

STATE OF NEW HAMPSHIRE

BRIDGE DESIGN MEMORANDUM

1 of 4

FROM: L. Robert Landry, Jr., PE
Administrator

DATE: December 12, 2017
AT (Office): Bureau of Bridge Design

SUBJECT: Design Memorandum 2017-02
Cast-in-Place Deck Haunch Detail, Prestressed Partial-Depth Concrete Deck Panel

TO: Bureau of Bridge Design Staff, Bridge Design Consultants, FHWA, NHDOT Bureaus, Contractors

The Bureau of Bridge Design is updating the Bridge Design Manual. During this process, certain design decisions are being issued for immediate implementation. Consequently, the Bridge Design Manual, Bridge Details, and Bridge Detail Sheets have been modified as follows:

A. Bridge Details:

- CIP Deck Haunch Detail – Interior Steel Girder
- CIP Deck Haunch Detail – Interior Concrete Girder

B. Bridge Detail Sheets:

- Prestressed Partial-Depth Concrete Deck Panel – Steel Girder
- Prestressed Partial-Depth Concrete Deck Panel – Concrete Gi

C. Summary: The above noted revisions are being implemented to specify the following:

- NHDOT policy for design and construction of cast-in-place concrete deck interior girder haunch detail has been modified. The new concrete deck interior girder haunch detail extends straight up from the edges of the girder flange to the designed haunch depth. The horizontal extensions are eliminated (See enclosed detail). Hangers that are exposed after formwork is removed shall be hot dip galvanized. This new cast-in-place deck interior girder haunch detail shall be used on all new concrete bridge decks.
- NHDOT policy for required use of prestressed partial-depth or full-depth concrete deck panels has been added. All new concrete bridge decks that cross over Tier 1 and Tier 2 roads shall use prestressed partial-depth or full-depth concrete deck panels between girders, unless approved otherwise by the Bridge Design Chief. The deck exterior overhangs and deck block-outs at end spans can be cast-in-place concrete. There is no Contractor option for cast-in-place concrete. The contract plans shall show prestressed partial-depth or full-depth concrete deck panels with the corresponding item.
- Prestressed partial-depth concrete deck panel haunch detail remains the same and is included for reference.
- The Bridge Details (.dgn and .pdf format) are located on the Bureau of Bridge Design web page: <http://www.nh.gov/dot/org/projectdevelopment/bridgedesign/bridgedetails/index.htm>
- The Bridge Detail Sheets are located on the Bureau of Bridge Design web page: <http://www.nh.gov/dot/org/projectdevelopment/bridgedesign/detail sheets/index.htm>

D. Background:

This memorandum incorporates modifications to current NHDOT Bridge Manual, Bridge Details, and Bridge Detail Sheets and provides the modified details on the NHDOT Bridge Design Website.



STATE OF NEW HAMPSHIRE
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The previous concrete deck interior girder haunch detail extended the haunch 2 ½-in. horizontally from each side of the girder top flange (See enclosed detail). This detail has been shown on contract plans since approximately 2004 to the current date. This portion of the concrete deck is unreinforced and could spall off due to possible future cracking of the haunch.

From approximately 1999 to 2004, Bridge Design used a deck interior girder haunch detail that extended straight up from the girder flange edges (See enclosed detail). This detail made it difficult for Contractors to form the deck. The typical interior deck hangers could not be used since the metal end portions of the hanger would be exposed and rust. Other alternate hangers would be very costly. Therefore, the horizontal extension of 2 ½-in. was implemented so the typical interior deck hangers could be used.

An older deck girder detail that was used prior to 1999 extended the haunch 3-in. horizontally from each side of the girder bottom of top flange (See enclosed detail). Cracking of the unreinforced concrete haunch has loosened portions of the concrete due to forces generated by corrosion on the vertical edges of the flanges. This loosened concrete has separated and fallen onto the travel way below.


The objective of this new concrete deck interior girder haunch detail is to eliminate the horizontal extension of the concrete haunch from either side of the girder to prevent any future separation and falling of the unreinforced concrete onto the travel way below. The typical formwork hangers can be used but shall be hot dip galvanized since portions of the hanger will be exposed. The new detail shall be used for all new cast-in-place concrete deck bridge projects.

The objective of using prestressed partial-depth or full-depth concrete deck panels for all new concrete deck bridges that cross over Tier 1 and Tier 2 roads is to decrease the possibility of the concrete deck underside spalling over the travel way. The prestressed concrete deck panels are constructed with high strength, low permeability concrete with prestressing strands. Because this type of concrete construction is less prone to cracking, it is a more reliable material to place over a travel way due to safety concerns of spalling concrete. This policy shall be used unless directed otherwise by the Bridge Design Chief.

This Memorandum clarifies NHDOT's policy for the use of cast-in-place concrete deck interior girder haunch detail and prestressed partial-depth concrete deck panels and incorporates the details that shall be included in the contract plans.

E. Implementation:

The update to the Bridge Design Manual, Bridge Details, and Bridge Detail Sheets shall be implemented as of the date of this memo and shall be used on all applicable projects.

