PAY LENGTH OF BEAM OUT TO OUT = X'-X''3 SP. @ 3½"3½" STIRRUP SPACING 2"  $3\frac{1}{2}$ "  $3\frac{1}{2}$ " 3 SP. @ X" X SP. @ X SP. @ X'' = X'-X''X SP. @ X SP. @ X'' = X'-X''= X'-X''X'' = X'-X''-A0301 (TYP.) 👆 2-N0401 - 2-N0401 2-N0501--2-N0501 END OF BEAM -**→** END OF BEAM 1) PRESTRESSING STRAND (TYP.) — -2-R0301 2-R0301-<sup>1</sup> −2-A0402 2-A0402— └**-** A0402 A0402 SIDE ELEVATION **← L** BEARING & BEARING—► SHOWING REINFORCING STEEL. SOLE PLATE & DIAPHRAGM HOLES NOT SHOWN FOR CLARITY. 7 SP. @ 6" = 3'-6" 7 SP. @ 6" = 3'-6"

BRIDGE PLANS ID ####-#### 001

#### BILL OF MATERIAL ONE AASHTO TYPE I MODIFIED

	$\mathbf{\Sigma}$	MARK	NO REQ'D			LENGT			
	Y - BEAM			"a"	"b"	"c"	"d"	"e"	LENGT
		A0301	X	11"					11"
	ONLY SED B	A0401	X	X'-X"					X'-X"
		A0402	12	4'-6"					4'-6"
	RMATION PRESTRES	N0401	X	8"	X'-X''	8"			X'-X"
	AA. ES	N0501	X	10"	X'-X''	9"			X'-X"
FOR INFORMATION D FOR AS PRESTRES	)RI) PR	R0301	32	1'-2"	3½"	10"	7"		2'-4"
	IFC AS	U0501	X	1'-8"	4"				3'-5"
		QUANTITIES							
	0 F		ITI	EM		UNIT	ONE BEAM		M
	H	CONCE		****		OV.	********		

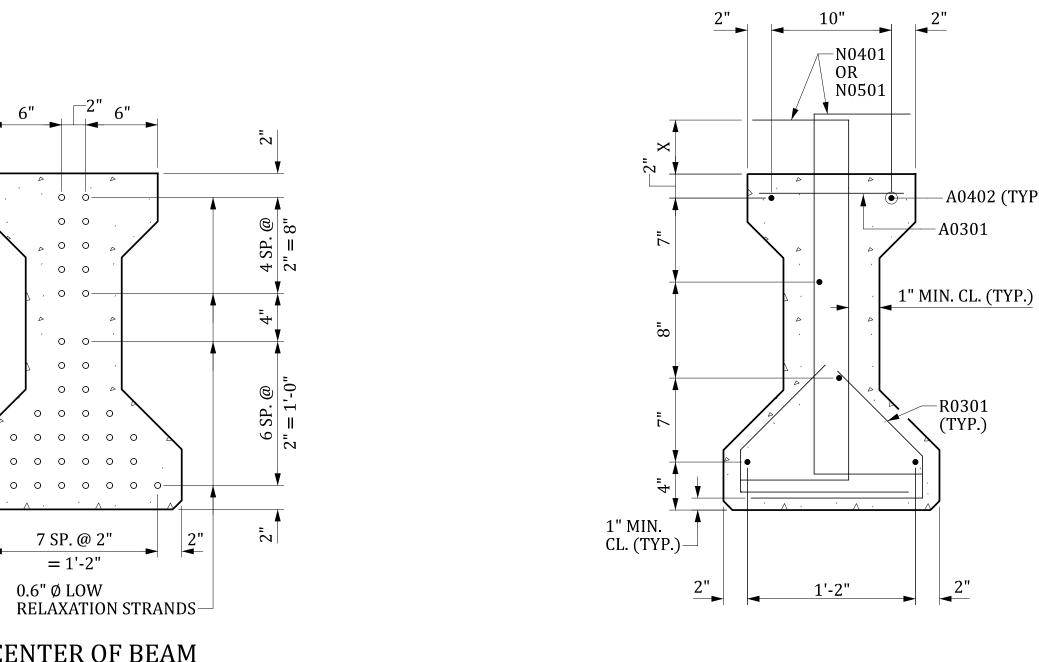
A	00501	X	1'-8"	4"				3'-5"
J.K				QUAN	TITIES			
) H		IT	EM		UNIT		ONE BEAN	Л
PAIL	CONCRE'	TE, f'c X,X	XX		CY		XXXX.X	
$\mathcal{Z}$	REINFOF	RCING STE	EEL		LB		XXXX	
	PRESTRE	ESSING ST	'RANDS		LF		XXXX	
	STRUCTU	JRAL STE	EL		LB	AS	NECESSA	RY

#### DESIGN DATA

STRANDS: 0.6" Ø LOW RELAXATION GRADE 270 AREA=0.217 SQ. IN. TENSIONING LOAD = 43.9 KIPS

CONCRETE: f'c = X.X KSIf'ci = X X KSI

- REINFORCEMENT STEEL
- FULLY BONDED STRANDS 1 A FULLY BONDED STRANDS TO BE EXTENDED
- ◆ DEBONDED STRANDS FOR X'-X" FROM END OF BEAM
   ◆ DEBONDED STRANDS FOR X'-X" FROM END OF BEAM



0.6"Ø LOW RELAXATION STRANDS— X - STRAIGHT STRANDS X - DEBONDED STRANDS X - DRAPED STRANDS AT END OF BEAM STRAND LAYOUT

1'-6"

1) SEE "AASHTO TYPE I MODIFIED GENERAL DETALS"

SHEET FOR PRESTRESSING STRAND BENDING DETAIL.

AT CENTER OF BEAM

0 0

0 0-

7 SP. @ 2"

0.6" Ø LOW

SECTION THRU BEAM STRANDS NOT SHOWN FOR CLARITY.

-A0402 (TYP.)

(TYP.)

THIS DRAWING IS FURNISHED FOR INFORMATION ONLY. ALL DIMENSIONS SHOWN ARE SHEET SPECIFIC. ANY USE OF THIS DESIGN AND DRAWING, INCLUDING DIMENSIONS, MUST BE CHECKED BY THE USER'S ENGINEER TO ENSURE DESIGN IS ADEQUATE FOR THE INTENDED USE.
ALL DRAWINGS MUST BE SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER WHEN USED.

