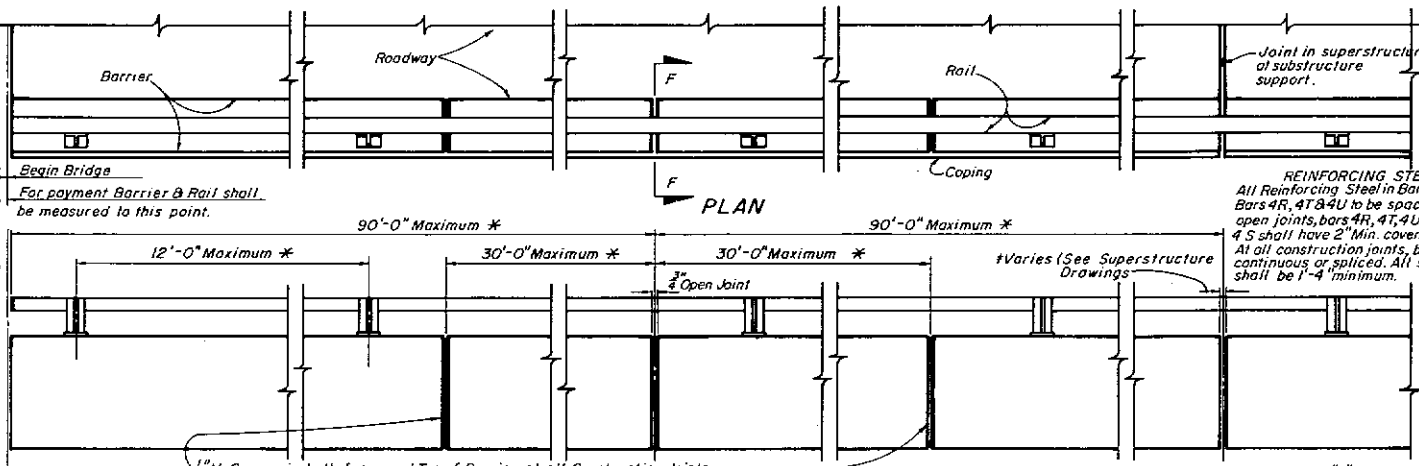
NOTE: For Barrier Transition at End Bents see Details below, this sheet.

*NOTE: See Superstructure Drawing for actual Dimensions.

NOTE: There shall be a Min. Open Joint at all Substructure Supports.

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

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

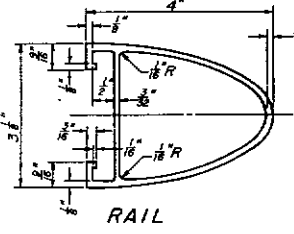


NOTE: All contacting surfaces between the Compression Seal and the concrete shall be thoroughly coated with a lubricating adhesive.

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

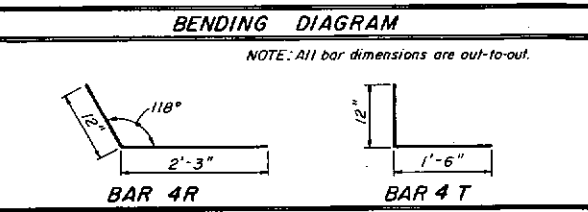
REINFORCING STEEL NOTES
All Reinforcing Steel in Barrier shall be No. 4's. Bars 4R, 4T & 4U to be spaced at 8" c.c. At all open joints, bars 4R, 4T, 4U and the ends of bars 4S shall have 2" Min. cover. At all construction joints, bars 4S may be either continuous or spliced. All splices in bars 4S shall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

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



SECTION F-F

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



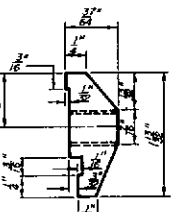
QUANTITIES: Class II Concrete = 0.07594 Cu Yds. per linear ft. of Barrier (Based on Roadway Cross Slope of .02/ft.).
REINFORCING STEEL = 15.782 lbs. per linear ft. of Barrier.

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.
ANCHOR BOLTS: Anchor Bolts, Nuts and Washers shall be hot dip galvanized in accordance with A.S.T.M. A-123.

SPECIFICATIONS FOR BRIDGE RAIL

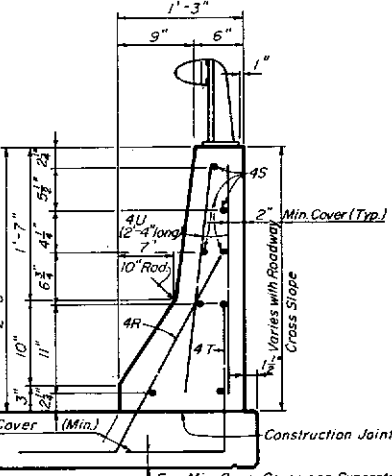
POST: Fabricated wrought aluminum A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5 with welding using filler wire 4043.
RAIL & RAIL SPLICE: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5.
RAIL CLAMP BAR: Aluminum; A.S.T.M. B221, alloy 6061-T6 or alloy 6351-T5.
ANCHOR BOLTS: Anchor Bolts shall be 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, SG 70A-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 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.



VIEW C-C

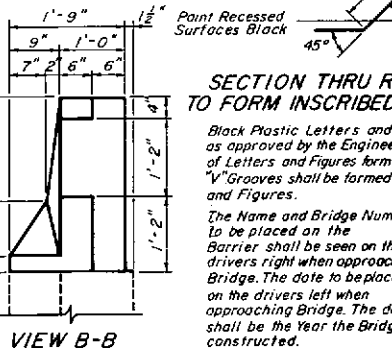
Stainless Steel Hex Cap Screw with Aluminum Washer.

RAIL CLAMP BAR



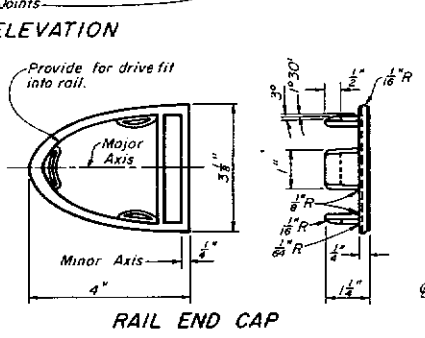
TYPICAL SECTION THRU BARRIER

For Min. Conc. Cover see Superstr. Drawing



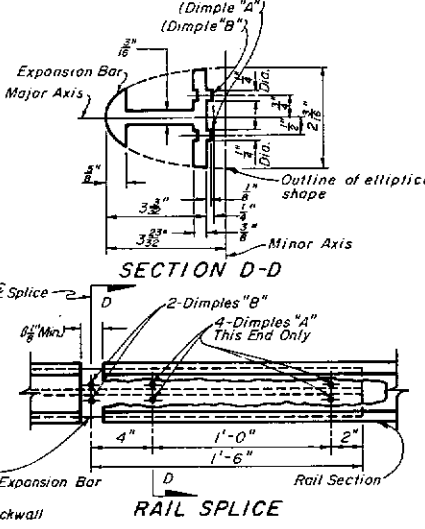
SECTION THRU RECESSED "V" GROOVE TO FORM INSCRIBED LETTERS AND FIGURES

Black Plastic Letters and Figures 3" in height as approved by the Engineer may be used in lieu of Letters and Figures formed by 1/2" 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.

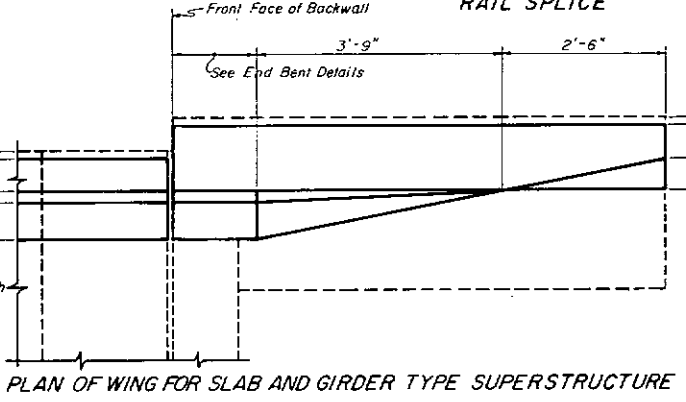


RAIL END CAP

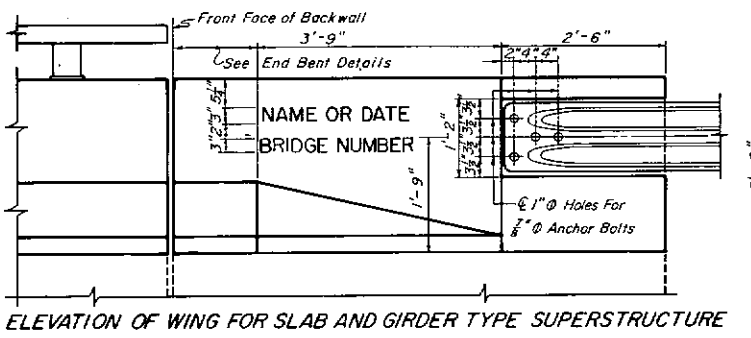
NOTE: At the option of the contractor, the bottom nut shown in Section Thru Rail may be used in conjunction with top nut to secure Anchor Bolt to form work during pour.



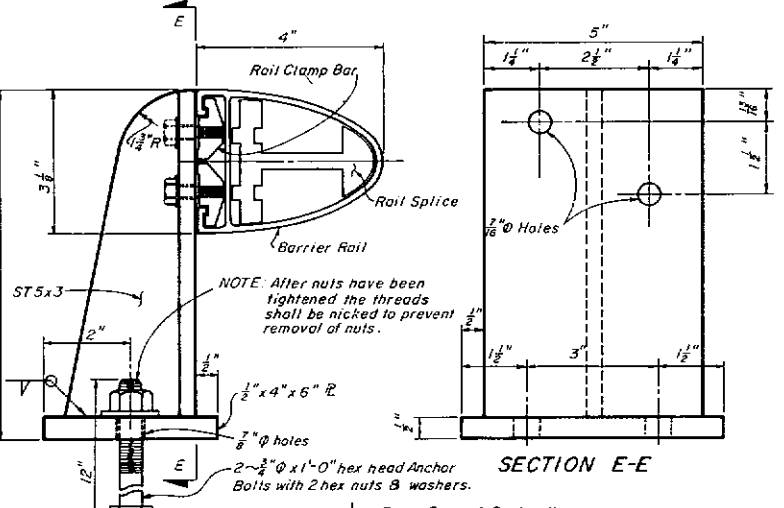
RAIL SPLICE



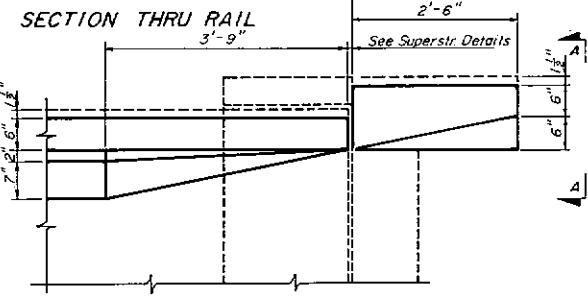
PLAN OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE



ELEVATION OF WING FOR SLAB AND GIRDER TYPE SUPERSTRUCTURE

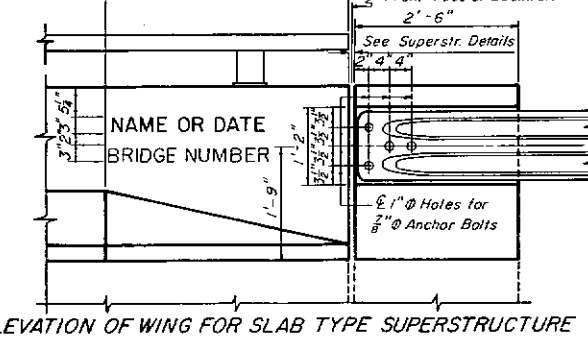


SECTION E-E

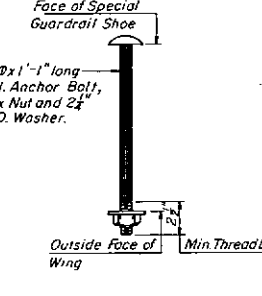


SECTION THRU RAIL

NOTE: For Reinforcing Steel in Transition Area on Slab Type Superstructure adjust and field bend as required for minimum cover. 3'-9"