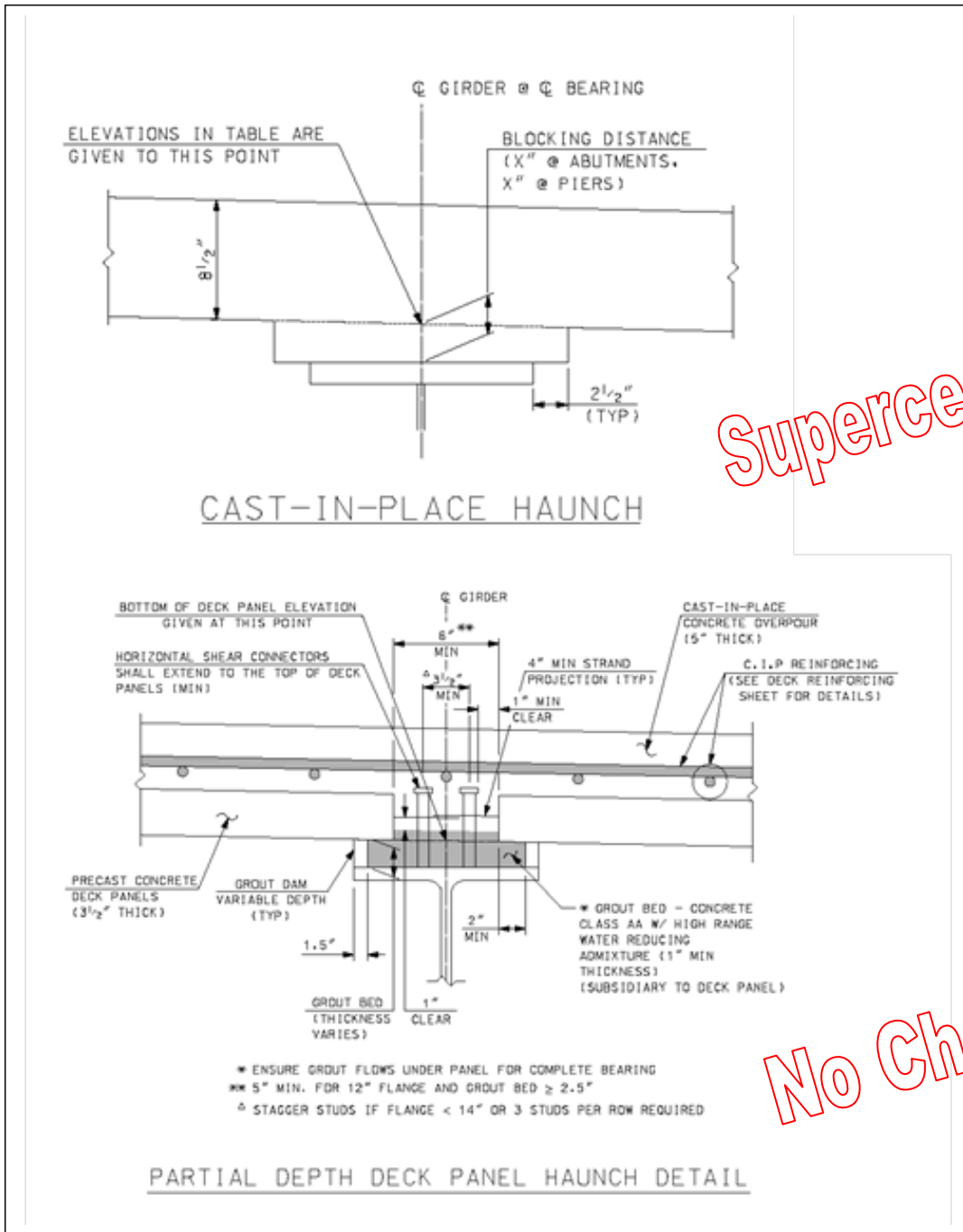


L. Robert Landry, Jr., PE
Administrator, Bureau of Bridge Design

Enclosures

**STATE OF NEW HAMPSHIRE
BRIDGE DESIGN MEMORANDUM**

Detail 2004 to 2017:

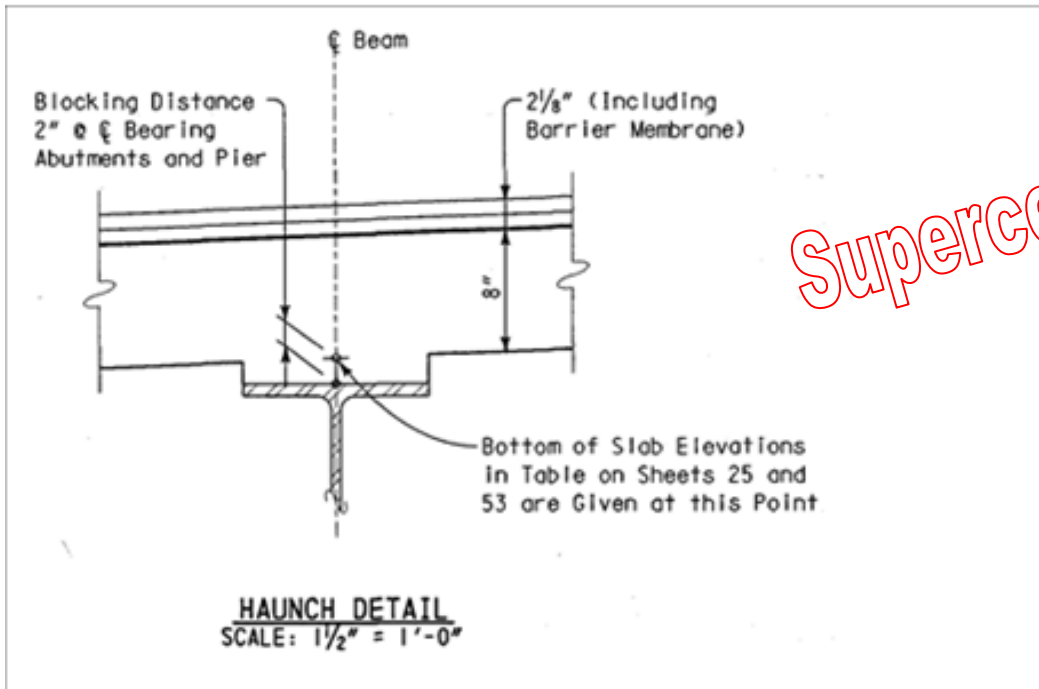


Superceded

No Change

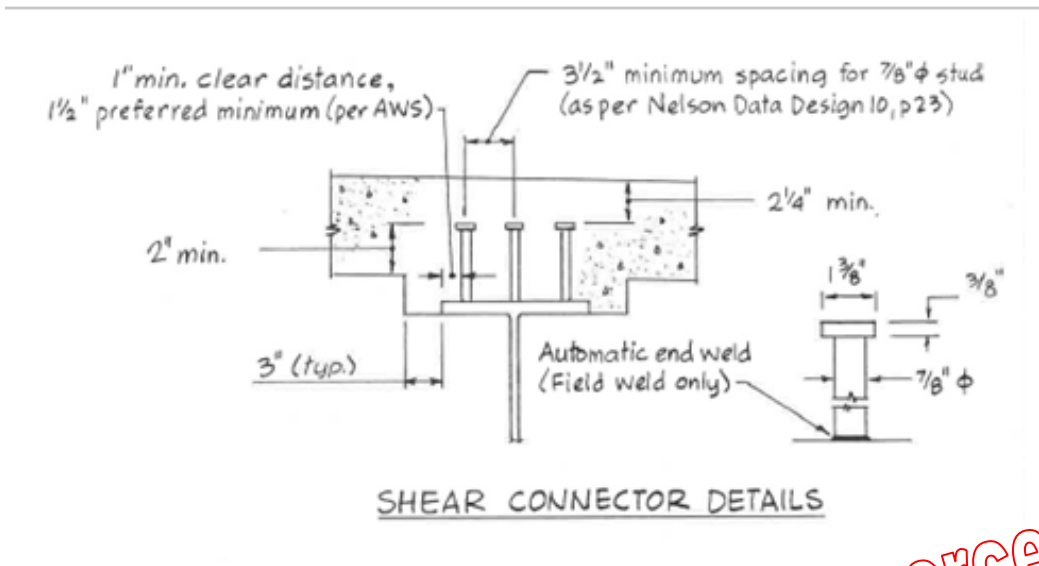
STATE OF NEW HAMPSHIRE BRIDGE DESIGN MEMORANDUM

Detail 1999 to 2004:



Superceded

Detail prior to 1999:



Superceded

NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

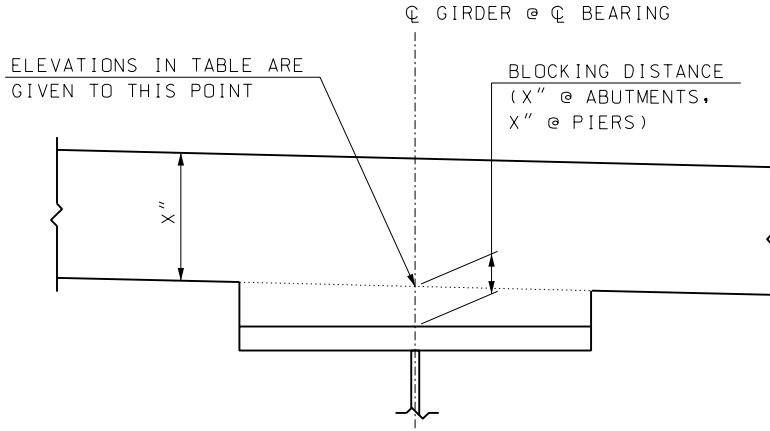


BUREAU OF BRIDGE DESIGN



DESCRIPTION: **CONCRETE DECK DETAILS -
DECK INTERIOR GIRDER HAUNCH**

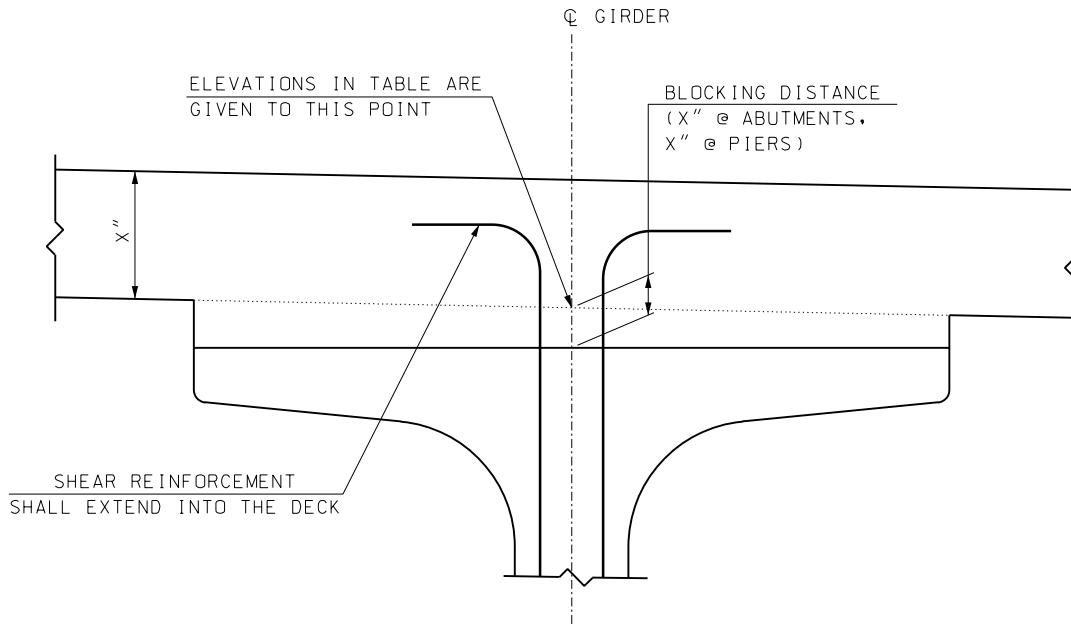
DATE REVISED:
12/12/2017



**MODIFY TO
FIT PROJECT**

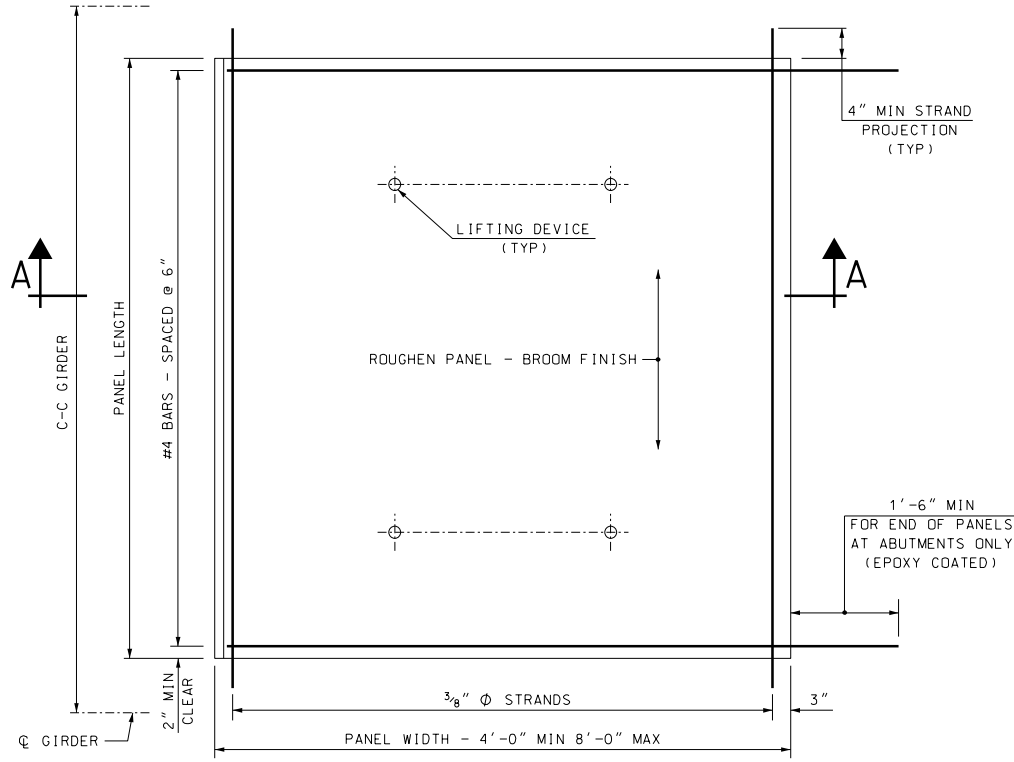
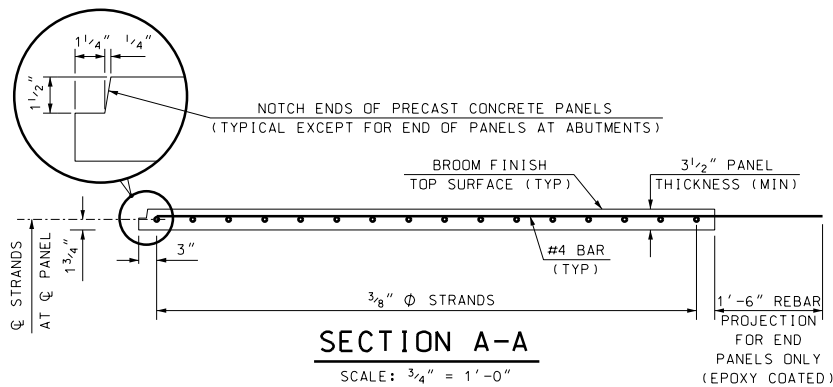
**CAST-IN-PLACE STEEL
GIRDER HAUNCH**