CONSULTANT NAME/LOGO

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

PRESTRESSED CONCRETE BEAM AASHTO TYPE I MODIFIED SPAN X

ROUTE: #### COUNTY: ####

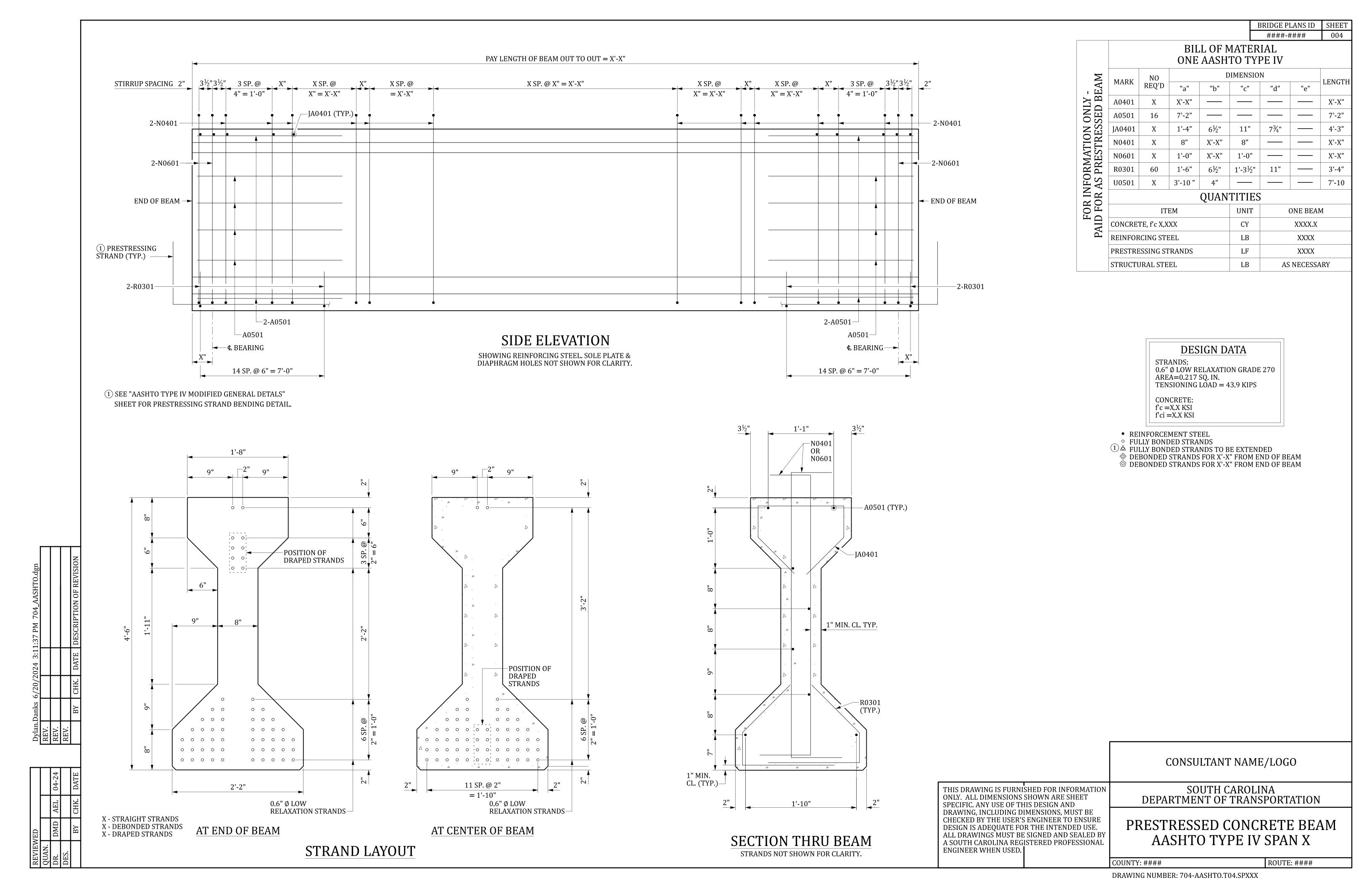
DRAWING NUMBER: 704-AASHTO.T01MOD.SPXXX

BRIDGE PLANS ID SHEET ####-#### 002 BILL OF MATERIAL ONE AASHTO TYPE II **DIMENSION** FOR INFORMATION ONLY -D FOR AS PRESTRESSED BEAM MARK LENGTH "e" "b" PAY LENGTH OF BEAM OUT TO OUT = X'-X'' $3\frac{1}{2}$ " 3 SP. @ X" 3 SP. @ 3½"3½" STIRRUP SPACING 2" X SP. @ X SP. @ X'' = X'-X''X SP. @ X SP. @ A0401 X'-X" X'-X'' X'' = X'-X''X'' = X'-X''= X'-X''A0402 N0401 X'-X'' -A0301 (TYP.) 👆 2-N0401 - 2-N0401 N0501 10" X'-X'' \_\_\_\_ R0301 40 1'-2" 2'-5" 2-N0501 -2-N0501 U0501 2'-4" 4'-10" QUANTITIES END OF BEAM -**►** END OF BEAM ITEM UNIT ONE BEAM CY CONCRETE, f'c X,XXX XXXX.X (1) PRESTRESSING LB REINFORCING STEEL XXXX STRAND (TYP.) — LF XXXX PRESTRESSING STRANDS 2-R0301--2-R0301 LB AS NECESSARY STRUCTURAL STEEL <sup>1</sup> −2-A0402 2-A0402— -A0402A0402-SIDE ELEVATION **← L** BEARING & BEARING → SHOWING REINFORCING STEEL. SOLE PLATE & DIAPHRAGM HOLES NOT SHOWN FOR CLARITY. 9 SP. @ 6" = 4'-6" 9 SP. @ 6" = 4'-6" **DESIGN DATA** STRANDS: (1) SEE "AASHTO TYPE II MODIFIED GENERAL DETALS" 0.6" Ø LOW RELAXATION GRADE 270 AREA=0.217 SQ. IN. SHEET FOR PRESTRESSING STRAND BENDING DETAIL. TENSIONING LOAD = 43.9 KIPSCONCRETE: f'c = X.X KSIf'ci = X X KSI REINFORCEMENT STEEL FULLY BONDED STRANDS 1 A FULLY BONDED STRANDS TO BE EXTENDED ♦ DEBONDED STRANDS FOR X'-X" FROM END OF BEAM √N0401 OR 5" -2" 5" -A0402 (TYP.) 0 0 6 SP. @ 2'' = 1' - 0'0 0 1" MIN. CL. (TYP.) 0 0 (TYP.) 1" MIN. CL. (TYP.)-1'-6" 1'-2" 0.6" DIA. LOW RELAXATION STRANDS— CONSULTANT NAME/LOGO 0.6" Ø LOW RELAXATION STRANDS— X - STRAIGHT STRANDS X - DEBONDED STRANDS X - DRAPED STRANDS AT END OF BEAM AT CENTER OF BEAM SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION THIS DRAWING IS FURNISHED FOR INFORMATION SECTION THRU BEAM ONLY. ALL DIMENSIONS SHOWN ARE SHEET STRAND LAYOUT SPECIFIC. ANY USE OF THIS DESIGN AND STRANDS NOT SHOWN FOR CLARITY. DRAWING, INCLUDING DIMENSIONS, MUST BE CHECKED BY THE USER'S ENGINEER TO ENSURE PRESTRESSED CONCRETE BEAM DESIGN IS ADEQUATE FOR THE INTENDED USE. ALL DRAWINGS MUST BE SIGNED AND SEALED BY AASHTO TYPE II SPAN X A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER WHEN USED. COUNTY: #### ROUTE: ####