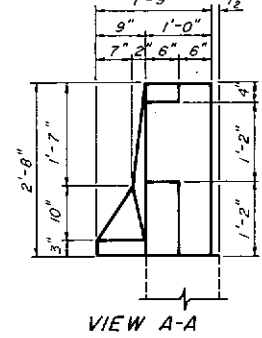


ELEVATION OF WING FOR SLAB TYPE SUPERSTRUCTURE



ANCHOR BOLT DETAIL

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

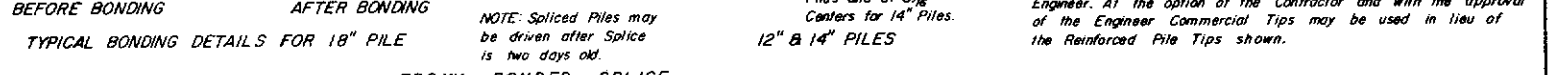
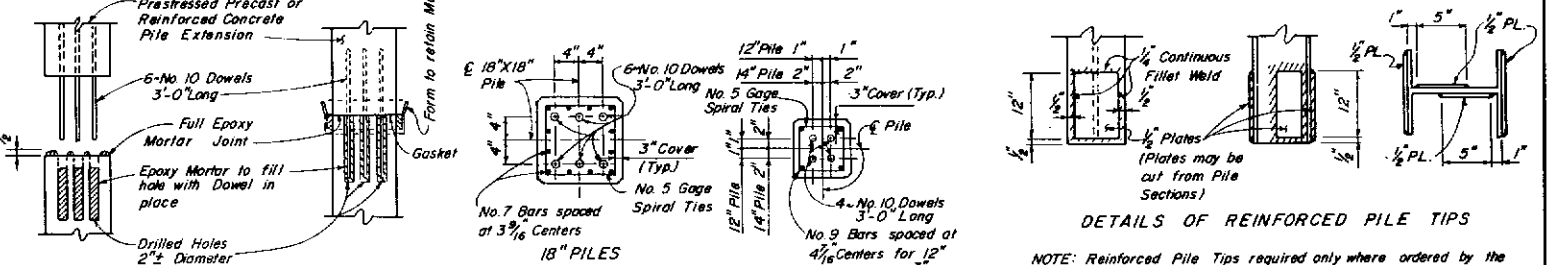
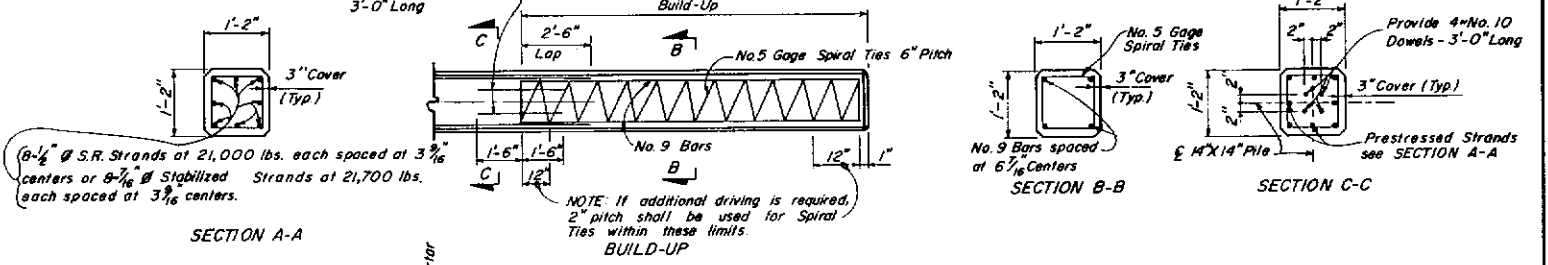
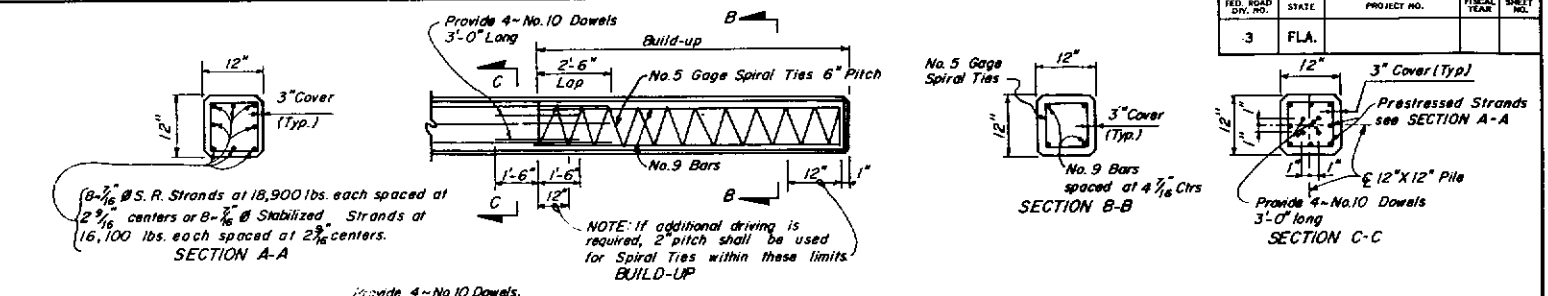
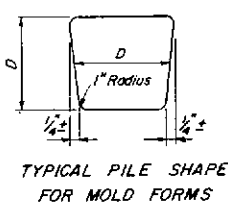
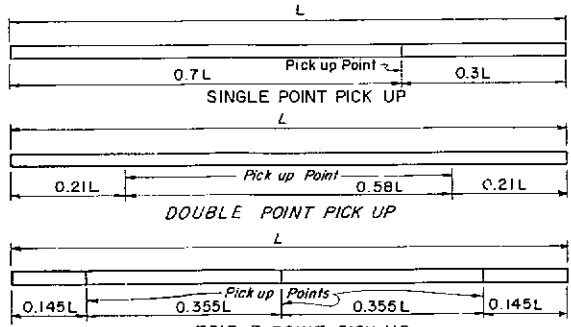
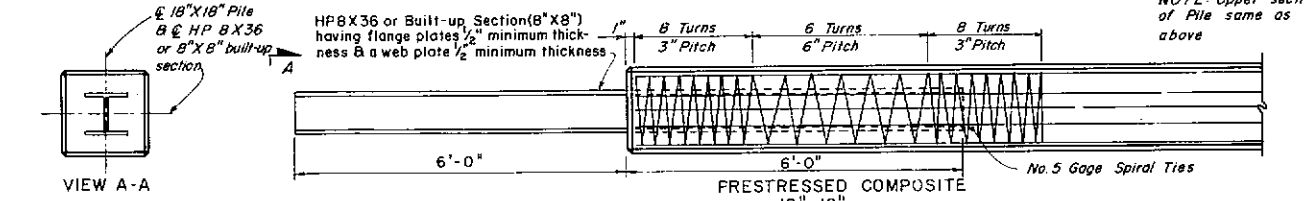
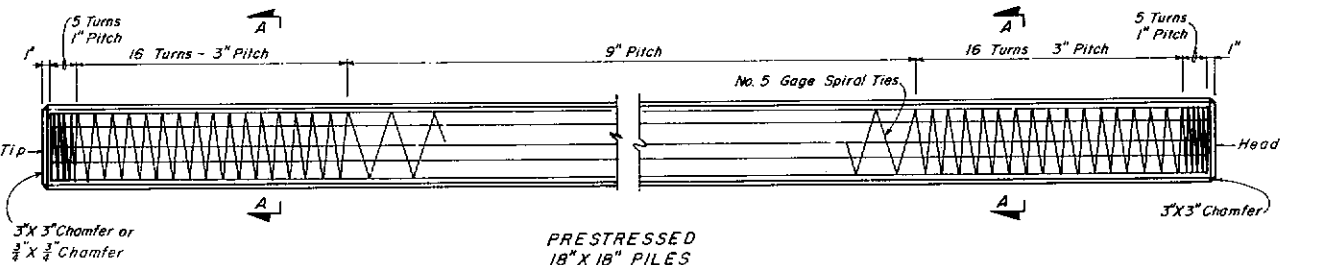
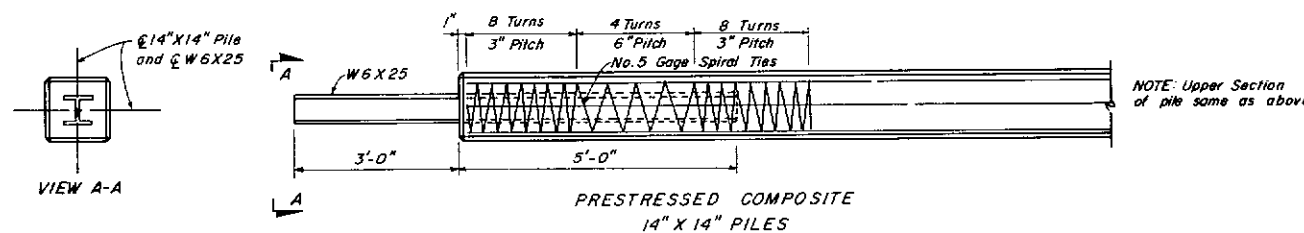
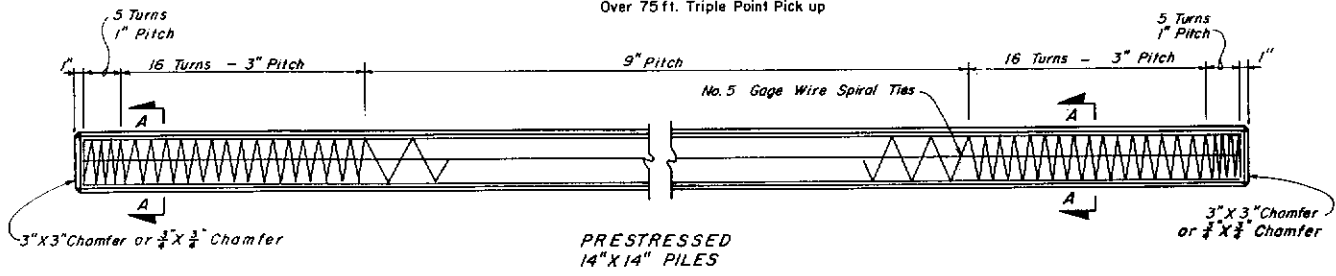
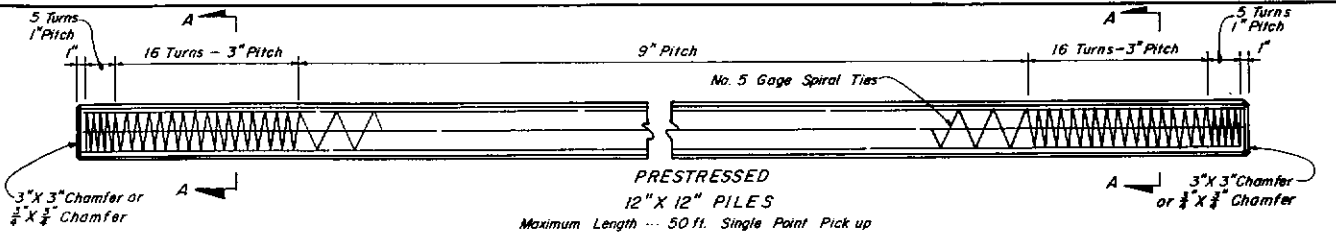


VIEW A-A

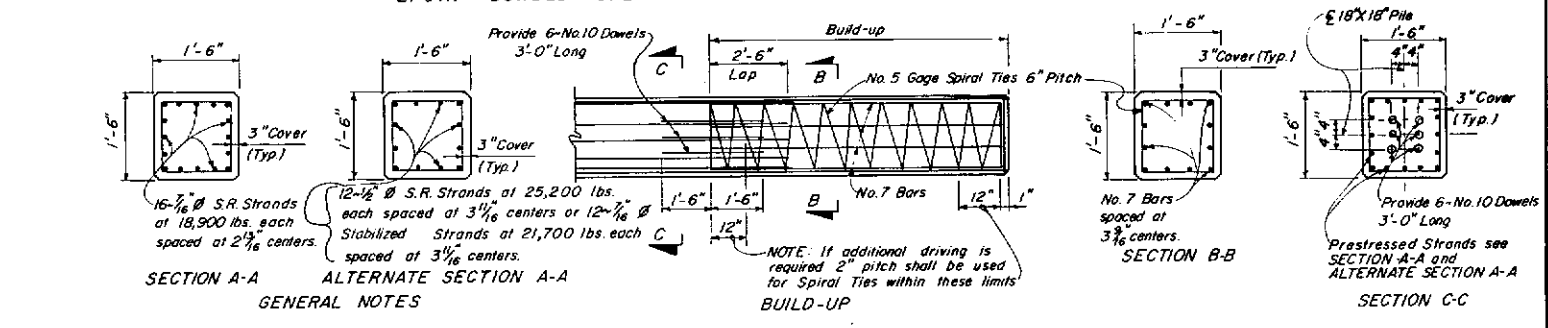
DETAILS OF GUARDRAIL ATTACHMENT AT WING POSTS

NOTE: For Guardrail Shoe See Standard Drawing in Roadway Plans

| | | | |
|---|----------------------------------|----------------------------------|------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STRUCTURES | | | |
| SIDEWALK BARRIER | | | |
| ROAD NO. | COUNTY | PROJECT NO. | |
| REVISIONS | | | |
| Date | Description | APPROVED BY | |
| 8/30/79 | In reference to 1975 Supplement. | WHD | 5-74 |
| 8/29/79 | Bridge Number added to Wingwall | JLM | 5-74 |
| Checked by | | T. All | |
| Quantity by | | Duty Design Engineer, Structures | |
| Checked by | | Drawing No. | |
| Submitted by | | Index No. | |
| PB | | 1 of 1 | |
| | | 11,460 | |



DETAILS OF REINFORCED PILE TIPS
 NOTE: 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.