NEW DETAIL



**CAST-IN-PLACE BULB-TEE
GIRDER HAUNCH**

NEW DETAIL



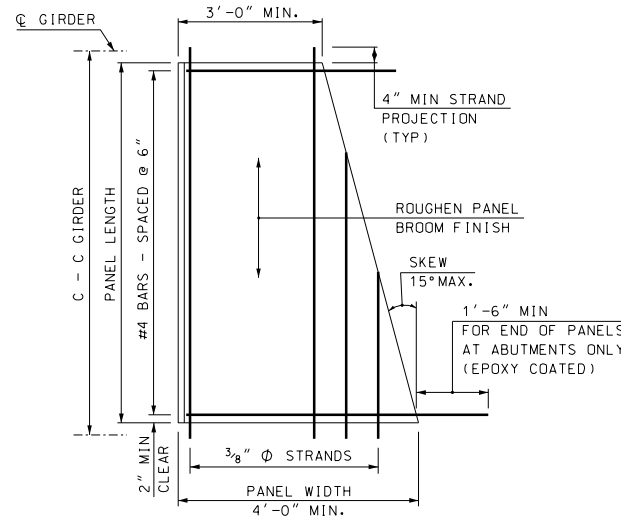
DECK PANEL DETAIL
SCALE: 3/4" = 1'-0"

TABLE A - DECK PANEL DESIGN (STEEL-GIRDER)

C-C GIRDER SPACING	PANEL THICKNESS	f'ci (PSI)	f'c (PSI)	STRAND SPACING	TOTAL STRANDS PER 8 FT. PANEL
≤ 8'-0"	3 1/2"	4000	6000	8"	12
8'-6"	3 1/2"	4800	6000	6"	16
9'-0"	3 1/2"	4800	6000	6"	16
9'-6"	3 1/2"	6000	8000	5"	19
10'-0"	3 1/2"	6000	8000	5"	19

DESIGN CRITERIA USED TO DEVELOP TABLE A:

- DESIGN CODE = AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2014 W/ INTERIMS
 LIVE LOAD = HL-93 OR HS25
 ALLOWABLE TENSION IN CONCRETE = $0.19 \sqrt{f'c}$
 MAXIMUM INITIAL COMPRESSION = $0.19 f'ci$
 C-I-P DECK THICKNESS = 5" (w/ asphalt overlay) or 6 1/2" (bare deck)
 PAVEMENT THICKNESS = 2 1/2" or 0" (bare deck)
 STEEL FLANGE WIDTH = 12"
 GROUT DAM WIDTH = 1 1/2"
 GROUT BED THICKNESS = 2 1/2"



SKEWED DECK PANEL DETAIL
SCALE: 1/2" = 1'-0"

NOTES TO DESIGNER:

- A HAUNCH THICKNESS SHALL BE PROVIDED THAT ACCOUNTS FOR GIRDER CAMBER TOLERANCE, ADDITIONAL DECK THICKNESS DUE TO DECK PANELS, FIELD SPLICE PLATES AND ANY OTHER DETAIL THAT MIGHT IMPACT THE 1" MINIMUM HAUNCH THICKNESS REQUIREMENT. THE INTENT IS TO HOLD FINISHED GRADE ELEVATIONS AND TAKE UP CHANGES IN DECK THICKNESS WITHIN THE HAUNCH PROVIDED.
- THE DECK PANEL DESIGN INFORMATION FOR NOTE #11 SHALL BE OBTAINED FROM TABLE A USING THE PROJECT SPECIFIC C-C GIRDER SPACING. WHEN THE GIRDER SPACING DIFFERS FROM THOSE LISTED IN THE TABLE, THE PANEL DESIGN INFORMATION SHALL BE BASED ON THE NEXT LONGER TABULATED GIRDER SPACING. IF THE PROPOSED PROJECT HAS DESIGN CRITERIA EXCEEDING WHAT IS NOTED ON THIS SHEET, THEN THE DECK PANEL SHALL BE RE-DESIGNED AND A NEW SHEET DRAWN WITH THE DESIGNER NOTED IN THE TITLE BOX.
- PROJECT SPECIFIC PANEL LENGTH SHALL BE CALCULATED BASED ON GIRDER FLANGE WIDTH AND TO PROVIDE A 2" MINIMUM GROUT BED WIDTH UNDER PANEL ENDS WHEN ACCOUNTING FOR THE NECESSARY GROUT DAM MATERIAL. PROJECT PANEL LENGTH MAY VARY IF GIRDER FLANGE WIDTH VARIES.
- THE GIRDERS SHALL BE DESIGNED FOR THE ADDITIONAL DECK DEAD LOAD WHEN THE DECK PANEL OPTION RESULTS IN A GREATER OVERALL DECK THICKNESS THAN TO THE FULL DEPTH CAST-IN-PLACE OPTION. HOWEVER, THE BOTTOM OF DECK SLAB ELEVATIONS DETAILED IN THE PLANS SHALL BE THE FULL DEPTH CAST IN PLACE DECK (THINNER DECK) AND A HAUNCH HEIGHT SHALL BE PROVIDED TO ACCOMMODATE THE PANEL OPTION AS DESCRIBED IN NOTE #1 ABOVE.
- HORIZONTAL SHEAR CONNECTOR HEIGHTS AND SPACING MAY NEED ADJUSTMENT TO ACCOMMODATE THE PRECAST PANEL OPTION.
- THE DESIGNER SHALL SHOW A REINFORCED DECK CURB DETAIL WITH DECK PANELS ON THE DECK REINFORCING SHEET. THIS DETAIL SHALL SHOW THE DECK OVERHANG REINFORCING REQUIRED IF A DECK PANEL OPTION IS USED.