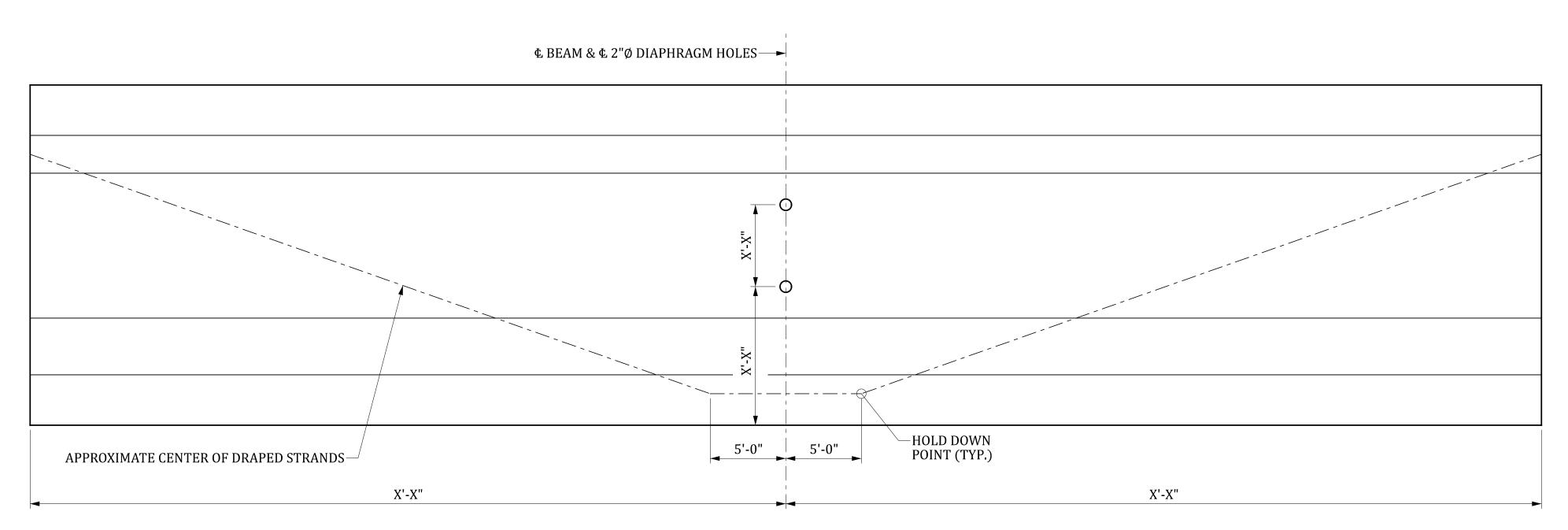
DRAWING NUMBER: 704-AASHTO.T02.SPXXX

BRIDGE PLANS ID ####-#### 003 BILL OF MATERIAL ONE AASHTO TYPE III PAY LENGTH OF BEAM OUT TO OUT = X'-X''**DIMENSION** FOR INFORMATION ONLY -D FOR AS PRESTRESSED BEAM MARK LENGTH "e" "b" STIRRUP SPACING 2"  $3\frac{1}{2}$ " 3 SP. @ 3 SP. @  $3\frac{1}{2}$ "  $3\frac{1}{2}$ " X SP. @ X'' = X'-X''X SP. @ X SP. @ X SP. @ X'' = X'-X''= X'-X''X'' = X'-X''X'' = X'-X''4'' = 1'-0''A0401 X'-X'' –A0301 (TYP.) ∳ A0402 2-N0401 - 2-N0401 X'-X'' N0501 X'-X'' X'-X" 2-N0501--2-N0501R0301 52 1'-4" 2'-9" 3'-1" U0501 6'-4" X \_\_\_\_ END OF BEAM → **←** END OF BEAM QUANTITIES ITEM UNIT ONE BEAM CY CONCRETE, f'c X,XXX XXXX.X (1) PRESTRESSING LB REINFORCING STEEL XXXX STRAND (TYP.) → PRESTRESSING STRANDS LF XXXX STRUCTURAL STEEL LB AS NECESSARY 2-R0301--2-R0301 \_\_2-A0402 2-A0402— └─A0402 A0402-SIDE ELEVATION **← L** BEARING & BEARING → SHOWING REINFORCING STEEL. SOLE PLATE & DIAPHRAGM HOLES NOT SHOWN FOR CLARITY. **DESIGN DATA** 12 SP. @ 6'' = 6'-0''12 SP. @ 6'' = 6'-0''STRANDS: 0.6" Ø LOW RELAXATION GRADE 270 AREA=0.217 SQ. IN. TENSIONING LOAD = 43.9 KIPS 1) SEE "AASHTO TYPE III MODIFIED GENERAL DETALS" SHEET FOR PRESTRESSING STRAND BENDING DETAIL. CONCRETE: f'c = X.X KSIf'ci = X X KSI REINFORCEMENT STEEL ° FULLY BONDED STRANDS

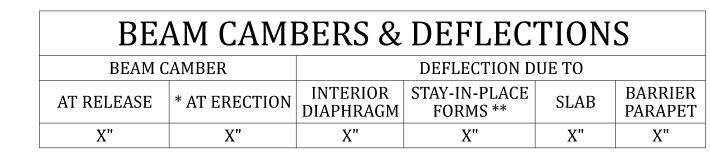
1 ♠ FULLY BONDED STRANDS TO BE EXTENDED ◆ DEBONDED STRANDS FOR X'-X" FROM END OF BEAM
 ◆ DEBONDED STRANDS FOR X'-X" FROM END OF BEAM -N0401 OR N0501 -A0402 (TYP.) **POSITION** OF DRAPED STRANDS 1" MIN. CL. TYP. -POSITION OF DRAPED STRANDS -R0301 (TYP.) 5 SP. @ 2'' = 10''1" MIN. CL. (TYP.)-CONSULTANT NAME/LOGO 9 SP. @ 2" 1'-10" 1'-6" 0.6" Ø LOW 0.6" Ø LOW SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION THIS DRAWING IS FURNISHED FOR INFORMATION RELAXATION STRANDS— RELAXATION STRANDS— X - STRAIGHT STRANDS X - DEBONDED STRANDS ONLY. ALL DIMENSIONS SHOWN ARE SHEET SPECIFIC. ANY USE OF THIS DESIGN AND AT CENTER OF BEAM AT END OF BEAM X - DRAPED STRANDS DRAWING, INCLUDING DIMENSIONS, MUST BE SECTION THRU BEAM CHECKED BY THE USER'S ENGINEER TO ENSURE PRESTRESSED CONCRETE BEAM STRAND LAYOUT DESIGN IS ADEQUATE FOR THE INTENDED USE. STRANDS NOT SHOWN FOR CLARITY. ALL DRAWINGS MUST BE SIGNED AND SEALED BY AASHTO TYPE III SPAN X A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER WHEN USED. COUNTY: #### ROUTE: ####



BRIDGE PLANS ID SHE
###-#### 00



#### INTERMEDIATE DIAPHRAGM LOCATION DETAIL

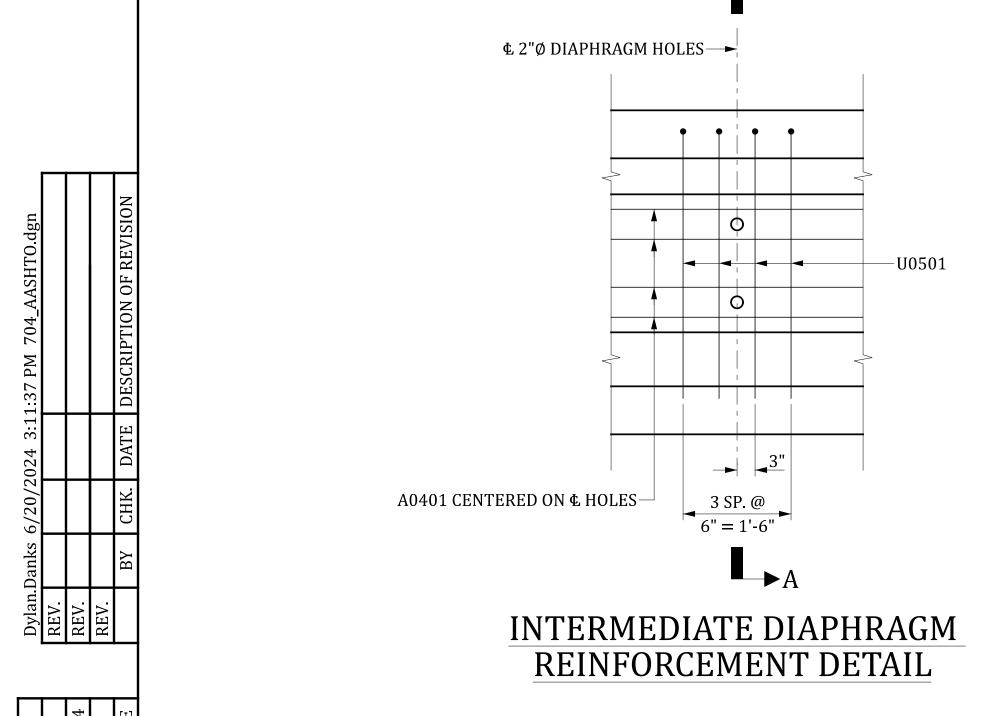


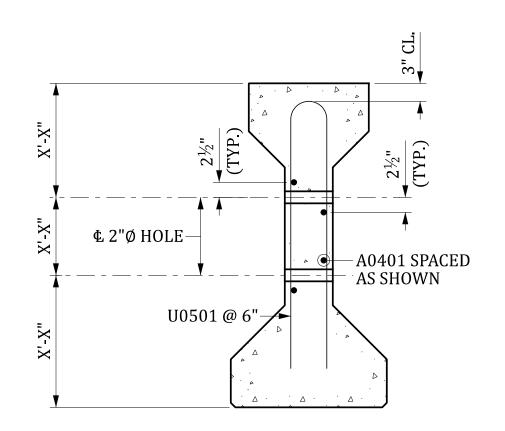
\* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

\*\* DEFLECTION DUE TO WEIGHT OF METAL FORMS AND THE WEIGHT OF THE CONCRETE IN THE FLUTES OF THE FORMS.

"+" INDICATES UPWARD MOVEMENT

"-" INDICATES DOWNWARD MOVEMENT





SECTION A-A
SHOWING HOLES AND ADDITIONAL
REINFORCING REQUIRED AT
INTERMEDIATE DIAPHRAGMS.