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 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.

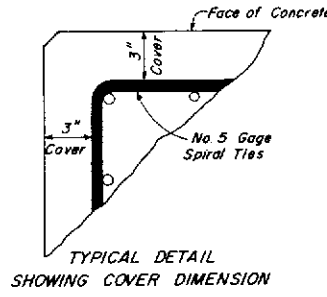
CONCRETE STRENGTH: For Class III Concrete the Cylinder Strength shall be 5,000 p.s.i. minimum at 28 days and 4,000 p.s.i. minimum at transfer of the Prestressing Force.

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.

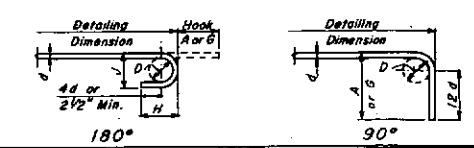
APPROVAL: Prior Approval in Writing By the Engineer is Required for Reinforced Concrete Build-Up in Excess of 2'-0". This will not be approved for piles in a coastal environment.

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 pick up points called for in Triple Point Pick up.



| | | | |
|--|----------|-----------|-------------|
| STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STRUCTURES | | | |
| 12", 14" AND 18" PRESTRESSED CONCRETE PILES | | | |
| REVISIONS | ROAD NO. | COUNTY | PROJECT NO. |
| Dates Descriptions 5-5-75 Retrace 7-22-75 Change Chamfer 7-28-75 Change Approval Note 10-8-75 ADD TRIPLE POINT PICK UP 9-21-76 Change Lab. Stress Strands to Stabilized Strands 8-21-78 Removed Head & Tie from 12" & 14" Piles, Added Chamfer | | | |
| DESIGNED BY | NAME | DATE | APPROVED BY |
| Checked by | L.A.L. | 5-75 | T. Oll |
| Checked by | | | |
| Supervised by | | | |
| DRAWING NO. | | INDEX NO. | |
| 1 of 1 | | 3400 | |

HOOK DETAILS

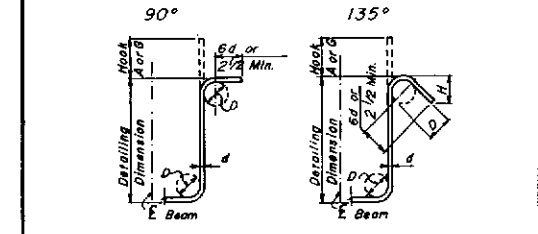


RECOMMENDED END HOOKS

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 | 1 1/4 | 1-7 |
| #10 | 1-5 | 1-0 3/4 | 1-10 |
| #11 | 1-7 | 1-2 1/4 | 2-0 |
| #14 | 2-2 | 1-8 1/2 | 2-7 |
| #18 | 2-11 | 2-3 | 3-5 |

| | | |
|-------|---|---|
| STYLE | 1 | 3 |
|-------|---|---|



STIRRUPS (TIES SIMILAR)

RECOMMENDED STIRRUP & TIE HOOK DIMENSIONS

| Bar Size | D (in.) | 90° HOOK | | 135° HOOK | |
|----------|---------|-------------|-----------|-------------|-----------|
| | | HOOK A or G | Approx. H | HOOK A or G | Approx. H |
| #3 | 1 1/2 | 4 | 2 1/2 | 4 | 2 1/2 |
| #4 | 2 | 4 1/2 | 3 | 4 1/2 | 3 |
| #5 | 2 1/2 | 6 | 3 3/4 | 5 1/2 | 3 3/4 |
| #6 | 3 | 6 1/2 | 4 1/2 | 6 1/2 | 4 1/2 |

| | | |
|-------|---|---|
| STYLE | 4 | 5 |
|-------|---|---|

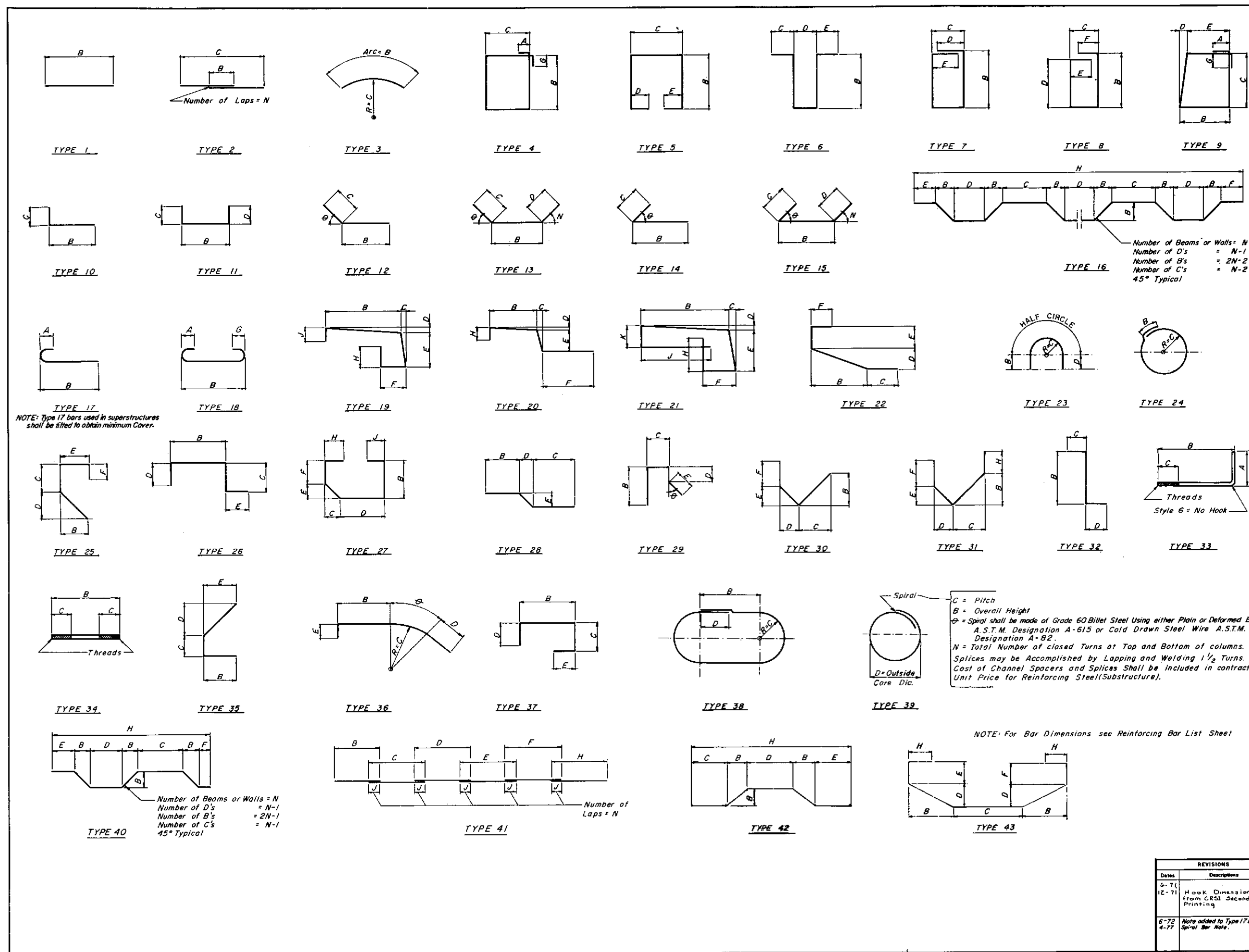
STYLE 6 = NO HOOK
 Hook Styles Detailed on this Sheet are for Illustration Only Actual Hook Style for any Particular Bar will be Shown Under A or G Heading on Reinforcing Bar List Sheet.
 All Dimensions are Out To Out.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 STRUCTURES

STANDARD BAR BENDING DETAILS

| REVISIONS | | ROAD NO. | COUNTY | PROJECT NO. |
|-----------|--|----------|--------|-------------|
| Date | Description | | | |
| 6-71 | Hook Dimensions from CRSI Second Printing | | | |
| 6-72 | Note added to Type 17 Bar Spiral Bar Note. | | | |

| | | | | | |
|---------------|------------|-------------|-------|-------------|----------|
| Designed by | M.B. | Date | 9-70 | APPROVED BY | |
| Checked by | C.M.B. | Date | 10-70 | Checked by | T. Allen |
| Quantity by | | Drawing No. | | Index No. | |
| Checked by | | | | | |
| Supervised by | L.B. Allen | | | 1 of 1 | 10587 |



NOTE: Type 17 bars used in superstructures shall be tilted to obtain minimum cover.

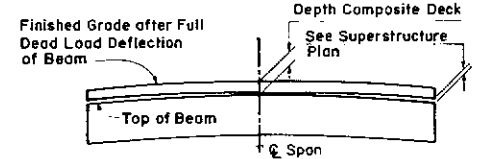
C = Pitch
 B = Overall Height
 S = Spiral shall be made of Grade 60 Billet Steel Using either Plain or Deformed Bars. A.S.T.M. Designation A-615 or Cold Drawn Steel Wire A.S.T.M. Designation A-82.
 N = Total Number of closed Turns at Top and Bottom of columns.
 Splices may be Accomplished by Lapping and Welding 1 1/2 Turns.
 Cost of Channel Spacers and Splices Shall be Included in contract Unit Price for Reinforcing Steel (Substructure).

NOTE: For Bar Dimensions see Reinforcing Bar List Sheet

| TABLE "A" | |
|-----------|--|
| PANEL NO. | REMARKS |
| ① ② | Fabricator's 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 Required > 2'-0" |
| ⑫ ⑬ ⑭ ⑮ | End Panels at Skewed Bents Saw Cut from Rectangular Panel Bear Skewed Edge 1" on Support |
| ⑯ | Permissible Only Where Required by Extreme Skew Angle of Bent. |

GENERAL NOTES

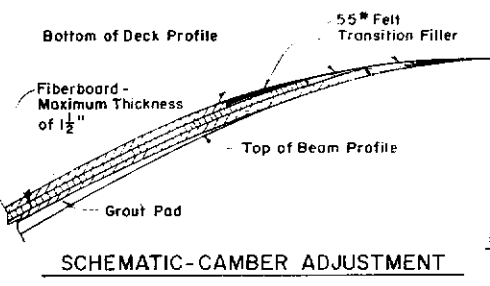
- All Changes in the Contract Drawing Deck Slab Design to Accommodate the Use of Precast Prestressed Panels shall be the Responsibility of the Contractor, Who shall Submit Complete Detailed Plans of the Redesigned Deck Slab for the Approval of the Engineer. The Top Reinforcing shall be the same as Shown on the Contract Drawings. When Truss Bars are Required in the Contract Drawings, Full Length Straight Bars Equal in Cross Sectional Area shall be Substituted in Their Place. Also, Shop Drawings Showing Precast Panel Details, Sizes and Installation Details are to be Submitted for Approval.
- 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.
- 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 [1" Min. Width, 1 1/2" Max. Width and 1/4" Min. Thickness] shall be Placed Along the Outer Edges of Each Beam and the Inside Edge of the End Diaphragms at Skewed Bents.
- 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.
- 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.
- Producers of Concrete Beams shall Provide a 3" Wide Smooth Finish at the Outside Edges of the Top Flange for Precast Panel Bearing and Grout Seal.