NO MODIFICATIONS SHALL BE MADE TO THIS SHEET EXCEPT FOR NOTE #11 AND THE GIRDER DEFLECTION CHART

PRESTRESSED CONCRETE DECK PANEL NOTES

- PRESTRESSING STRANDS SHALL BE 3/8 in. DIAMETER, GRADE 270 SEVEN WIRE LOW-RELAXATION TYPE, CONFORMING TO THE REQUIREMENTS OF ASTM A416. ALL STRANDS SHALL BE PULLED TO HAVE A NET TENSION OF 17.2 KIPS PER STRAND AFTER ALLOWING FOR CHUCK SLIPPAGE.
- THE MILD REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 (ASTM A615) GRADE 60. MILD REINFORCEMENT FOR THE END PANELS SHALL BE EPOXY COATED AND CONFORM TO THE REQUIREMENTS OF ASTM A775 AND D3963.
- THE TOP SURFACE OF THE DECK PANELS SHALL BE BROOMED TO A SURFACE ROUGHNESS OF 0.06 in. BROOM THE SURFACE PARALLEL TO THE STRAND.
- THE GROUT DAM SHALL BE A RIGID MATERIAL THAT PROVIDES A VARIABLE DEPTH AND IS BONDED TO THE BEAM TO RETAIN THE GROUT DURING PLACEMENT. THE MATERIAL AND ADHESIVE SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR. SEE SECTION 528.
- PANEL LIFTING LOCATIONS SHOWN ARE ADVISORY ONLY. ACTUAL LIFTING LOCATIONS SHALL BE DETERMINED BY THE FABRICATOR AND INDICATED ON THE SHOP DRAWINGS.
- CORROSION INHIBITOR (CALCIUM NITRITE) ADMIXTURE SHALL BE USED.
- SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS FOR SECTIONS 520 AND 528 FOR ADDITIONAL INFORMATION.
- IF LEVELING SCREWS ARE USED, THEY SHALL BE COMPLETELY REMOVED AFTER THE GROUTING OPERATIONS AND PRIOR TO DECK PLACEMENT. HOLES LEFT BY LEVELING SCREWS SHALL BE FILLED WITH AN APPROVED GROUT PRIOR TO DECK PLACEMENT. THE LEVELING SCREW LOCATIONS SHALL NOT INTERFERE WITH THE LOCATION OF THE GROUT DAM.
- TEMPORARY BRACING BETWEEN ENDS OF PANELS SHALL BE INSTALLED AS REQUIRED TO PREVENT PANEL MOVEMENT TRANSVERSE TO THE GIRDERS.
- SHOP DRAWINGS SHOWING THE LAYOUT AND CONSTRUCTION DETAILS OF THE DECK PANELS SHALL BE SUBMITTED FOR APPROVAL IN ACCORDANCE WITH THE SPECIAL PROVISION.
- THE FOLLOWING DECK PANEL DESIGN INFORMATION SHALL BE USED FOR THIS PROJECT:

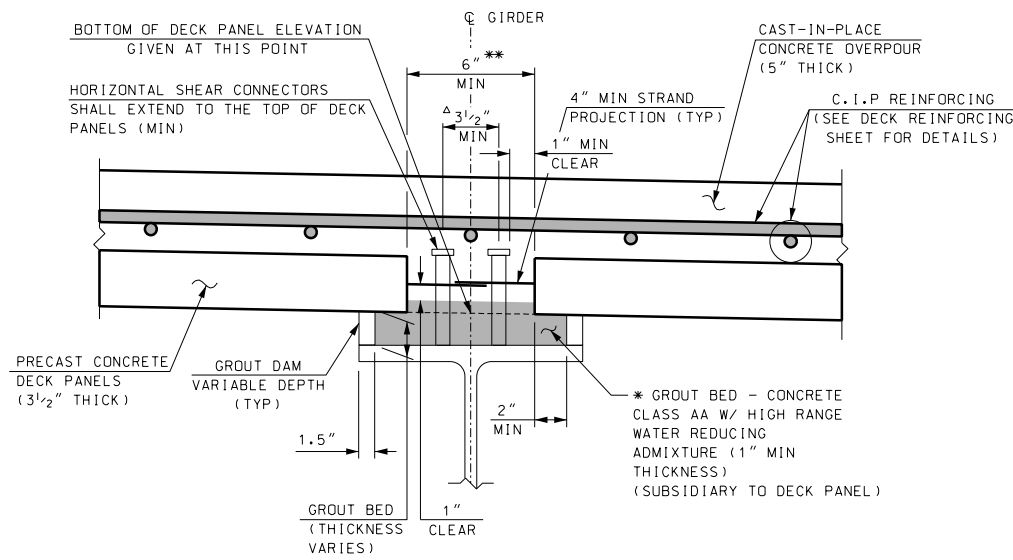
- C-C GIRDER SPACING = XX
 GIRDER FLANGE WIDTH = XX
 ASSUMED GROUT DAM WIDTH = 1.5"
 PANEL LENGTH = XX (NOTE: IF THE CONTRACTOR PROPOSES A GROUT DAM WIDTH THAT EXCEEDS THE ASSUMED WIDTH, PANEL LENGTH SHALL BE INCREASED AS REQUIRED TO PROVIDE A 2" MIN. GROUT BED WIDTH.)
 PANEL THICKNESS = 3.5"
 CONCRETE STRENGTH f'c = XX AT 28 DAYS
 f'ci = XX AT RELEASE
 STRAND SPACING = XX
 TOTAL NUMBER OF STRANDS REQUIRED PER 8' PANEL WIDTH = XX

CAST-IN-PLACE CONCRETE NOTES

- CAST-IN-PLACE CONCRETE STRENGTH f'c = 4,000 PSI AT 28 DAYS
- CAST-IN-PLACE REINFORCING SHALL CONFORM TO AND FOLLOW THE LAYOUT OF THE TOP MAT REINFORCING SHOWN ON THE DECK REINFORCING SHEET.

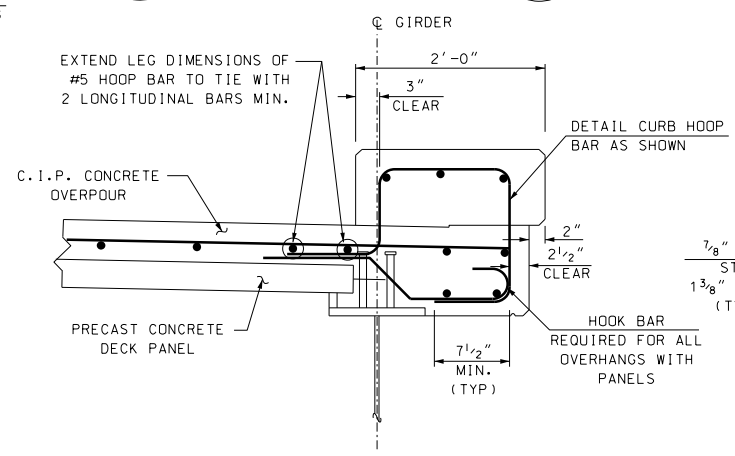
DECK SLAB ELEVATION NOTES

- AFTER THE GIRDERS ARE ERECTED AND BEFORE PRECAST DECK PANELS ARE SET, ELEVATIONS ON THE TOP FLANGE OF GIRDERS SHALL BE OBTAINED AT THE POINTS INDICATED IN "BOTTOM OF SLAB ELEVATIONS TABLE" DETAILED IN THE PLANS AND GIRDER HAUNCH DETAIL THIS SHEET.
- THE BOTTOM OF SLAB ELEVATIONS SHALL BE ADJUSTED (REDUCED) BY THE DIFFERENCE BETWEEN THE CAST-IN-PLACE DECK THICKNESS AND TOTAL COMPOSITE DECK THICKNESS.