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CONSULTANT NAME/LOGO

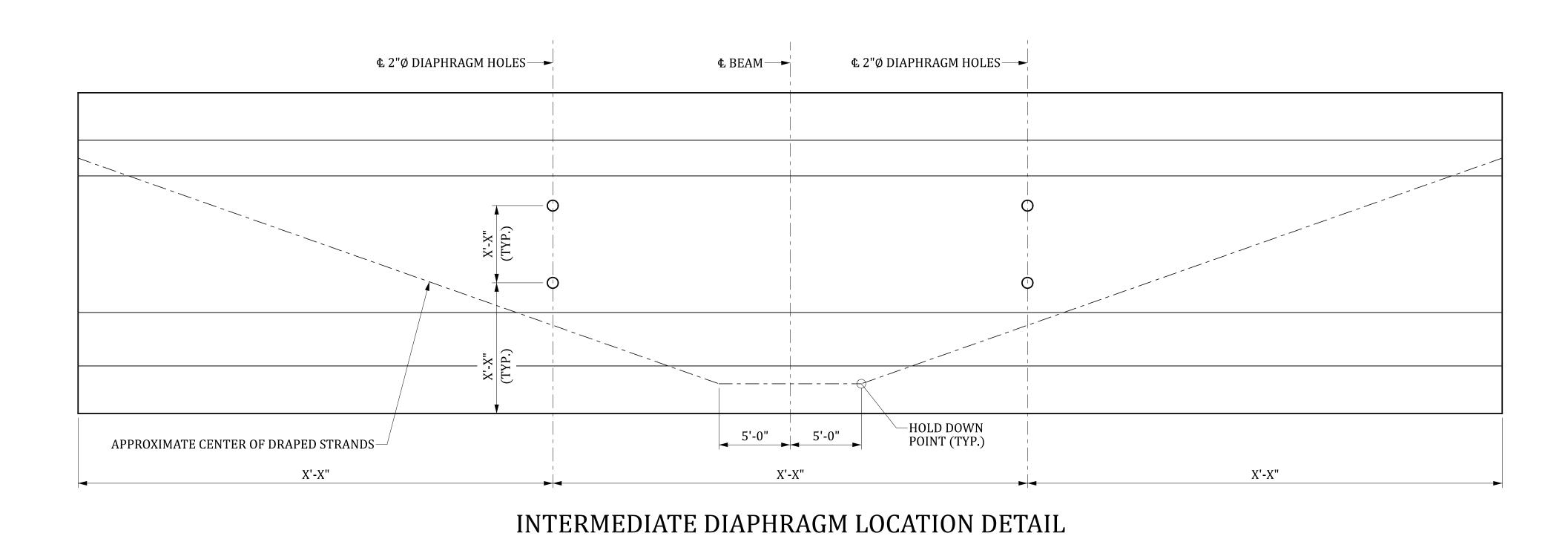
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

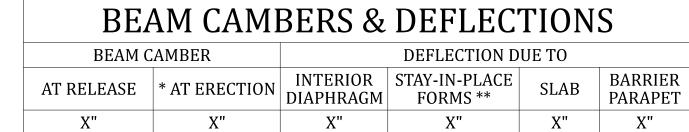
AASHTO BEAM DETAILS SPAN X - ALT 1

ROUTE: ####

DRAWING NUMBER: 704-AASHTO.D01.MIDPNTDIA.SK000.2HOLE

####-### 006



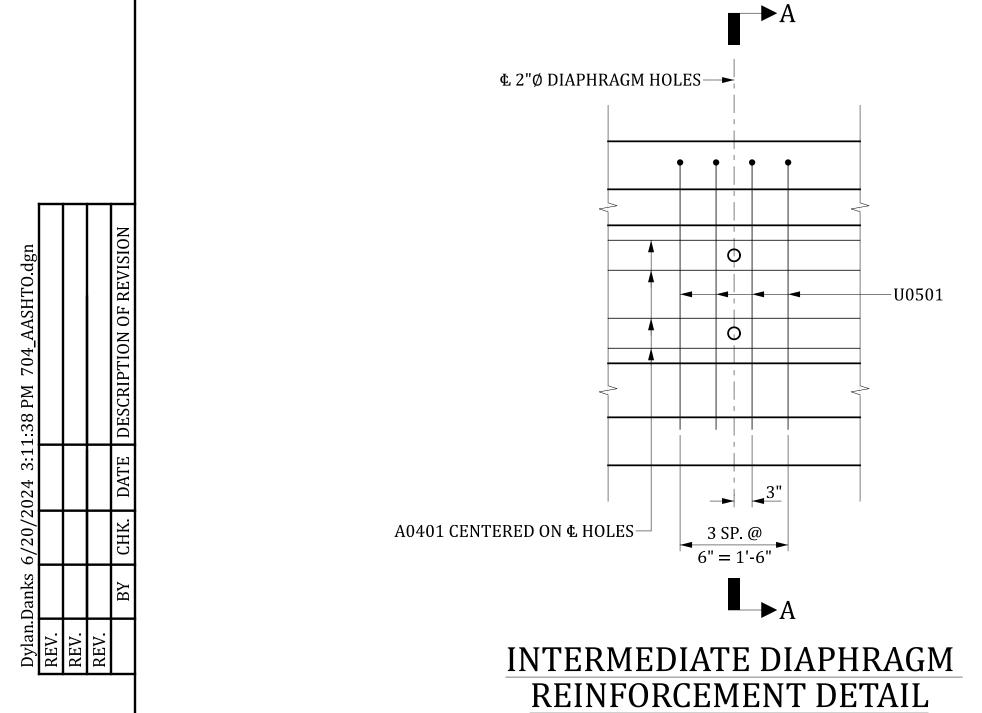


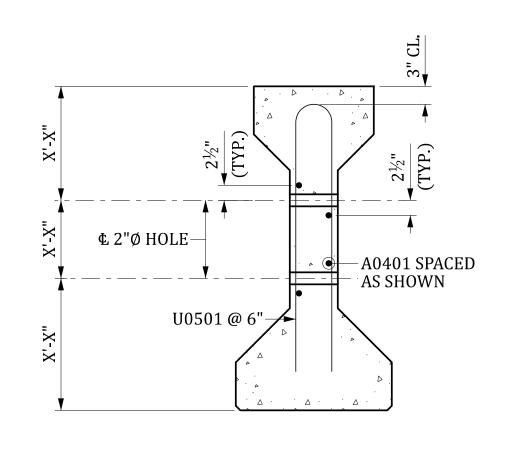
\* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

\*\* DEFLECTION DUE TO WEIGHT OF METAL FORMS AND THE WEIGHT OF THE CONCRETE IN THE FLUTES OF THE FORMS.

"+" INDICATES UPWARD MOVEMENT

"-" INDICATES OF WARD MOVEMENT





SECTION A-A
SHOWING HOLES AND ADDITIONAL
REINFORCING REQUIRED AT
INTERMEDIATE DIAPHRAGMS.

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COUNTY: ####

ENGINEER WHEN USED.

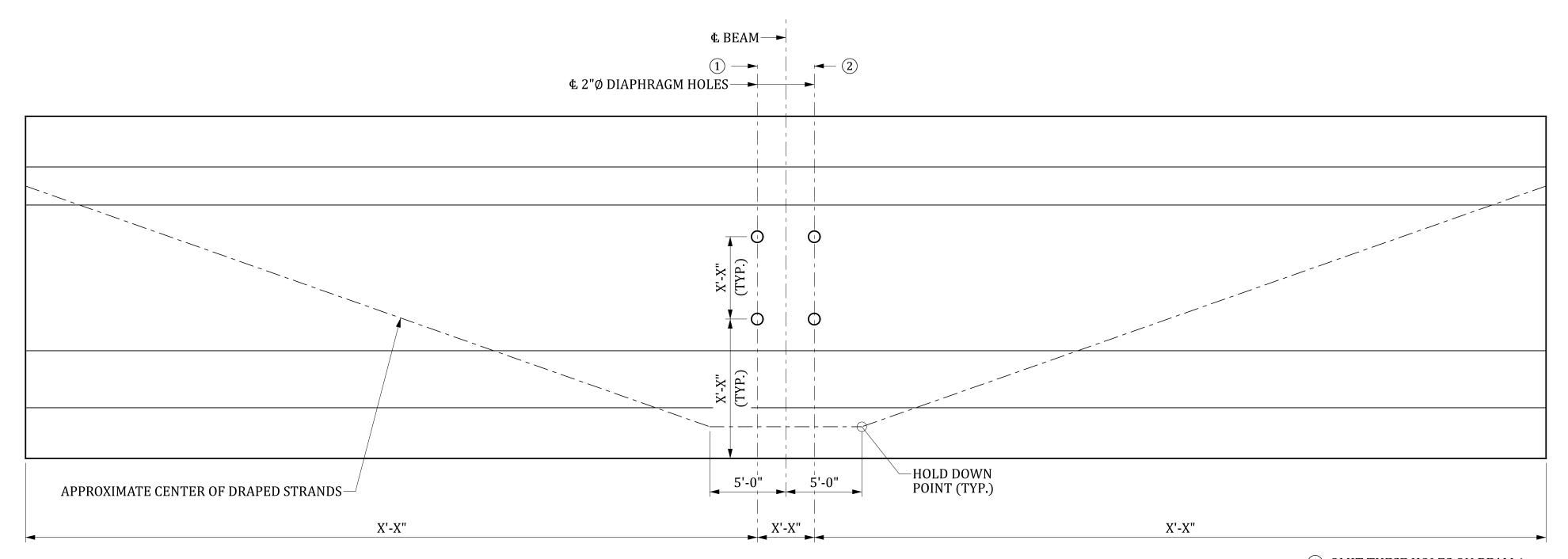
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