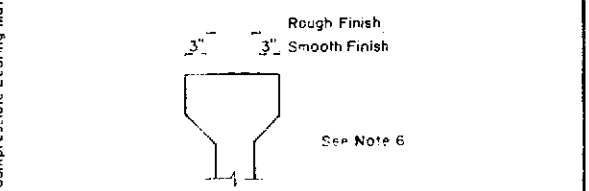
SKETCH SHOWING RELATIONSHIP OF BEAM AND DECK SLAB

PROFILE - DECK AND SUPPORT

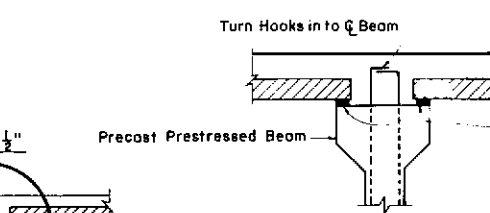
Where beam camber differs from that shown in the Plans, adjust thickness of bearing material. Maximum thickness of fiberboard to be 1 1/2". When necessary to achieve a thickness greater than 1 1/2", fiberboard may be set on an approved grout pad so that the Deck thickness conforms to the Plan dimension. 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)



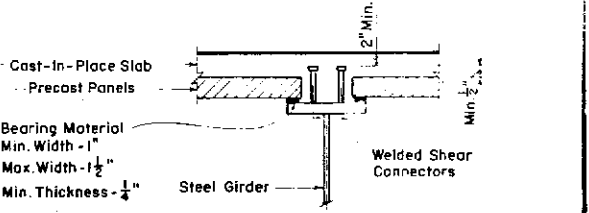
SCHEMATIC-CAMBER ADJUSTMENT



REQUIRED FINISH OF TOP FLANGE OF CONCRETE BEAM



DETAIL "A" FOR CONCRETE BEAMS



DETAIL "A" FOR STEEL GIRDERS

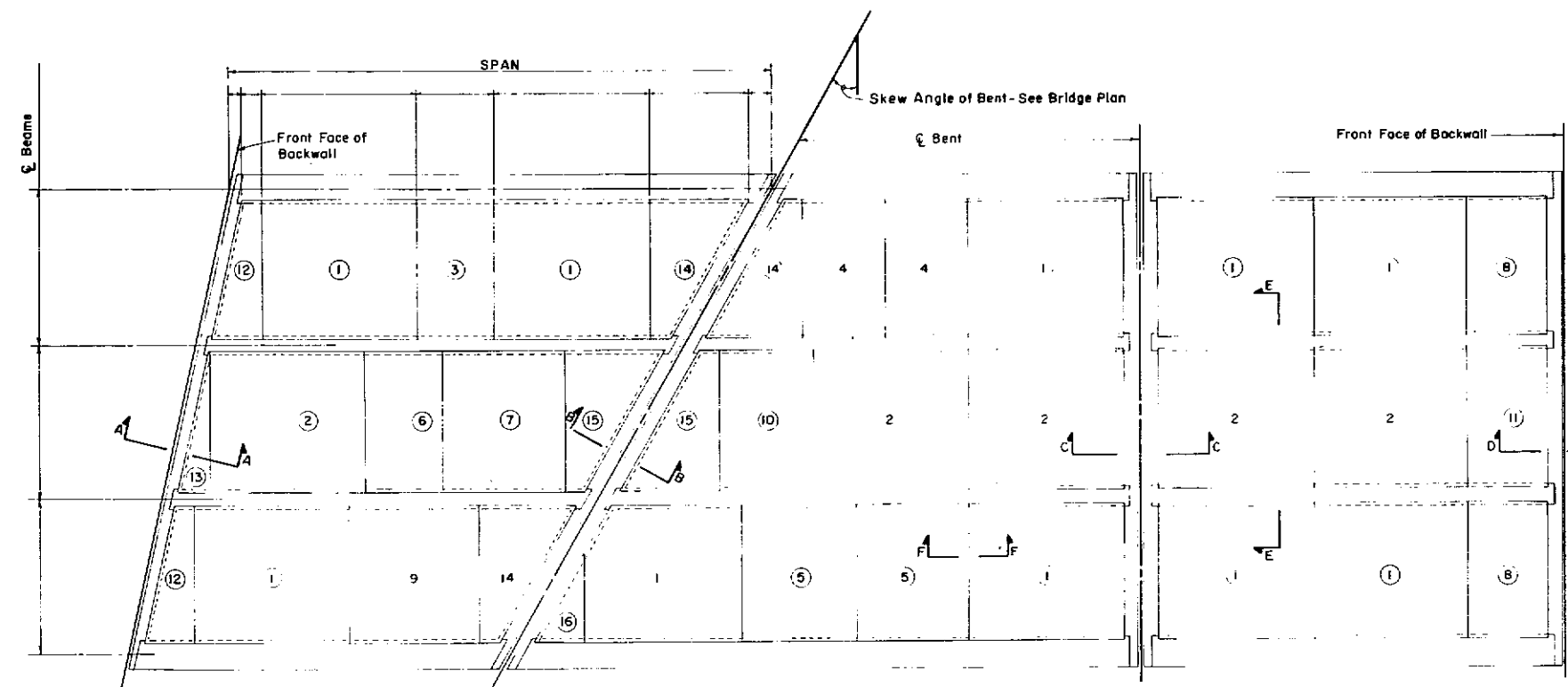
FHWA APPROVED: 11-27-78

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STRUCTURES

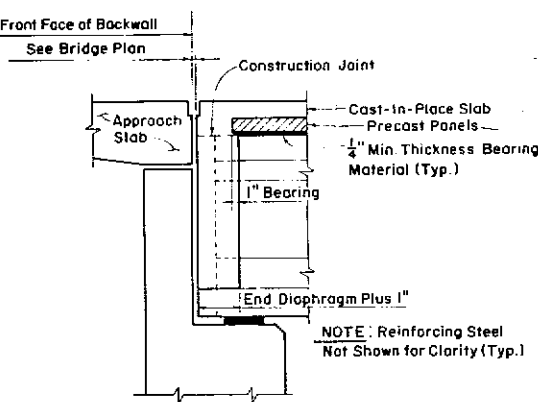
PRECAST PRESTRESSED PANELS FOR COMPOSITE CONCRETE DECK

| REVISIONS | | ROAD NO. | COUNTY | PROJECT NO. |
|-----------|--------------|----------|--------|-------------|
| Dates | Descriptions | | | |
| | | | | |

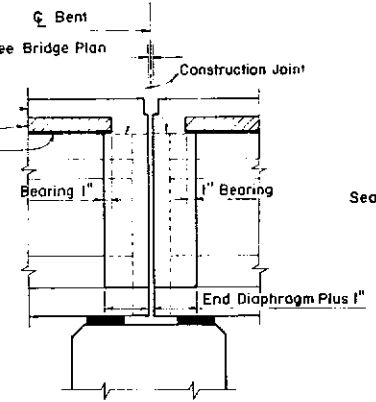
| | | | |
|---------------|-----|------|---|
| Designed by | CK | 5-78 | APPROVED BY <i>T. A. [Signature]</i> District Design Engineer, Structures |
| Checked by | CWB | 5-78 | |
| Quantity by | | | |
| Checked by | | | |
| Supervised by | AJH | | Drawing No. 1 of 3 |
| | | | Index No. 12641 |



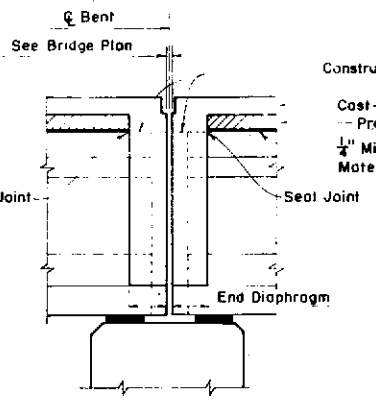
PLAN OF DECK PANELS (SEE TABLE "A")



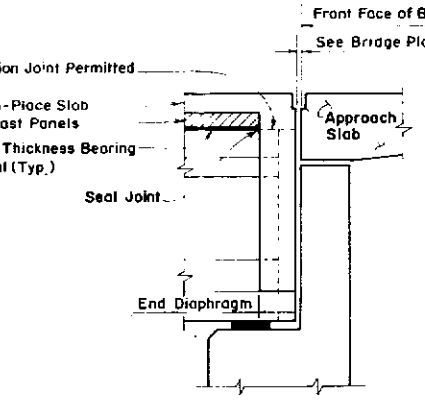
SECTION A-A (AT SKEWED END BENT)



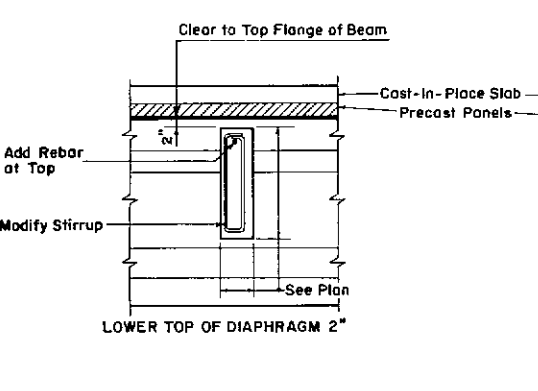
SECTION B-B (AT SKEWED BENT)



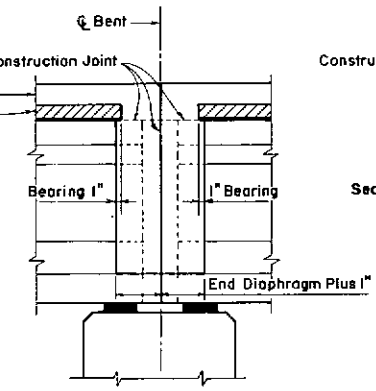
SECTION C-C (BENT PERPENDICULAR TO ROADWAY)



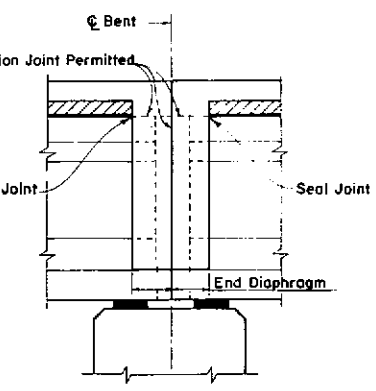
SECTION D-D (END BENT PERPENDICULAR TO ROADWAY)



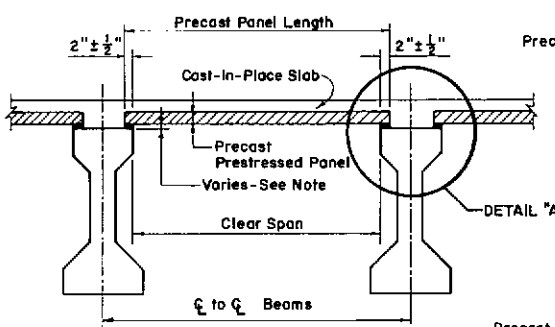
SECTION AT INTERMEDIATE DIAPHRAGMS



CONTINUOUS SPAN SECTION AT SKEWED BENT

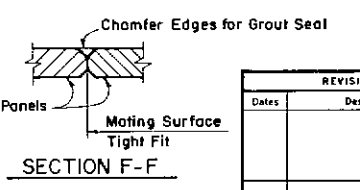


CONTINUOUS SPAN SECTION AT PERPENDICULAR BENT

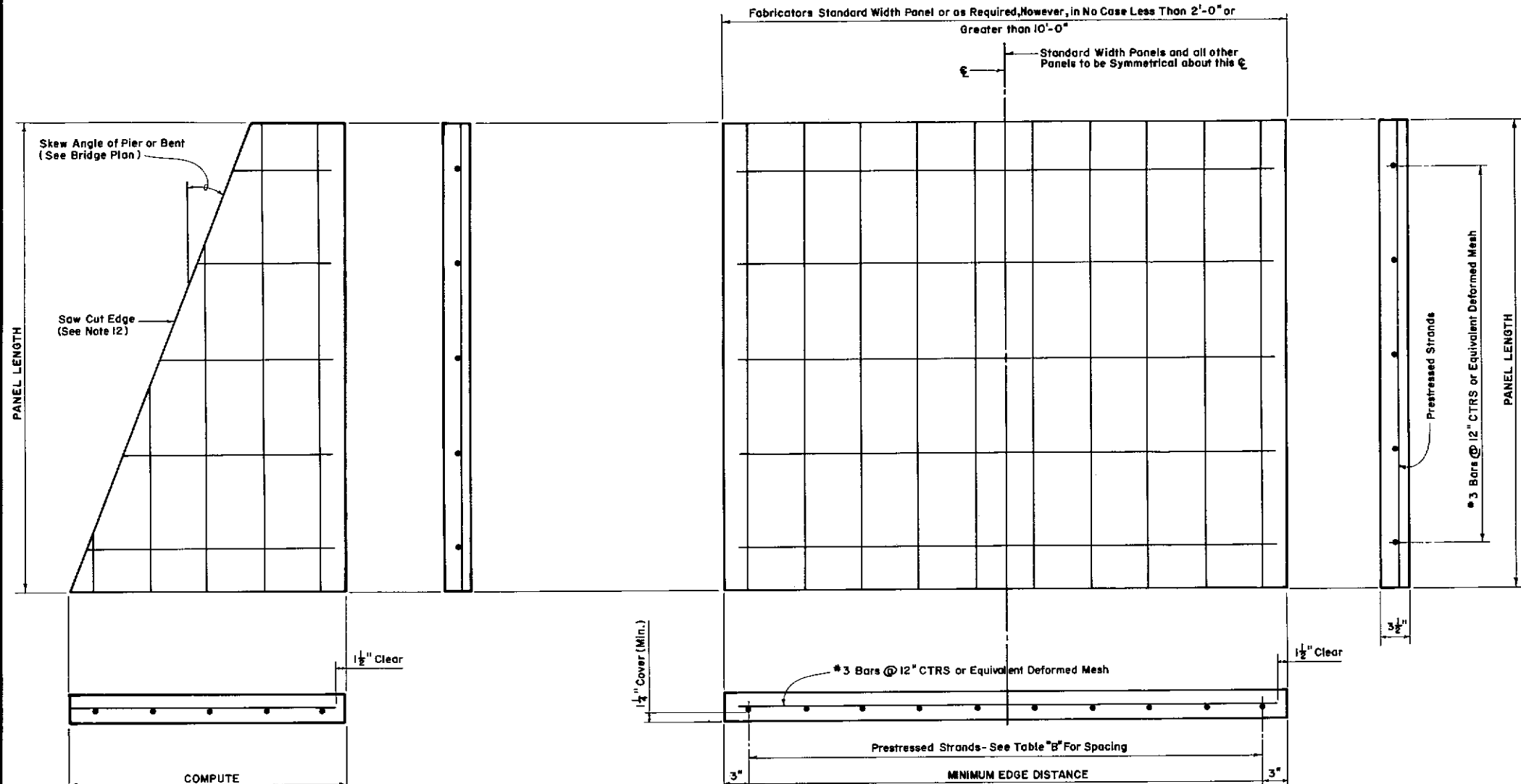


NOTE: The Design Span Equals the Clear Span Plus Two (2) Inches.