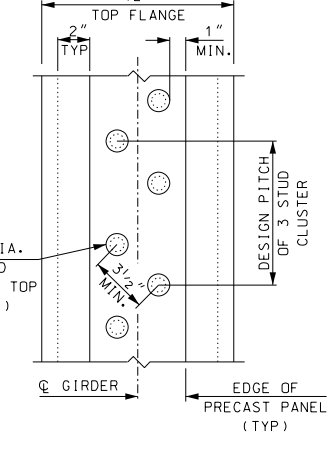


- * ENSURE GROUT FLOWS UNDER PANEL FOR COMPLETE BEARING
- ** 5" MIN. FOR 12" FLANGE AND GROUT BED ≥ 2.5"
- Δ STAGGER STUDS IF FLANGE < 14" OR 3 STUDS PER ROW REQUIRED

STEEL GIRDER HAUNCH DETAIL
SCALE: 2" = 1'-0"



STEEL GIRDER OVERHANG DETAIL
SCALE: 1" = 1'-0"



STAGGERED STUD DETAIL
SCALE: 2" = 1'-0"

TABLE B - GIRDER DEFLECTIONS DUE TO DECK PANEL DEAD LOAD

	OL	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	1.0L
SPAN 1	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX
SPAN 2	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX
SPAN 3	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX

STATE OF NEW HAMPSHIRE
 DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN: _____ BRIDGE NO. _____ STATE PROJECT _____

LOCATION: _____

PRECAST CONCRETE DECK PANEL - STEEL GIRDER

REVISIONS AFTER PROPOSAL	BY	DATE	BY	DATE	BRIDGE SHEET OF
DESIGNED	NHDOT	4/02	CHECKED	NHDOT	11/16
DRAWN	NHDOT	12/10	CHECKED	NHDOT	11/16
QUANTITIES			CHECKED		FILE NUMBER

SUBDIRECTORY	DGN LOCATOR	SHEET SCALE	ISSUE DATE	FEDERAL PROJECT NO.	SHEET NO.	TOTAL SHEETS
English/DK/PAN/DECK	PANELS_HL93 rev steel girder	AS NOTED	4/02			
			REV. DATE	11/17		

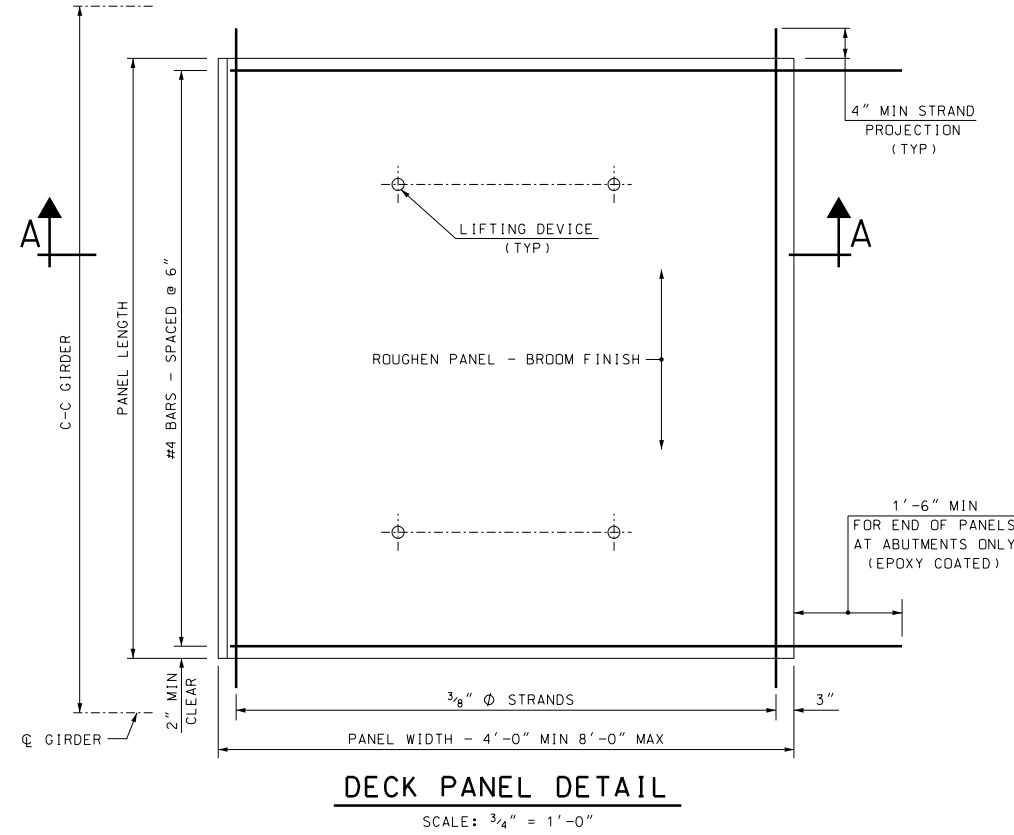
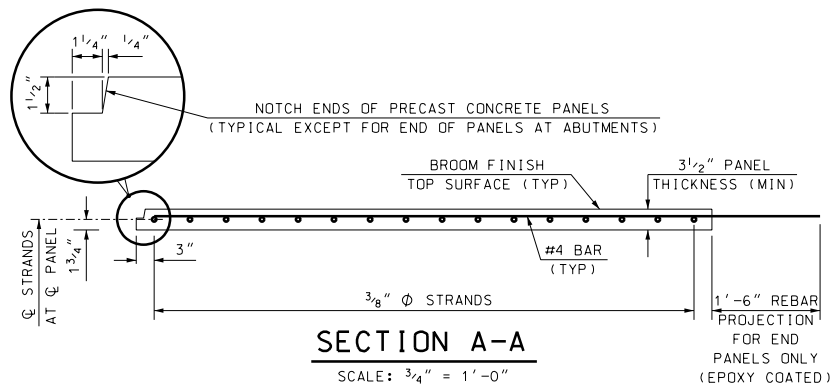
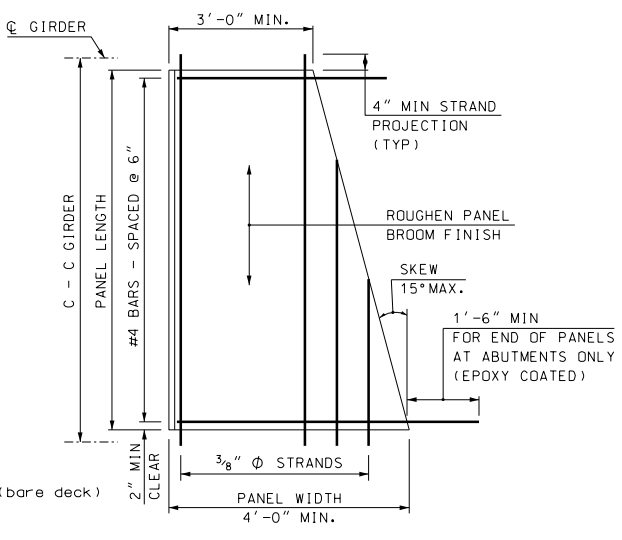