CONSULTANT NAME/LOGO

AASHTO BEAM DETAILS SPAN X - ALT 2

ROUTE: ####

BRIDGE PLANS ID ####-####



BEAM CAMBERS & DEFLECTIONS DEFLECTION DUE TO BEAM CAMBER AT RELEASE \* AT ERECTION | INTERIOR | STAY-IN-PLACE | FORMS \*\* PARAPET Χ"

\* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

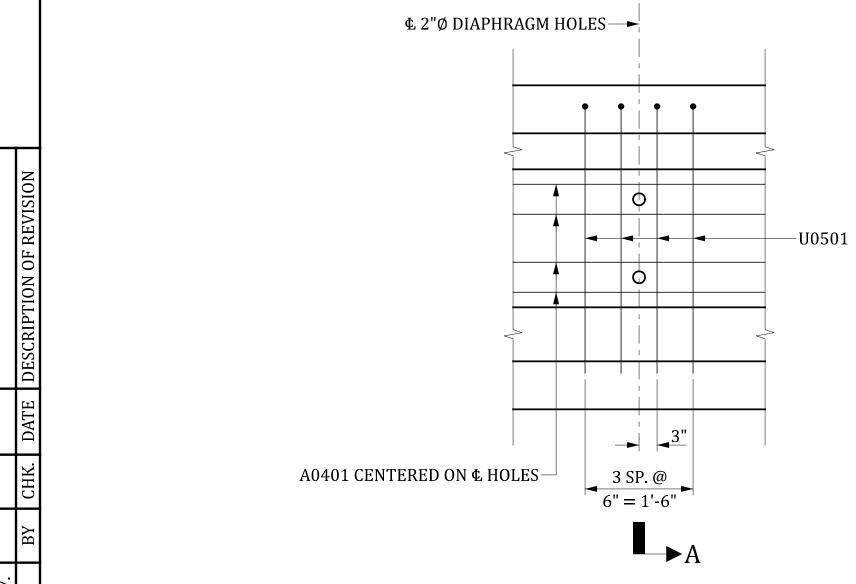
\*\* DEFLECTION DUE TO WEIGHT OF METAL FORMS AND THE WEIGHT OF THE CONCRETE IN THE FLUTES OF THE FORMS.

"+" INDICATES UPWARD MOVEMENT

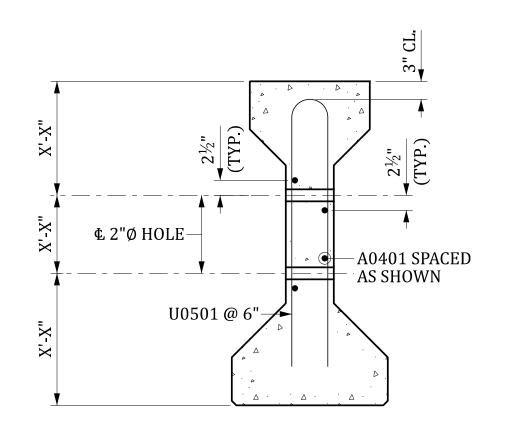
"-" INDICATES DOWNWARD MOVEMENT

# INTERMEDIATE DIAPHRAGM LOCATION DETAIL INTERIOR BEAM SHOWN.

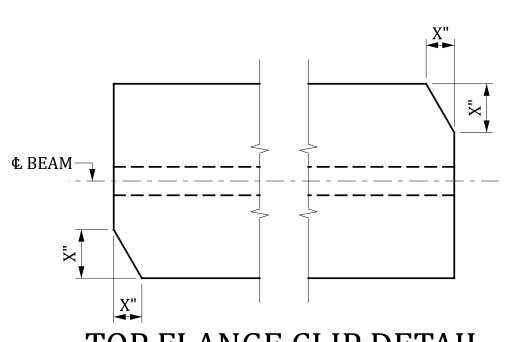
① OMIT THESE HOLES ON BEAM 1. ② OMIT THESE HOLES ON BEAM X.



INTERMEDIATE DIAPHRAGM REINFORCEMENT DETAIL



SECTION A-A SHOWING HOLES AND ADDITIONAL REINFORCING REQUIRED AT INTERMEDIATE DIAPHRAGMS.



TOP FLANGE CLIP DETAIL

CONSULTANT NAME/LOGO

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION THIS DRAWING IS FURNISHED FOR INFORMATION ONLY. ALL DIMENSIONS SHOWN ARE SHEET SPECIFIC. ANY USE OF THIS DESIGN AND DRAWING, INCLUDING DIMENSIONS, MUST BE

COUNTY: ####

CHECKED BY THE USER'S ENGINEER TO ENSURE

DESIGN IS ADEQUATE FOR THE INTENDED USE. ALL DRAWINGS MUST BE SIGNED AND SEALED BY

A SOUTH CAROLINA REGISTERED PROFESSIONAL

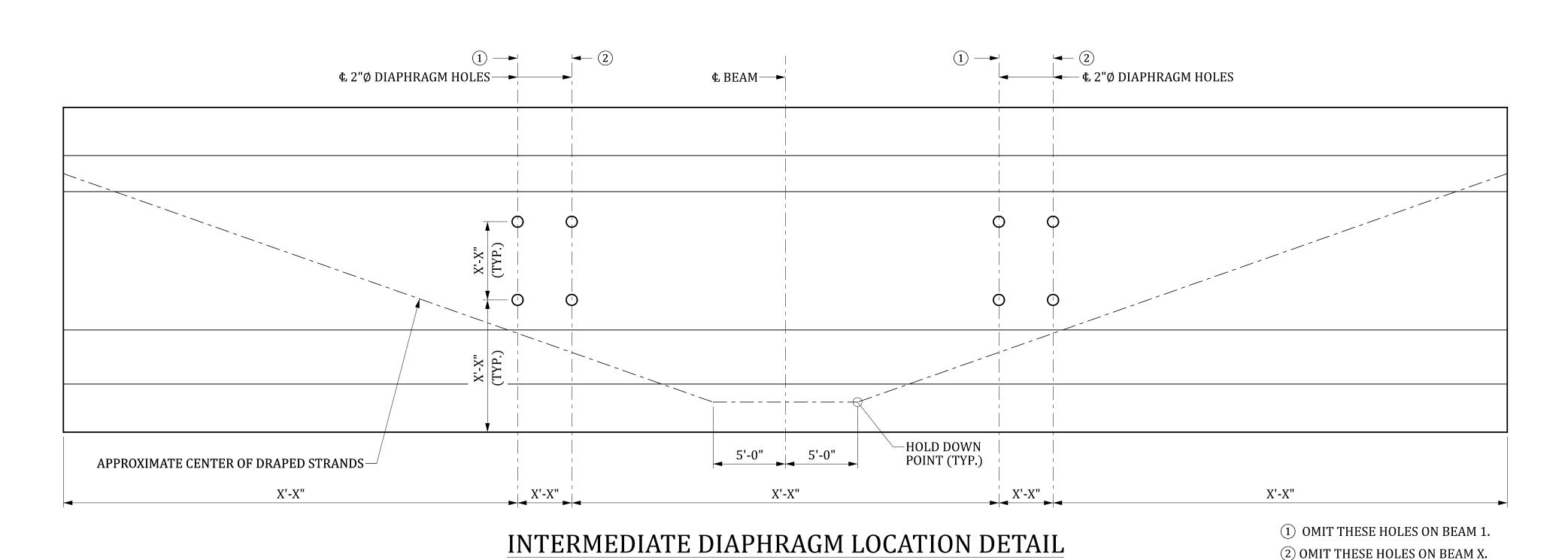
ENGINEER WHEN USED.

AASHTO BEAM DETAILS SPAN X - ALT 3

ROUTE: ####

DRAWING NUMBER: 704-AASHTO.D01.MIDPNTDIA.SKLT.2HOLE

BRIDGE PLANS ID ####-####



INTERIOR BEAM SHOWN.