SECTION E-E

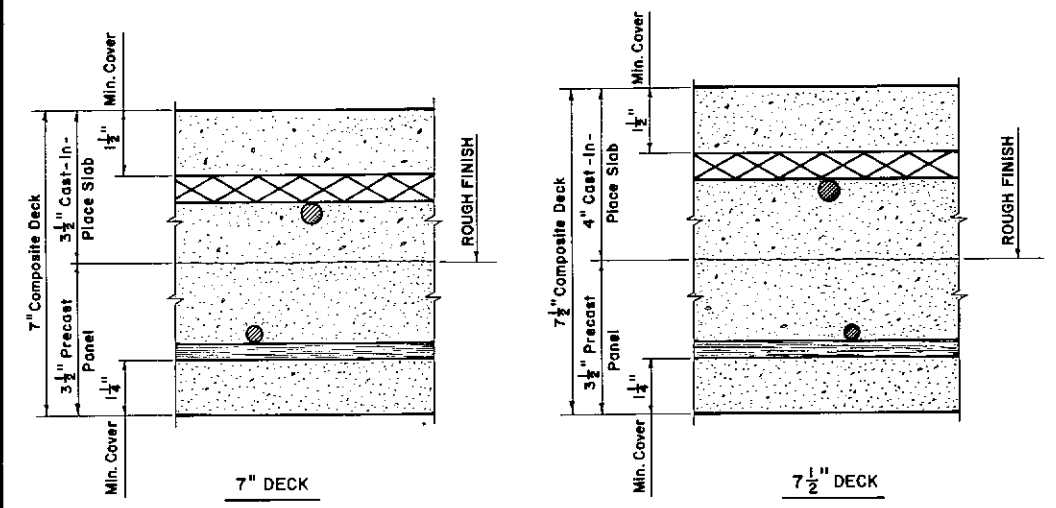


SECTION F-F



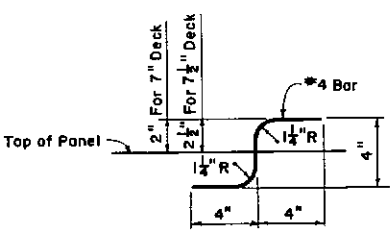
DETAIL - TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT (SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)

DETAIL - PRECAST PRESTRESSED PANELS - RECTANGULAR



| DESIGN SPAN | DECK SLAB THICKNESS | STRANDS | STRAND SPACING | STRANDS | STRAND SPACING |
|---------------------|---------------------|---------|----------------|----------------|----------------|
| MINIMUM LENGTH | 40" | 7" | 9.5" | 7 1/16" # 250K | 13" |
| UP TO AND INCLUDING | 50" | 7" | 9" | | 12" |
| | 60" | 7" | 8" | | 11" |
| | 70" | 7" | 7" | | 10" |
| | 80" | 7" | 6" | | 9" |
| | 90" | 7" | 5.5" | | 8" |
| | 91" | 7 1/2" | 6" | | 8" |
| | 100" | 7" | 5.5" | | 7" |
| | 110" | 7" | 5" | | 6" |

Prestressing Pull for 3/8" # 250 K Strands = 14,000 lbs. Each.
 Prestressing Pull for 7/16" # 250 K Strands = 18,900 lbs. Each.



- GENERAL NOTES FOR PRECAST PANELS**
- 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.
 - MATERIALS:**
 - 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.
 - Prestressing Strands shall be 3/8" # or 7/16" # 250K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A 416. See Table.
 - All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.
 - Coarse Aggregate for Precast Panel Concrete shall be Grade 16, 16S, 15, 14 and 9, and shall meet all other Requirements of Section 901.
 - 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.
 - Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.
 - 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.
 - 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.
 - Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.
 - 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)
 - Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.
 - Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
 Depth (Thickness of Panels) + 1/4" to - 1/8" *
 Position of Strands $\pm 1/8"$ Vertically *
 $\pm 1/2"$ Horizontally
 * Measured from Bottom of Panel.
 - Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.
 - Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.
 - 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.

FHWA APPROVED: 11-27-78

FLAT PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR 7" AND 7 1/2" COMPOSITE DECK
1 1/4" CLEAR AT BOTTOM - 1 1/2" CLEAR AT TOP

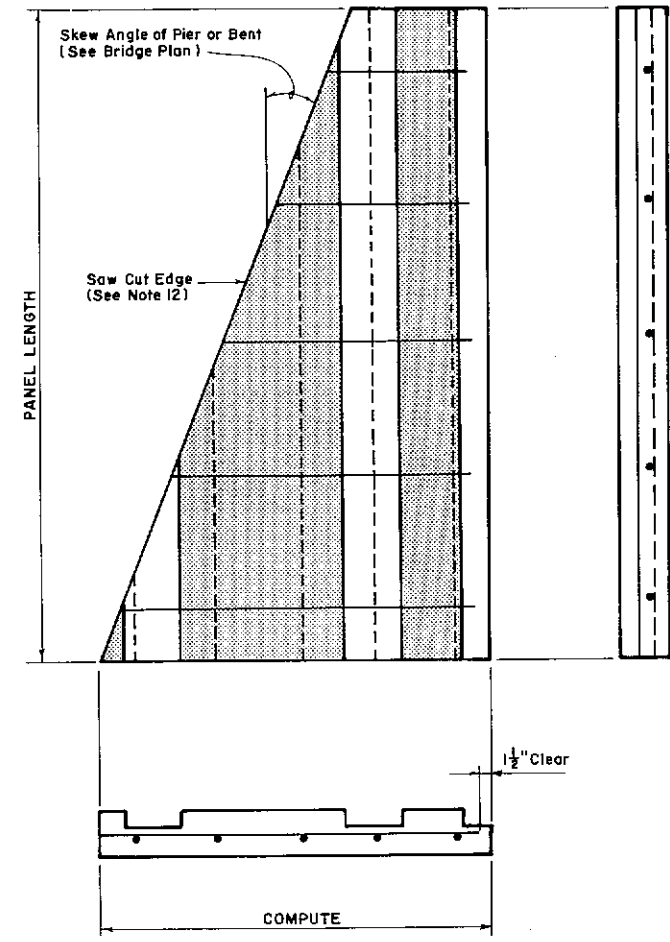
| REVISIONS | | ROAD NO. | COUNTY | PROJECT NO. |
|-----------|--------------|----------|--------|-------------|
| Dates | Descriptions | | | |
| | | | | |

| | | | | |
|---------------|-----|------|------|--|
| Designed by | CK | Date | 5-78 | APPROVED BY <i>T. all</i> Deputy Design Engineer, Structures |
| Checked by | CWB | Date | 6-78 | |
| Quantities by | | | | |
| Checked by | | | | |
| Supervised by | AJH | | | Drawing No. 2 of 3 |
| | | | | Index No. 12641 |

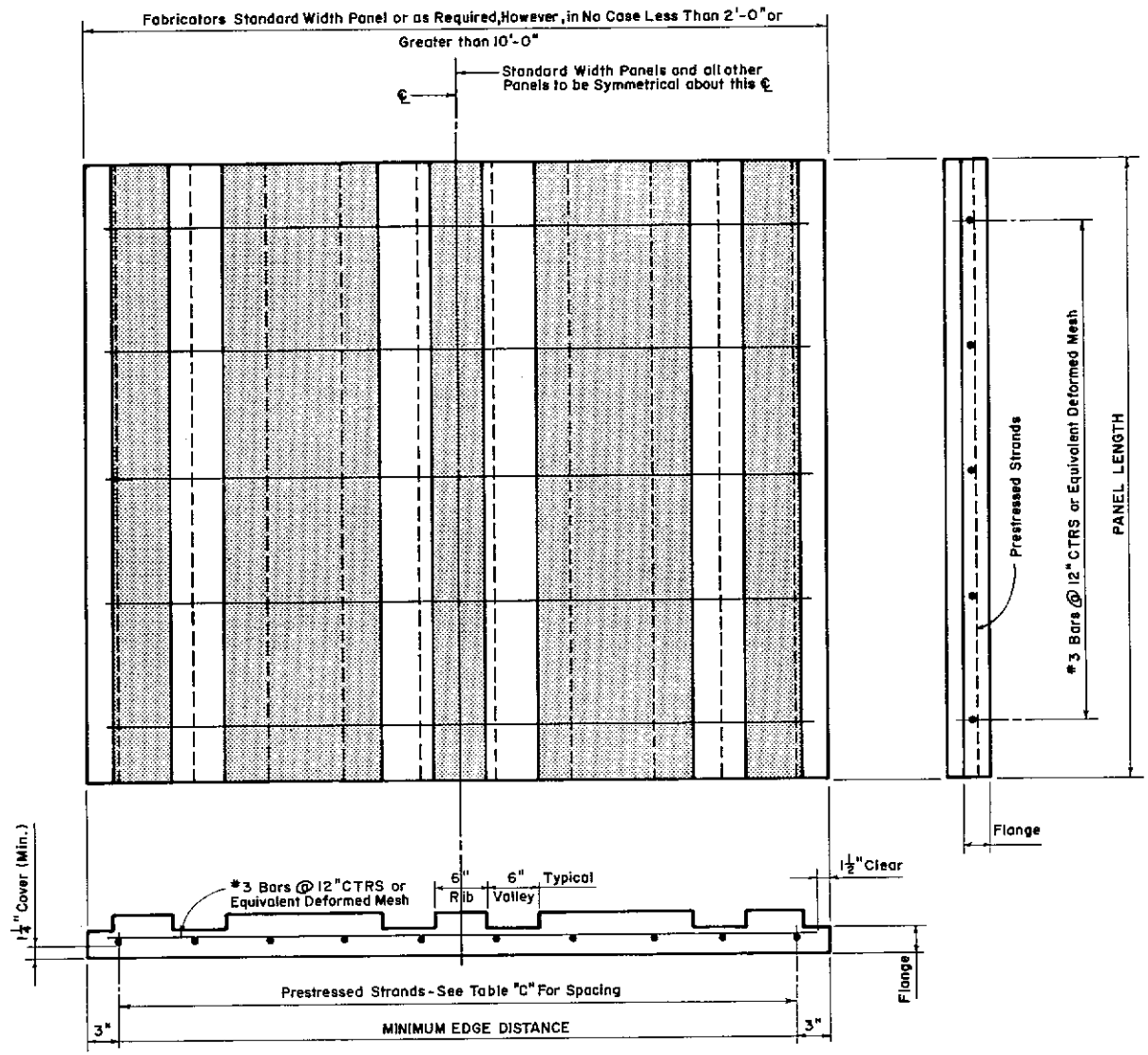
FRESH

GENERAL NOTES FOR PRECAST PANELS

- 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.
- MATERIALS:**
 - 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.
 - Prestressing Strands shall be $\frac{3}{8}$ " or $\frac{7}{16}$ " # 250K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A 416. See Table.
 - All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.
 - Coarse Aggregate for Precast Panel Concrete shall be Grade 16, 16S, 15, 14 and 9, and shall meet all other Requirements of Section 901.
 - 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.
- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.
- 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.
- 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.
- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.
- 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)
- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.
- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
 Depth (Thickness of Panels) $\pm \frac{1}{4}$ " to $-\frac{1}{8}$ " *
 Position of Strands $\pm \frac{1}{4}$ " Vertically *
 $\pm \frac{1}{2}$ " Horizontally *
 * Measured from Bottom of Panel.
- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.
- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.
- 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.