TABLE A - DECK PANEL DESIGN (BULB-TEE GIRDER)

C-C GIRDER SPACING	PANEL THICKNESS	f'c1 (PSI)	f'c (PSI)	STRAND SPACING	TOTAL STRANDS PER 8 FT. PANEL
≤ 11'-0"	3 1/2"	4800	6000	6"	16
11'-6"	3 1/2"	6000	8000	5"	19
12'-0"	3 1/2"	6000	8000	5"	19

DESIGN CRITERIA USED TO DEVELOP TABLE A:

- DESIGN CODE = AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2014 W/ INTERIMS
 LIVE LOAD = HL-93 OR HS25
 ALLOWABLE TENSION IN CONCRETE = $0.19 \sqrt{f'c}$
 MAXIMUM INITIAL COMPRESSION = $0.19 f'c$
 C-I-P DECK THICKNESS = 5" (w/ asphalt overlay) or 6 1/2" (bare deck)
 PAVEMENT THICKNESS = 2 1/2" or 0" (bare deck)
 GIRDER FLANGE WIDTH = 47.24"
 GROUT DAM WIDTH = 1 1/2"
 GROUT BED THICKNESS = 2 1/2"



NOTES TO DESIGNER:

- 1) A HAUNCH THICKNESS SHALL BE PROVIDED THAT ACCOUNTS FOR GIRDER CAMBER TOLERANCE, ADDITIONAL DECK THICKNESS DUE TO DECK PANELS, FIELD SPLICE PLATES AND ANY OTHER DETAIL THAT MIGHT IMPACT THE 1" MINIMUM HAUNCH THICKNESS REQUIREMENT. THE INTENT IS TO HOLD FINISHED GRADE ELEVATIONS AND TAKE UP CHANGES IN DECK THICKNESS WITHIN THE HAUNCH PROVIDED.
- 2) THE DECK PANEL DESIGN INFORMATION FOR NOTE #11 SHALL BE OBTAINED FROM TABLE A USING THE PROJECT SPECIFIC C-C GIRDER SPACING. WHEN THE GIRDER SPACING DIFFERS FROM THOSE LISTED IN THE TABLE, THE PANEL DESIGN INFORMATION SHALL BE BASED ON THE NEXT LONGER TABULATED GIRDER SPACING. IF THE PROPOSED PROJECT HAS DESIGN CRITERIA EXCEEDING WHAT IS NOTED ON THIS SHEET, THEN THE DECK PANEL SHALL BE RE-DESIGNED AND A NEW SHEET DRAWN WITH THE DESIGNER NOTED IN THE TITLE BOX.
- 3) PROJECT SPECIFIC PANEL LENGTH SHALL BE CALCULATED BASED ON GIRDER FLANGE WIDTH AND TO PROVIDE A 2" MINIMUM GROUT BED WIDTH UNDER PANEL ENDS WHEN ACCOUNTING FOR THE NECESSARY GROUT DAM MATERIAL. PROJECT PANEL LENGTH MAY VARY IF GIRDER FLANGE WIDTH VARIES.
- 4) THE GIRDERS SHALL BE DESIGNED FOR THE ADDITIONAL DECK DEAD LOAD WHEN THE DECK PANEL OPTION RESULTS IN A GREATER OVERALL DECK THICKNESS THAN TO THE FULL DEPTH CAST-IN-PLACE OPTION. HOWEVER, THE BOTTOM OF DECK SLAB ELEVATIONS DETAILED IN THE PLANS SHALL BE BASED ON THE FULL DEPTH CAST IN PLACE DECK (THINNER DECK) AND A HAUNCH HEIGHT SHALL BE PROVIDED TO ACCOMMODATE THE PANEL OPTION AS DESCRIBED IN NOTE #1 ABOVE.
- 5) HORIZONTAL SHEAR CONNECTOR HEIGHTS AND SPACING MAY NEED ADJUSTMENT TO ACCOMMODATE THE PRECAST PANEL OPTION.
- 6) THE DESIGNER SHALL SHOW A REINFORCED DECK CURB DETAIL WITH DECK PANELS ON THE DECK REINFORCING SHEET. THIS DETAIL SHALL SHOW THE DECK OVERHANG REINFORCING REQUIRED IF A DECK PANEL OPTION IS USED.

NO MODIFICATIONS SHALL BE MADE TO THIS SHEET EXCEPT FOR NOTE #11 AND THE GIRDER DEFLECTION CHART

PRESTRESSED CONCRETE DECK PANEL NOTES

- (1) PRESTRESSING STRANDS SHALL BE 3/8 in. DIAMETER, GRADE 270 SEVEN WIRE LOW-RELAXATION TYPE, CONFORMING TO THE REQUIREMENTS OF ASTM A416. ALL STRANDS SHALL BE PULLED TO HAVE A NET TENSION OF 17.2 KIPS PER STRAND AFTER ALLOWING FOR CHUCK SLIPPAGE.
- (2) THE MILD REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 (ASTM A615) GRADE 60. MILD REINFORCEMENT FOR THE END PANELS SHALL BE EPOXY COATED AND CONFORM TO THE REQUIREMENTS OF ASTM A775 AND D3963.
- (3) THE TOP SURFACE OF THE DECK PANELS SHALL BE BROOMED TO A SURFACE ROUGHNESS OF 0.06 in. BROOM THE SURFACE PARALLEL TO THE STRAND.
- (4) THE GROUT DAM SHALL BE A RIGID MATERIAL THAT PROVIDES A VARIABLE DEPTH AND IS BONDED TO THE BEAM TO RETAIN THE GROUT DURING PLACEMENT. THE MATERIAL AND ADHESIVE SHALL BE APPROVED BY THE CONTRACT ADMINISTRATOR. SEE SECTION 528.
- (5) PANEL LIFTING LOCATIONS SHOWN ARE ADVISORY ONLY. ACTUAL LIFTING LOCATIONS SHALL BE DETERMINED BY THE FABRICATOR AND INDICATED ON THE SHOP DRAWINGS.
- (6) CORROSION INHIBITOR (CALCIUM NITRITE) ADMIXTURE SHALL BE USED.
- (7) SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS FOR SECTIONS 520 AND 528 FOR ADDITIONAL INFORMATION.
- (8) IF LEVELING SCREWS ARE USED, THEY SHALL BE COMPLETELY REMOVED AFTER THE GROUTING OPERATIONS AND PRIOR TO DECK PLACEMENT. HOLES LEFT BY LEVELING SCREWS SHALL BE FILLED WITH AN APPROVED GROUT PRIOR TO DECK PLACEMENT. THE LEVELING SCREW LOCATIONS SHALL NOT INTERFERE WITH THE LOCATION OF THE GROUT DAM.
- (9) TEMPORARY BRACING BETWEEN ENDS OF PANELS SHALL BE INSTALLED AS REQUIRED TO PREVENT PANEL MOVEMENT TRANSVERSE TO THE GIRDERS.
- (10) SHOP DRAWINGS SHOWING THE LAYOUT AND CONSTRUCTION DETAILS OF THE DECK PANELS SHALL BE SUBMITTED FOR APPROVAL IN ACCORDANCE WITH THE SPECIAL PROVISION.
- (11) THE FOLLOWING DECK PANEL DESIGN INFORMATION SHALL BE USED FOR THIS PROJECT:

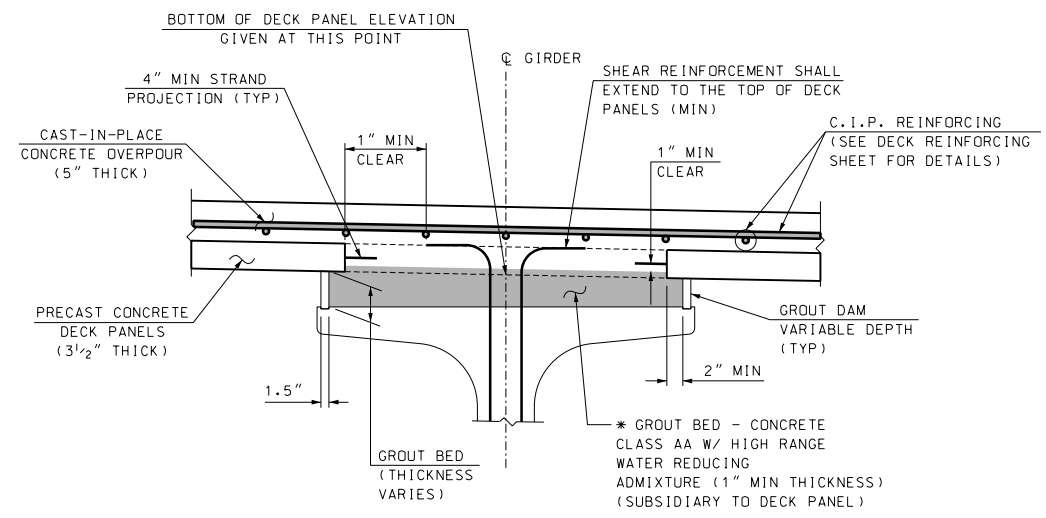
- C-C GIRDER SPACING = XX
 GIRDER FLANGE WIDTH = XX
 ASSUMED GROUT DAM WIDTH = 1.5"
 PANEL LENGTH = XX (NOTE: IF THE CONTRACTOR PROPOSES A GROUT DAM WIDTH THAT EXCEEDS THE ASSUMED WIDTH, PANEL LENGTH SHALL BE INCREASED AS REQUIRED TO PROVIDE A 2" MIN. GROUT BED WIDTH.)
 PANEL THICKNESS = 3.5"
 CONCRETE STRENGTH f'c = XX AT 28 DAYS
 f'c1 = XX AT RELEASE
 STRAND SPACING = XX
 TOTAL NUMBER OF STRANDS REQUIRED PER 8' PANEL WIDTH = XX

CAST-IN-PLACE CONCRETE NOTES

- (1) CAST-IN-PLACE CONCRETE STRENGTH f'c = 4,000 PSI AT 28 DAYS
- (2) CAST-IN-PLACE REINFORCING SHALL CONFORM TO AND FOLLOW THE LAYOUT OF THE TOP MAT REINFORCING SHOWN ON THE DECK REINFORCING SHEET.

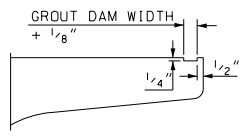
DECK SLAB ELEVATION NOTES

- (1) AFTER THE GIRDERS ARE ERECTED AND BEFORE PRECAST DECK PANELS ARE SET, ELEVATIONS ON THE TOP FLANGE OF GIRDERS SHALL BE OBTAINED AT THE POINTS INDICATED IN "BOTTOM OF SLAB ELEVATIONS TABLE" DETAILED IN THE PLANS AND GIRDER HAUNCH DETAIL THIS SHEET.
- (2) THE BOTTOM OF SLAB ELEVATIONS SHALL BE ADJUSTED (REDUCED) BY THE DIFFERENCE BETWEEN THE CAST-IN-PLACE DECK THICKNESS AND TOTAL COMPOSITE DECK THICKNESS.



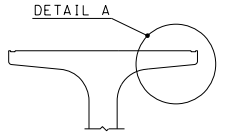
BULB-TEE GIRDER HAUNCH DETAIL

SCALE: 1" = 1'-0"



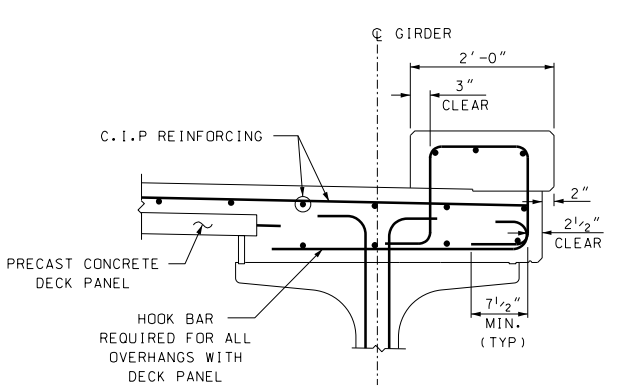
DETAIL A

SCALE: 1 1/2" = 1'-0"



BULB-TEE TOP FLANGE DETAIL

SCALE: 1/2" = 1'-0"



BULB-TEE CURB DETAIL

SCALE: 3/4" = 1'-0"

TABLE B - GIRDER DEFLECTIONS DUE TO DECK PANEL DEAD LOAD

	OL	.1L	.2L	.3L	.4L	.5L	.6L	.7L	.8L	.9L	1.0L
SPAN 1	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX
SPAN 2	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX
SPAN 3	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX	.XX

STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION * BUREAU OF BRIDGE DESIGN

TOWN	BRIDGE NO.	STATE PROJECT	
LOCATION			
PRECAST CONCRETE DECK PANEL - CONCRETE GIRDER			
REVISIONS AFTER PROPOSAL	BY	DATE	BRIDGE SHEET OF
	DESIGNED	NHDOT 4/02	CHECKED NHDOT 11/16
	DRAWN	NHDOT 12/10	CHECKED NHDOT 11/16
	QUANTITIES		CHECKED
	ISSUE DATE	4/02	FEDERAL PROJECT NO.
	REV. DATE	11/17	SHEET NO.
SUBDIRECTORY	DGN LOCATOR	SHEET SCALE	TOTAL SHEETS
English/DK/PAN/DECK PANELS_HL93 rev b	tbl 1	AS NOTED	