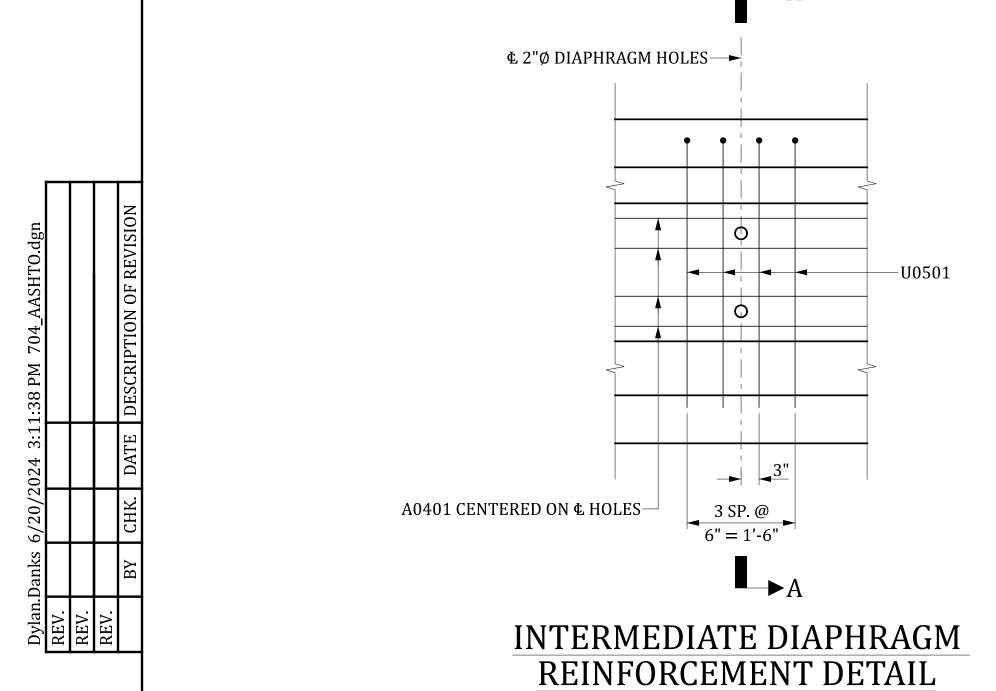
BEAM CAMBERS & DEFLECTIONS							
BEAM C	AMBER	DEFLECTION DUE TO					
AT RELEASE	* AT ERECTION	INTERIOR DIAPHRAGM	STAY-IN-PLACE FORMS **	SLAB	BARRIER PARAPET		
Χ"	Χ"	Χ"	Χ"	X"	Χ"		

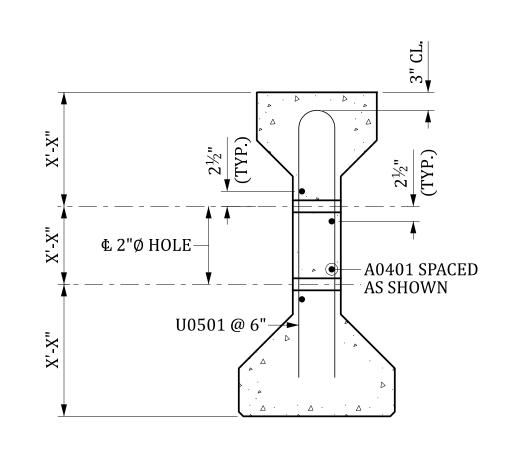
\* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

\*\* DEFLECTION DUE TO WEIGHT OF METAL FORMS AND THE WEIGHT OF THE CONCRETE IN THE FLUTES OF THE FORMS.

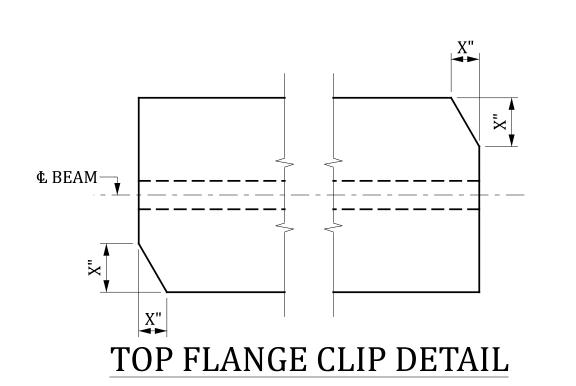
"+" INDICATES UPWARD MOVEMENT

"-" INDICATES DOWNWARD MOVEMENT





SECTION A-A SHOWING HOLES AND ADDITIONAL REINFORCING REQUIRED AT INTERMEDIATE DIAPHRAGMS.



CONSULTANT NAME/LOGO

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ENGINEER WHEN USED.

AASHTO BEAM DETAILS

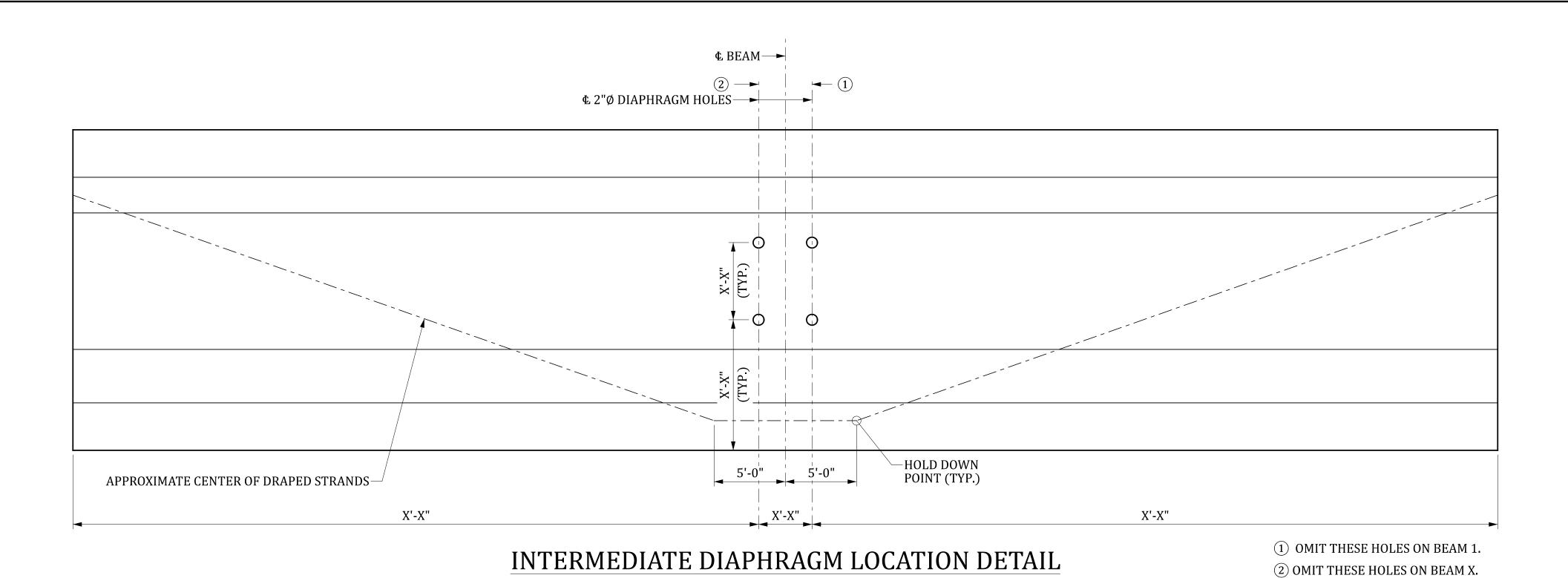
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

SPAN X - ALT 4

ROUTE: ####

DRAWING NUMBER: 704-AASHTO.D01.THIRDPNTDIA.SKLT.2HOLE

BRIDGE PLANS ID ####-####



INTERIOR BEAM SHOWN.