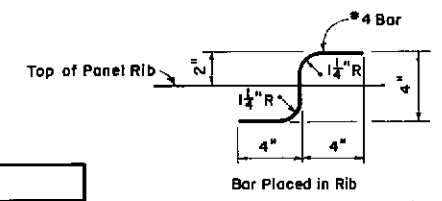


DETAIL-TRAPEZOIDAL SHAPED PANELS AT SKEWED BENT
(SAW CUT FROM PRECAST PRESTRESSED RECTANGULAR PANEL)

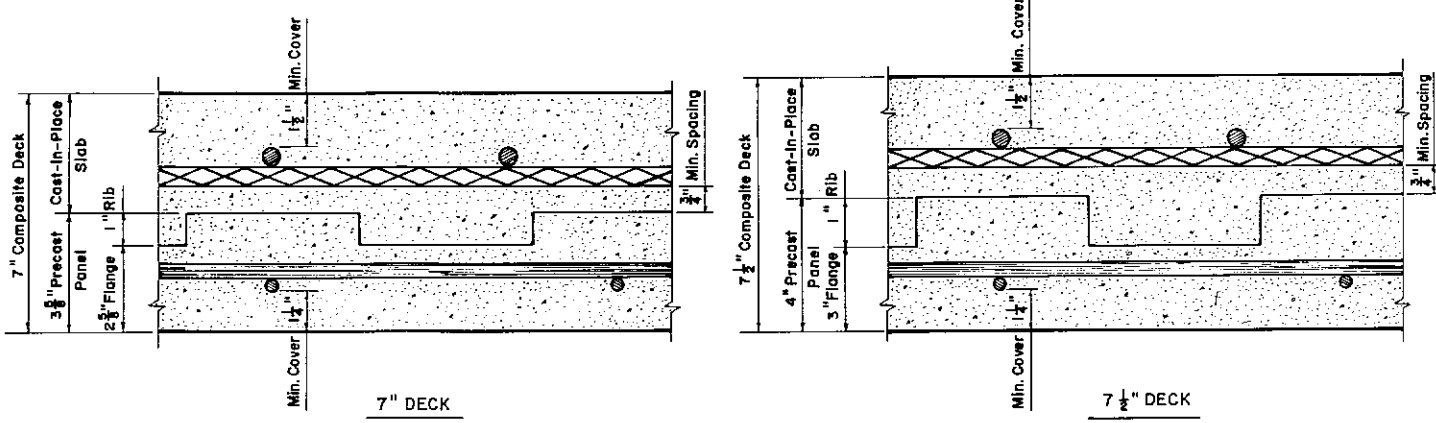


DETAIL RIBBED-PRECAST PRESTRESSED PANELS - RECTANGULAR

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.



MECHANICAL INTERLOCK REINFORCING



| DESIGN TABLE "c"-RIBBED PANELS | | | | | |
|--------------------------------|---------------------|---------|------------------------|---------|-------------------------|
| DESIGN SPAN | DECK SLAB THICKNESS | STRANDS | STRAND SPACING | STRANDS | STRAND SPACING |
| MINIMUM LENGTH | 40" | 7" | $\frac{3}{8}$ " # 250K | 9.5" | $\frac{7}{16}$ " # 250K |
| UP TO AND INCLUDING | 50" | | | 9" | 12" |
| | 60" | | | 8" | 11" |
| | 70" | | | 7" | 10" |
| | 80" | | | 6" | 9" |
| | 90" | | | 5.5" | 8" |
| | 91" | 7 1/2" | | 6" | 8" |
| | 100" | | | 5.5" | 7" |
| | 110" | | | 5" | 6" |

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

FHWA APPROVED: 11-27-78

RIBBED PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR 7" AND 7 1/2" COMPOSITE DECK
1/4" CLEAR AT BOTTOM 1/2" CLEAR AT TOP

| REVISIONS | | ROAD NO. | COUNTY | PROJECT NO. |
|-----------|--------------|----------|--------|-------------|
| Date | Descriptions | | | |
| | | | | |

| | | | |
|---------------|-----|------|------|
| Designed by | JMG | Date | 5-78 |
| Checked by | CK | Date | 6-78 |
| Drawn by | | | |
| Checked by | | | |
| Supervised by | AJH | | |

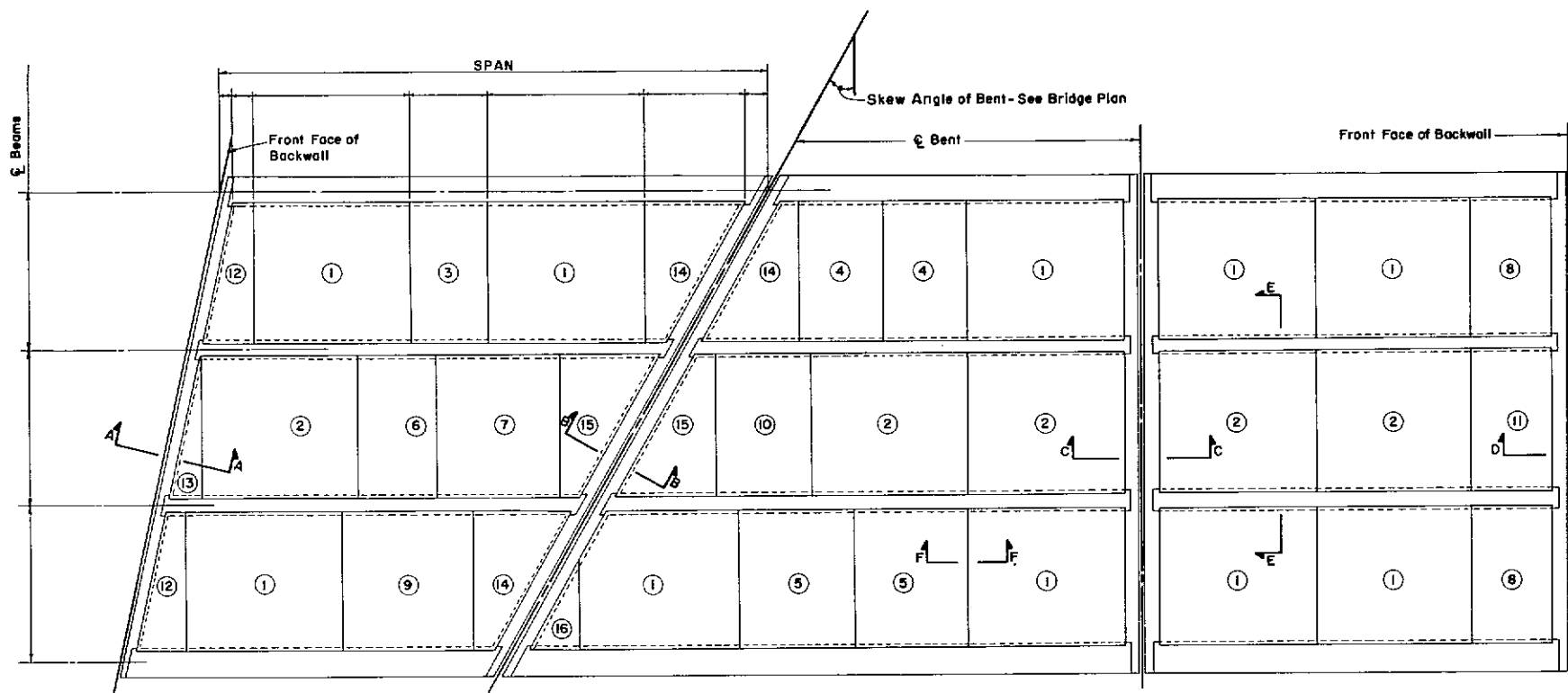
APPROVED BY: *[Signature]*
 Drawing No. 3 of 3
 Index No. 12641

FRESH

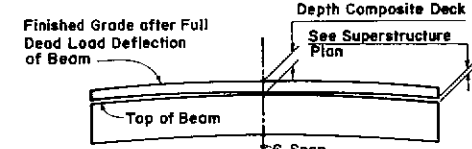
| | | | | |
|--------------------|-------|-------------|-------------|-----------|
| FED. ROAD DIV. NO. | STATE | PROJECT NO. | FISCAL YEAR | SHEET NO. |
| 3 | FLA. | | | |

| 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 Required > 2'-0" |
| ⑫ ⑭ | End Panels of Skewed Bents |
| ⑬ ⑮ | Saw Cut from Rectangular Panel Bear Skewed Edge 1" on Support |
| ⑯ | Permissible Only Where Required by Extra Skew Angle of Bent. |

- GENERAL NOTES**
- All Changes in the Contract Drawing Deck Slab Design to Accommodate the Use of Precast Prestressed Panels shall be the Responsibility of the Contractor, Who shall Submit Complete Detailed Plans of the Redesign Deck Slab for the Approval of the Engineer. The Top Reinforcing shall be the same as Shown on the Contract Drawings. When Truss Bars are Required in the Contract Drawings, Full Length Straight Bars Equal in Cross Sectional Area shall be Substituted in Their Place. Also, Shop Drawings Showing Precast Panel Details, Sizes and Installation Details are to be Submitted for Approval.
 - 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.
 - 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 [1" Min. Width, 1/2" Max. Width and 1/4" Min. Thickness] shall be Placed Along the Outer Edges of Each Beam and the Inside Edge of the End Diaphragms at Skewed Bents.
 - 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.
 - 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.
 - Producers of Concrete Beams shall Provide a 3" Wide Smooth Finish at the Outside Edges of the Top Flange for Precast Panel Bearing and Grout Seal.



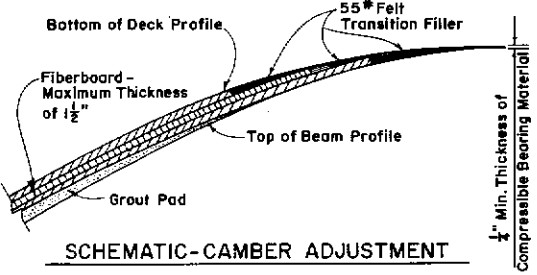
PLAN OF DECK PANELS
(SEE TABLE "A")



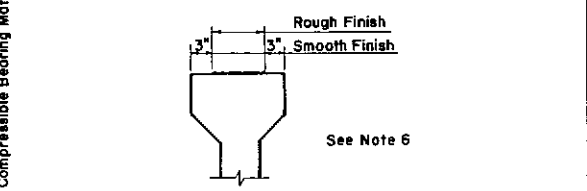
SKETCH SHOWING RELATIONSHIP OF BEAM AND DECK SLAB

PROFILE - DECK AND SUPPORT

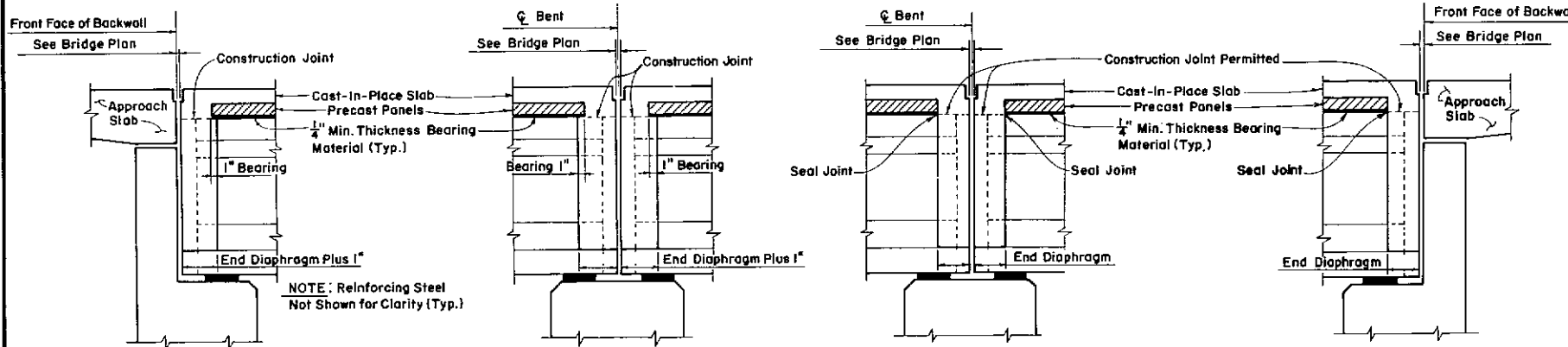
Where beam camber differs from that shown in the Plans, adjust thickness of bearing material. Maximum thickness of fiberboard to be 1/2". When necessary to achieve a thickness greater than 1/2", fiberboard may be set on an approved grout pad so that the Deck thickness conforms to the Plan dimension. 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