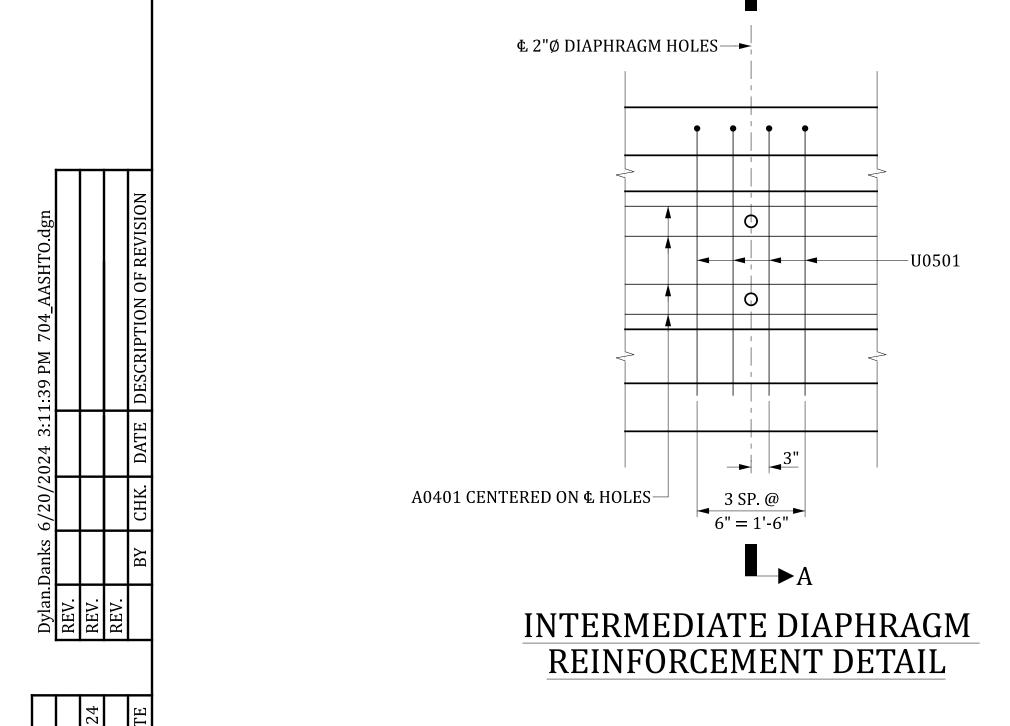
BEAM CAMBERS & DEFLECTIONS						
BEAM C	AMBER	DEFLECTION DUE TO				
AT RELEASE	* AT ERECTION	INTERIOR DIAPHRAGM	STAY-IN-PLACE FORMS **	SLAB	BARRIER PARAPET	
Χ"	Χ"	Χ"	Χ"	Χ"	Χ"	

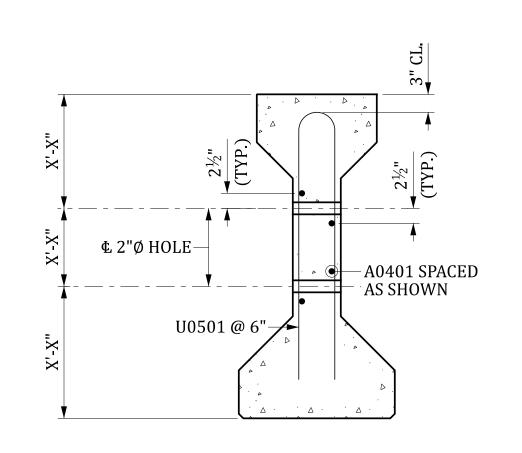
\* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

\*\* DEFLECTION DUE TO WEIGHT OF METAL FORMS AND THE WEIGHT OF THE CONCRETE IN THE FLUTES OF THE FORMS.

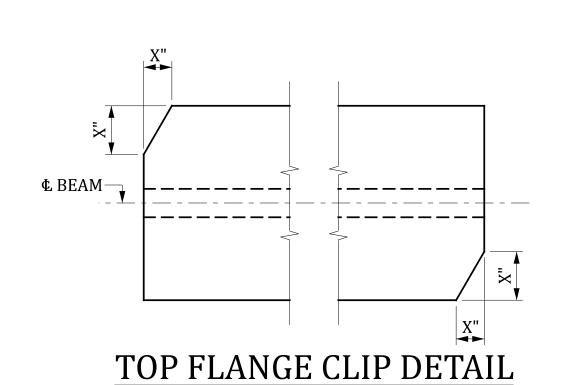
"+" INDICATES UPWARD MOVEMENT

"-" INDICATES DOWNWARD MOVEMENT





SECTION A-A SHOWING HOLES AND ADDITIONAL REINFORCING REQUIRED AT INTERMEDIATE DIAPHRAGMS.



CONSULTANT NAME/LOGO

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A SOUTH CAROLINA REGISTERED PROFESSIONAL

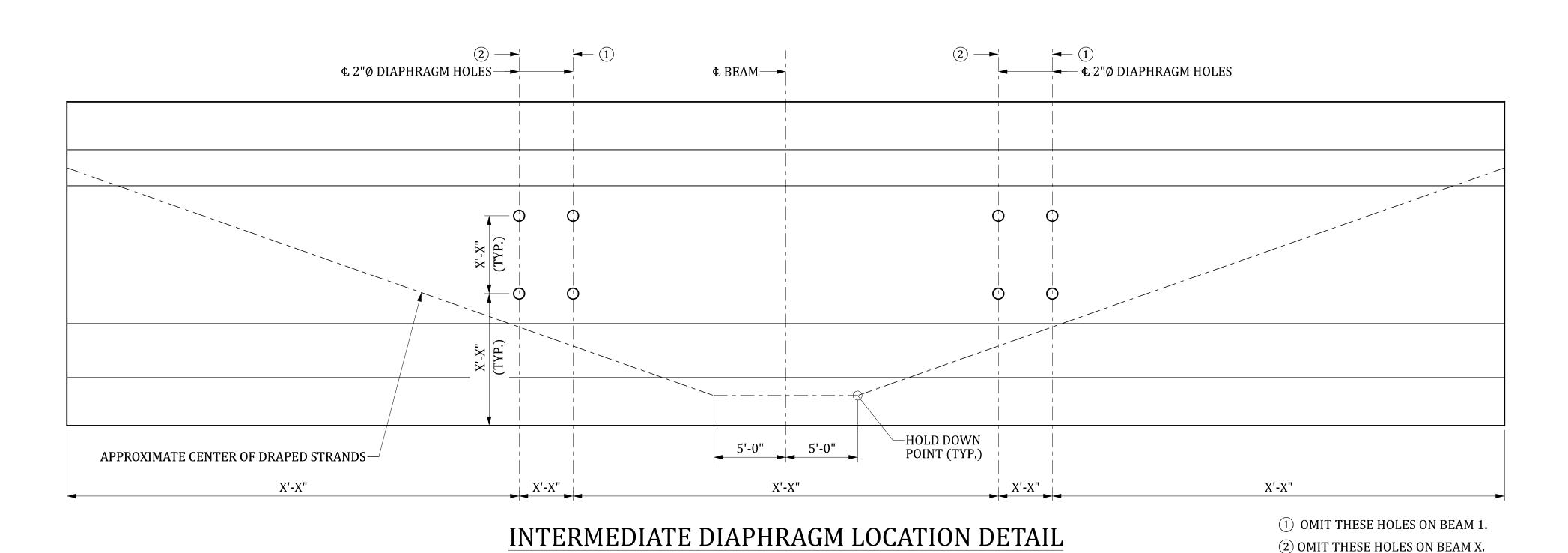
ENGINEER WHEN USED.