REQUIRED FINISH OF TOP FLANGE OF CONCRETE BEAM

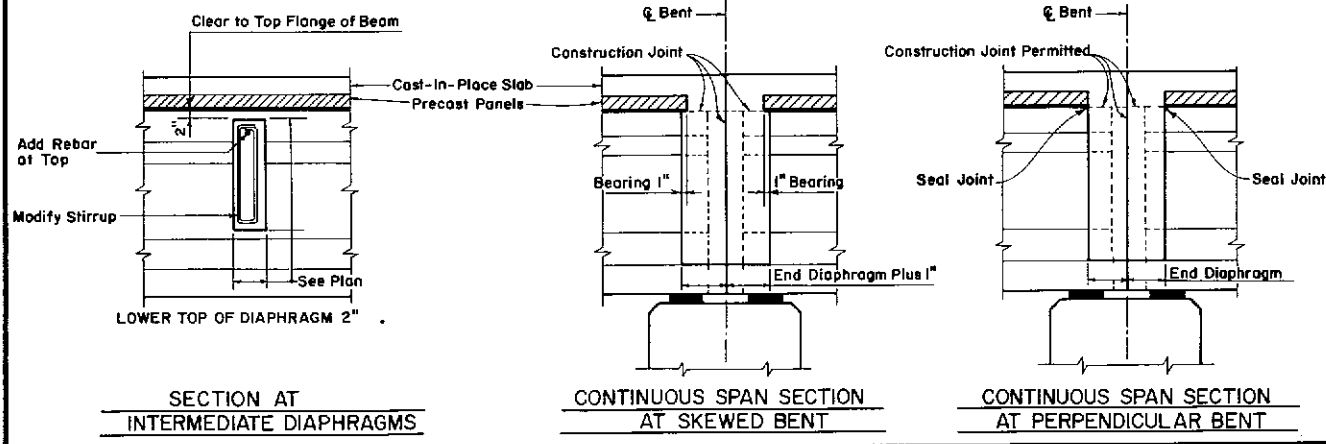


SECTION A-A
(AT SKEWED END BENT)

SECTION B-B
(AT SKEWED BENT)

SECTION C-C
(BENT PERPENDICULAR TO ROADWAY)

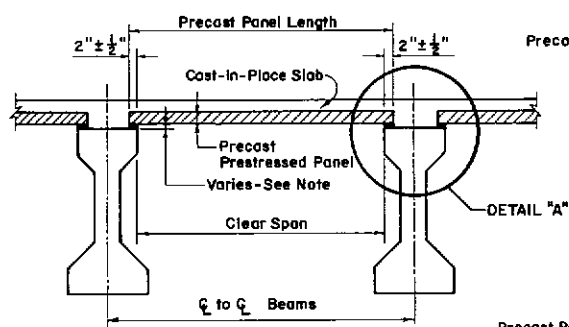
SECTION D-D
(END BENT PERPENDICULAR TO ROADWAY)



SECTION AT
INTERMEDIATE DIAPHRAGMS

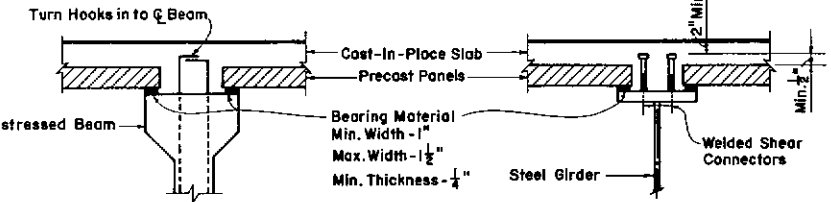
CONTINUOUS SPAN SECTION
AT SKEWED BENT

CONTINUOUS SPAN SECTION
AT PERPENDICULAR BENT



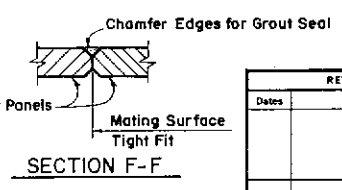
SECTION E-E

NOTE: The Design Span Equals the Clear Span Plus Two (2) Inches.



DETAIL "A" FOR CONCRETE BEAMS

DETAIL "A" FOR STEEL GIRDERS



SECTION F-F

FHWA APPROVED: 11-27-78

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PRESTRESSED PANELS
FOR COMPOSITE CONCRETE DECK

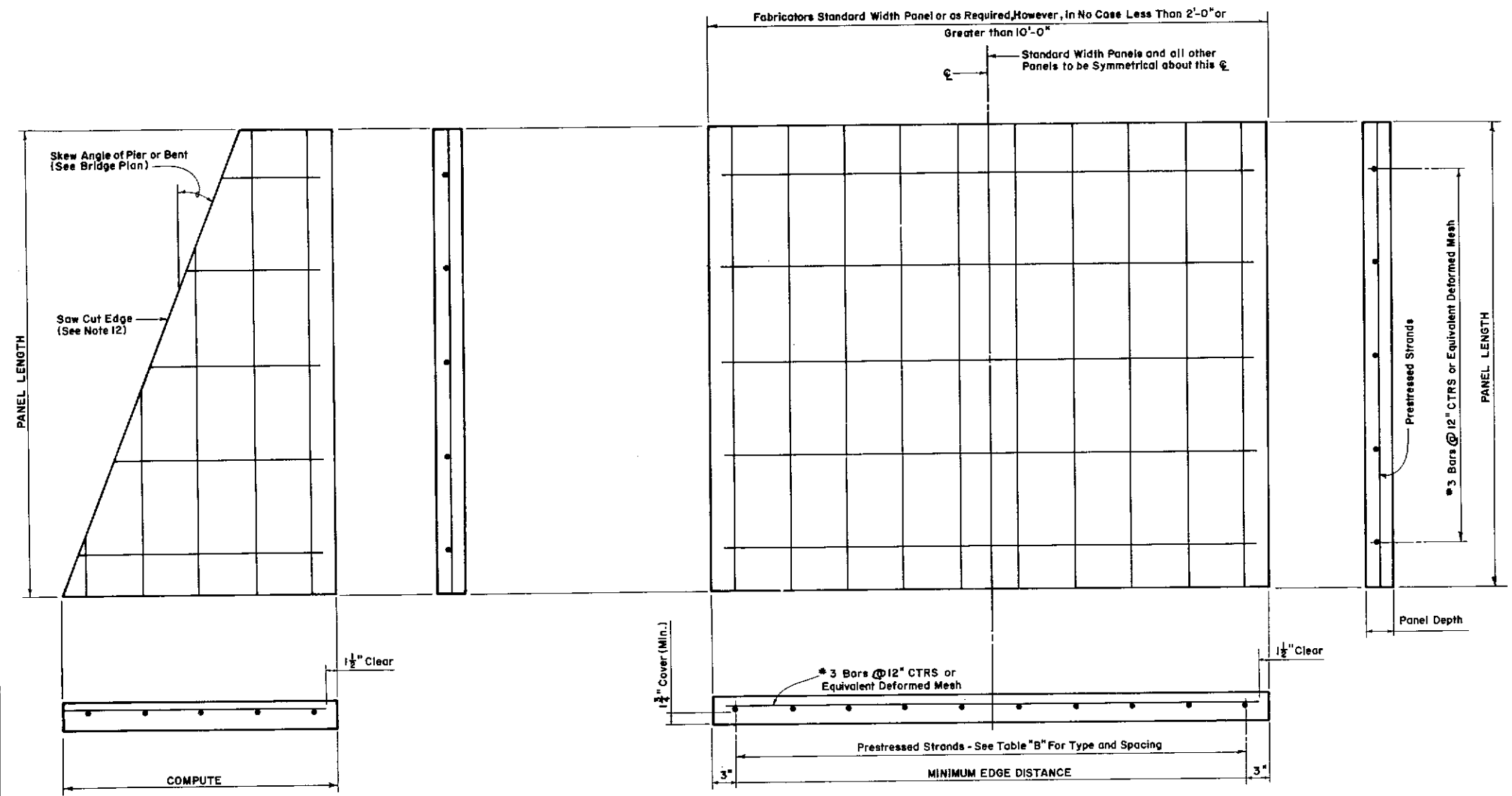
| | | |
|----------|--------|-------------|
| ROAD NO. | COUNTY | PROJECT NO. |
| | | |

| | | |
|---------------|-----|------|
| DESIGNED BY | CK | 5-78 |
| CHECKED BY | CWB | 5-78 |
| QUANTITIES BY | | |
| CHECKED BY | | |
| SUPERVISED BY | AJH | |

APPROVED BY: *F. A. ...*

Drawing No. 1 of 3
Index No. 12642

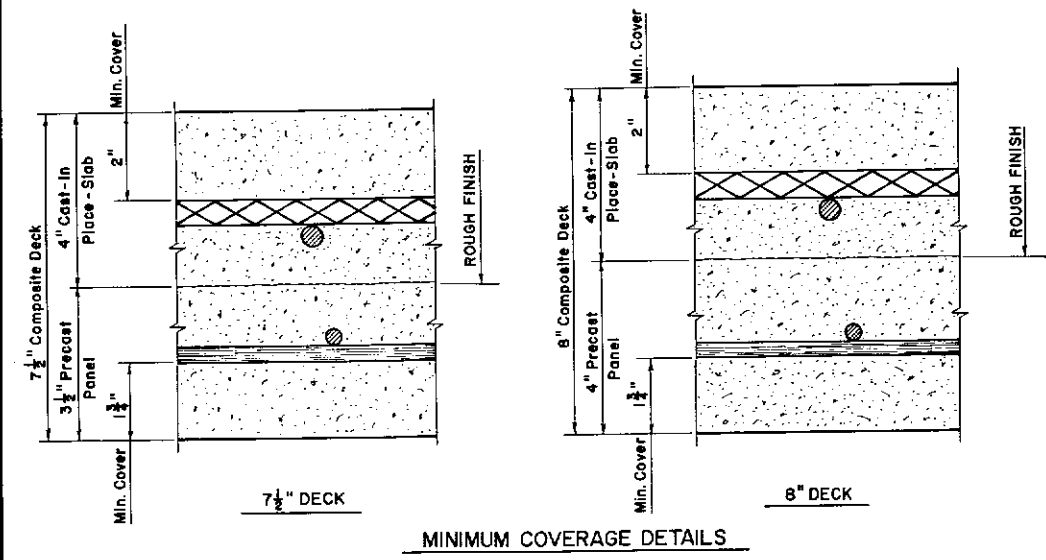
DO NOT ALLOW IF EPOXY COATED STEEL IS USED IN SUPER.



- GENERAL NOTES FOR PRECAST PANELS**
- 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.
 - MATERIALS:**
 - Concrete shall be Class IV ($f'c=5,000$ p.s.i.) or Class IX ($f'c=5,500$ p.s.i.) [See Table "B"] 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.
 - Prestressing Strands shall be $\frac{3}{8}$ " or $\frac{7}{16}$ " # 250 K or 270 K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A416. See Table.
 - All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.
 - Coarse Aggregate for Precast Panel Concrete shall be Grade 16, 16S, 15, 14 and 9, and shall meet all other Requirements of Section 901.
 - 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.
 - Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.
 - 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.
 - 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.
 - Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.
 - 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)
 - Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.
 - Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.
 - Depth (Thickness of Panels) $\pm \frac{1}{4}$ " to $-\frac{1}{8}$ " *
 - Position of Strands $\pm \frac{1}{8}$ " Vertically *
 - $\pm \frac{1}{2}$ " Horizontally *
 - * Measured from Bottom of Panel.
 - Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.
 - Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause For Rejection.
 - 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.

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

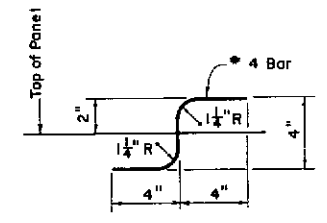
DETAIL - PRECAST PRESTRESSED PANELS - RECTANGULAR



MINIMUM COVERAGE DETAILS

| DESIGN TABLE "B" - 3 1/2" AND 4" FLAT PANELS | | | | | | | |
|--|---------------------|-----------------|--------------------|------------------------|--------------------|-------------------------|-------------------------|
| DESIGN SPAN | DECK SLAB THICKNESS | PANEL THICKNESS | STRAND SIZE & TYPE | STRAND SPACING | STRAND SIZE & TYPE | STRAND SPACING | CONCRETE STRENGTH $f'c$ |
| MINIMUM LENGTH | 40" | 7 1/2" | 3 1/2" | $\frac{3}{8}$ " # 250K | 9.5" | $\frac{7}{16}$ " # 250K | 5,000 |
| UP TO AND INCLUDING | 50" | | | 9" | | 11" | |
| | 60" | | | $\frac{3}{8}$ " # 270K | 6" | 8" | |
| | 70" | | | 5" | | 6" | |
| | 80" | | | 4" | | 4.75" | |
| | 90" | | | 3" | | 4" | |
| | 100" | | | 2.75" | | 3.25" | 5,500 |
| | 110" | 8" | 4" | 4" | | 5" | 5,000 |

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



MECHANICAL INTERLOCK REINFORCING

FHWA APPROVED: 11-27-78

FLAT PRECAST PANELS

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES

PRECAST PANELS FOR 7 1/2" AND 8" COMPOSITE DECK
1 1/2" CLEAR AT BOTTOM - 2" CLEAR AT TOP

| | | |
|---------------|--------|-------------|
| ROAD NO. | COUNTY | PROJECT NO. |
| | | |
| APPROVED BY | | |
| Designed by | CK | 5-78 |
| Checked by | CWB | 6-78 |
| Quantities by | | |
| Checked by | | |
| Supervised by | AJH | |

Drawing No. 2 of 3
Index No. 12642

DO NOT ALLOW IF SUPERST. USES EPOXY COATED REBARS

GENERAL NOTES FOR PRECAST PANELS

- 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.
- MATERIALS:
 - Concrete shall be Class IV ($f'_c=5,000$ p.s.i.) or Class IV ($f'_c=5,500$ p.s.i.) [See Table "B"] 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.
 - Prestressing Strands shall be $\frac{3}{8}$ " or $\frac{7}{16}$ " # 250 K or 270 K Seven Wire Stress Relieved Strands that Conform to the Requirements of A.S.T.M. A 416. See Table.
 - All Other Metal Reinforcement shall Conform to the Requirements of Section 931. All Reinforcing Steel shall be Grade 40 or Grade 60.
 - Coarse Aggregate for Precast Panel Concrete shall be Grade 16, 16S, 15, 14 and 9, and shall meet all other Requirements of Section 901.
 - 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.
- Precast Prestressed Panels shall be Constructed Meeting all Applicable Requirements of Section 400 and Section 450.
- 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.
- 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.
- Prestressing Strands shall be Symmetrical and Uniformly Spaced about the Vertical Center Line of the Rectangular Panels.
- 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)
- Membrane Curing Compound Will Not be Used on the Top of the Precast Panels.
- Precast Prestressed Concrete Panels shall be Produced within the Following Tolerances.

| |
|--|
| Depth (Thickness of Panels) + $\frac{1}{4}$ " to - $\frac{1}{8}$ " * |
| Position of Strands $\pm \frac{1}{8}$ " Vertically * |
| $\pm \frac{1}{2}$ " Horizontally |

 * Measured from Bottom of Panel.
- Precast Panel Lengths May be Set and Achieved by Using Headers in the Form or by Sawing to Length.
- Precast Panels shall be Properly Handled and Stored to Prevent Breakage. Any Damage Due to Handling and Shipping Will Be Cause for Rejection.
- 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.

| DESIGN SPAN | DECK SLAB THICKNESS | PANEL THICKNESS | STRAND SIZE & TYPE | STRAND SPACING | STRAND SIZE & TYPE | STRAND SPACING | CONCRETE STRENGTH f'_c |
|---------------------|---------------------|-----------------|--------------------|----------------|--------------------|----------------|--------------------------|
| MINIMUM LENGTH | 4 0" | 7 1/2" | 3/8" # 250K | 9.5" | 7/16" # 250K | 13" | 5,000 |
| UP TO AND INCLUDING | 5 0" | | | 9" | | 11" | |
| | 6 0" | | 3/8" # 270K | 6" | | 8" | |
| | 7 0" | | | 5" | | 6" | |
| | 8 0" | | | 4" | | 4.75" | |
| | 9 0" | | | 3" | | 4" | |
| | 10 0" | | | 2.75" | | 3.25" | 5,500 |
| | 11 0" | | | 4" | | 5" | 5,000 |

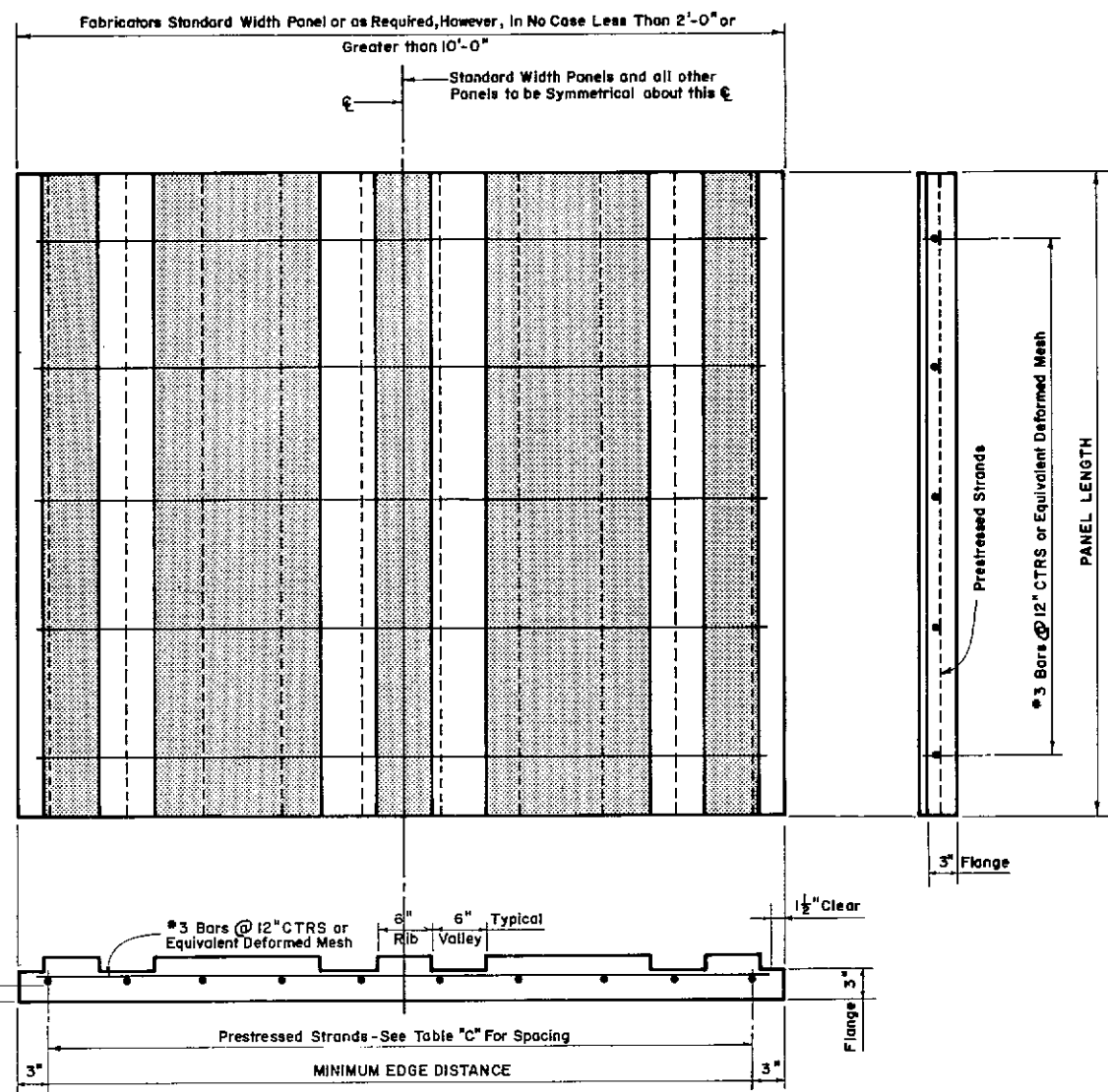
Prestressing Pull for $\frac{3}{8}$ " # 250 K Strands = 14,000 lbs. Each
 Prestressing Pull for $\frac{3}{8}$ " # 270 K Strands = 16,100 lbs. Each
 Prestressing Pull for $\frac{7}{16}$ " # 250 K Strands = 18,900 lbs. Each

FHWA APPROVED: 11-27-78

RIBBED PRECAST PANELS
 STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 STRUCTURES
 PRECAST PANELS FOR 7 1/2" AND 8" COMPOSITE DECK
 1 1/2" CLEAR AT BOTTOM - 2" CLEAR AT TOP

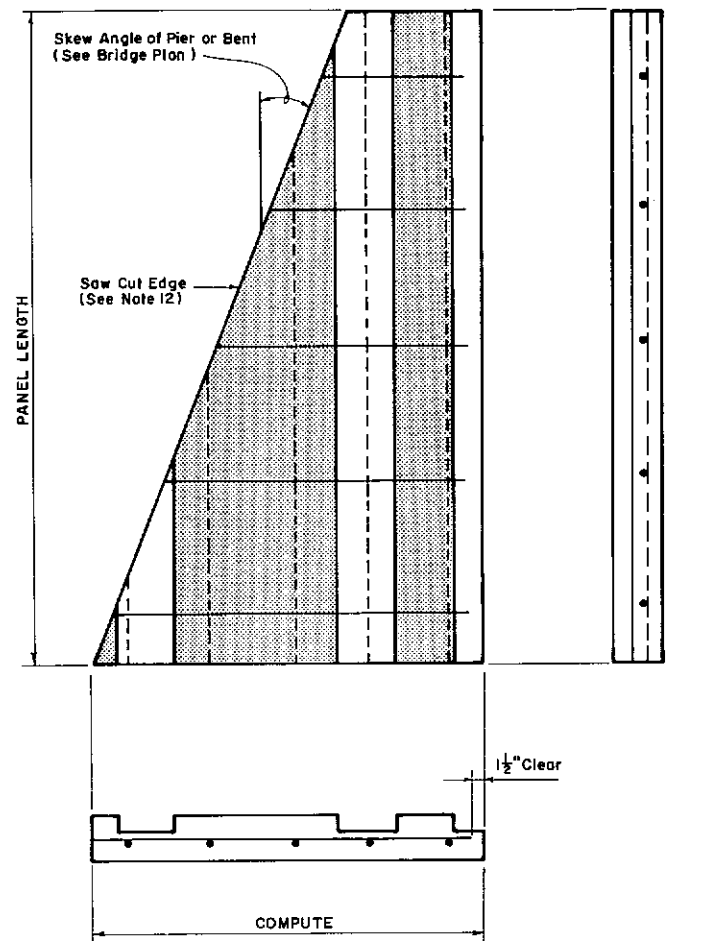
| REVISIONS | | ROAD NO. | COUNTY | PROJECT NO. |
|-----------|-------------|----------|--------|-------------|
| Date | Description | | | |
| | | | | |
| | | | | |

| | | | | |
|---------------|-----|------|------|---------------------------------------|
| Designed by | JMG | Date | 5-78 | APPROVED BY <i>T. All</i> |
| Checked by | CK | Date | 6-78 | |
| Quantities by | | | | Drawing No. 3 of 3 Index No. 12642 |
| Checked by | | | | |
| Supervised by | AJH | | | |

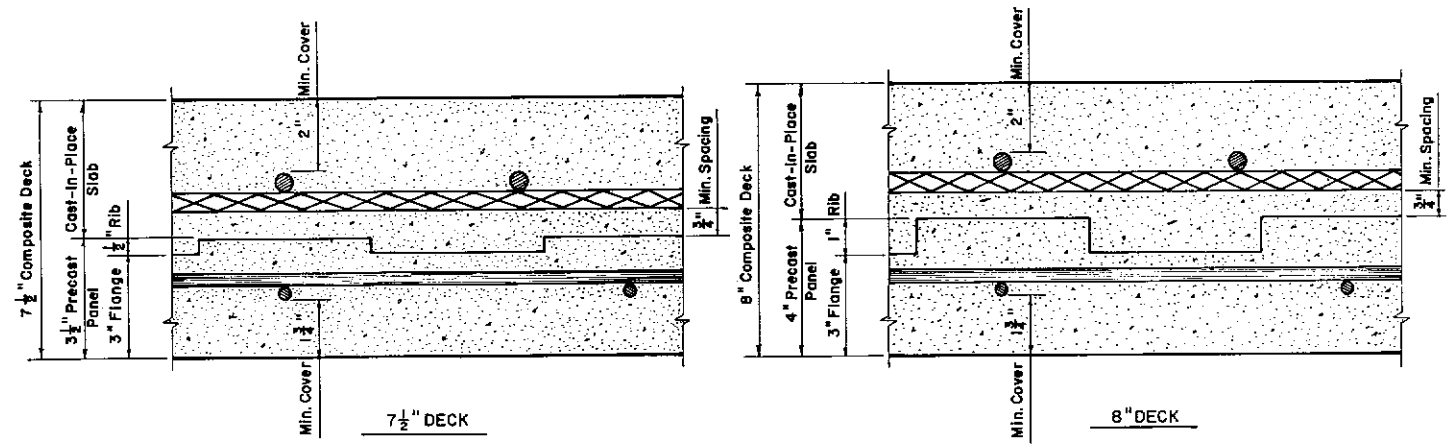


DETAIL RIBBED-PRECAST PRESTRESSED PANELS-RECTANGULAR

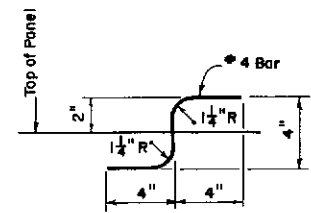
NOTE: Prestressing Strands Shown as Heavy Dashed Line in Plan and Side View for Clarity
 Prestressing Strands May Be Placed Under Ribs Only In A Symmetrical Pattern About The Center Line.



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



MINIMUM COVERAGE DETAILS



MECHANICAL INTERLOCK REINFORCING

DO NOT ALLOW IF SUPERST. USES
 EPOXY COATED REBARS

SALT