AASHTO BEAM DETAILS

SPAN X - ALT 5

ROUTE: ####

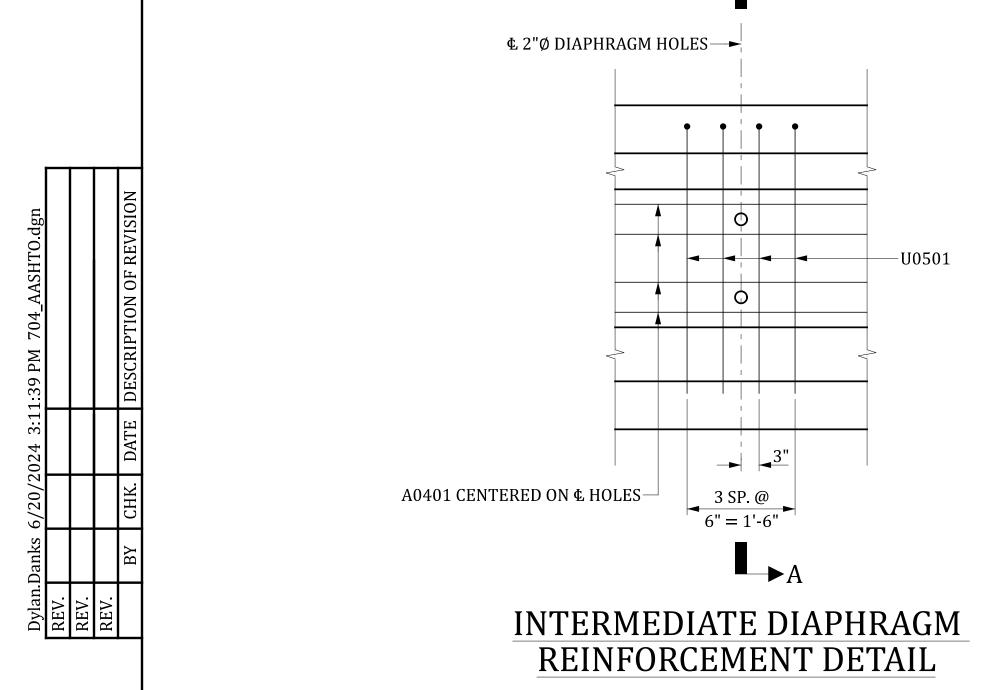
####-#### 01

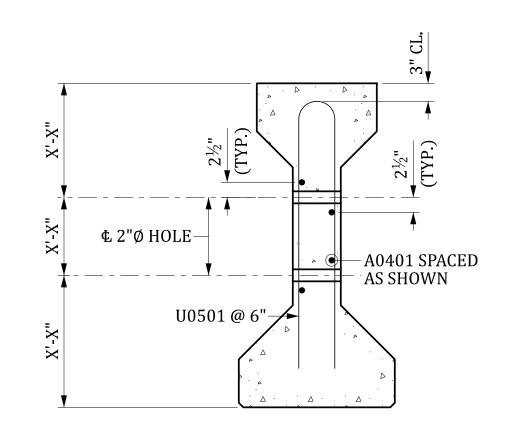


INTERIOR BEAM SHOWN.

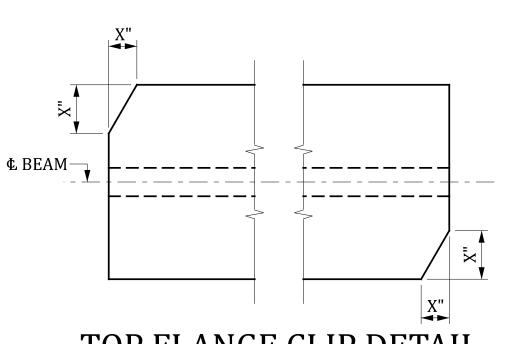
BEAM CAMBERS & DEFLECTIONS							
BEAM C	AMBER	DEFLECTION DUE TO					
AT RELEASE	* AT ERECTION	INTERIOR DIAPHRAGM	STAY-IN-PLACE FORMS **	SLAB	BARRIER PARAPET		
Χ"	Χ"	Χ"	Χ"	Χ"	Χ"		

- \* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION
- \*\* DEFLECTION DUE TO WEIGHT OF METAL FORMS AND THE WEIGHT OF THE CONCRETE IN THE FLUTES OF THE FORMS.
- "+" INDICATES UPWARD MOVEMENT
- "-" INDICATES DOWNWARD MOVEMENT





SECTION A-A
SHOWING HOLES AND ADDITIONAL
REINFORCING REQUIRED AT
INTERMEDIATE DIAPHRAGMS.



TOP FLANGE CLIP DETAIL

CONSULTANT NAME/LOGO

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ENGINEER WHEN USED.

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

AASHTO BEAM DETAILS SPAN X - ALT 6

ROUTE: ####

DRAWING NUMBER: 704-AASHTO.D01.THIRDPNTDIA.SKRT.2HOLE

_		
а	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, $\pm 1$ " MAX.
b	WIDTH (OVERALL)	±3/8", -1/4"
$b_1$	WEB WIDTH	+3/8", -1/4"
С	DEPTH (OVERALL)	+½", -¼"
$c_1$	FLANGE DEPTH	±¼"
d	VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW	$\pm\frac{1}{8}$ " PER 12" WIDTH, $\pm\frac{1}{2}$ " MAX.
е	VARIATION FROM SPECIFIED ELEVATION END SQUARENESS OR SKEW	$\pm \frac{3}{16}$ " PER 12" DEPTH, $\pm 1$ " MAX.
f	SWEEP	⅓" PER 10' LENGTH
g	CAMBER VARIATION FROM DESIGN CAMBER (MEASUREMENT OF CAMBER FOR COMPARISON TO PREDICTED DESIGN VALUES SHOULD BE COMPLETED WITHIN 72 HRS. OF TRANSFER OF PRESTR. FORCE)	$\pm \frac{1}{8}$ " PER 10' $\pm \frac{1}{2}$ " MAX. UP TO 80' LENGTH $\pm 1$ " MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	¾" IN 10'
	LOCATION OF STRAND (INDIVIDUAL)	±¼"
k	LOCATION OF STRAND (BUNDLED)	±½"
$k_1$	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	±20"
$\mathbf{k}_{2}$	LOCATION OF POST-TENSIONING DUCT	±1/4"
$l_1$	LOCATION OF EMBEDMENT	<u>±</u> 1"
$l_2$	TIPPING AND FLUSHNESS OF EMBEDMENT	±¼"
$m_1$	LOCATION OF BEARING ASSEMBLY	±%"
$m_2$	TIPPING AND FLUSHNESS OF BEARING ASSEMBLY	±½"
р	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	±½"
$q_1$	LOCATION OF HANDLING DEVICE PARALLEL TO LENGTH OF MEMBER	±6"
$q_2$	LOCATION OF HANDLING DEVICE TRANSVERSE TO LENGTH OF MEMBER	±1"
$s_1$	LONGITUDINAL SPACING OF STIRRUPS	<u>+</u> 2"
1		

+1/4", -1/2"

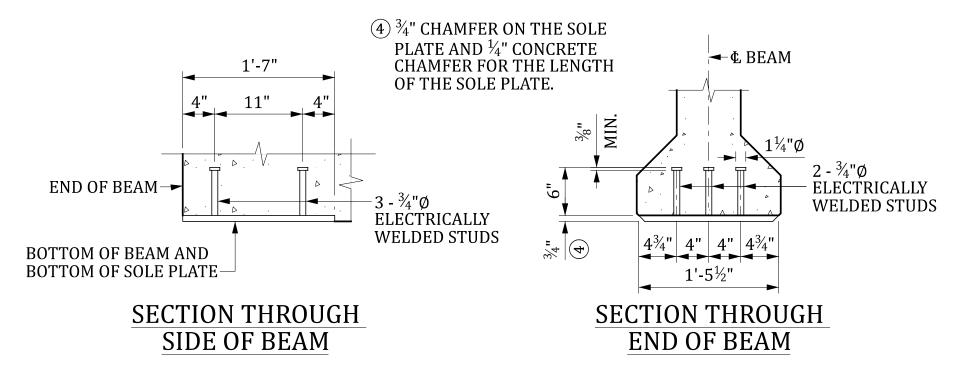
LONGITUDINAL SPACING OF

STIRRUP PROJECTION FROM BEAM SURFACE

FROM MEMBER ENDS

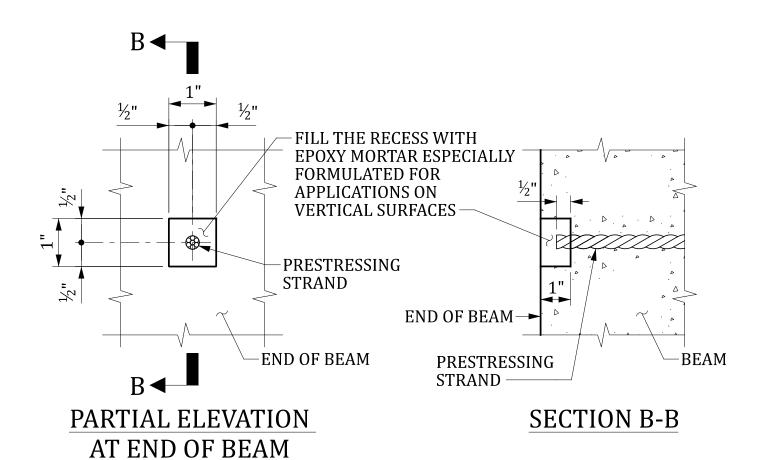
PRESTRESSING STRAND

STIRRUPS WITHIN DISTANCE "C"  $\pm 1$ "



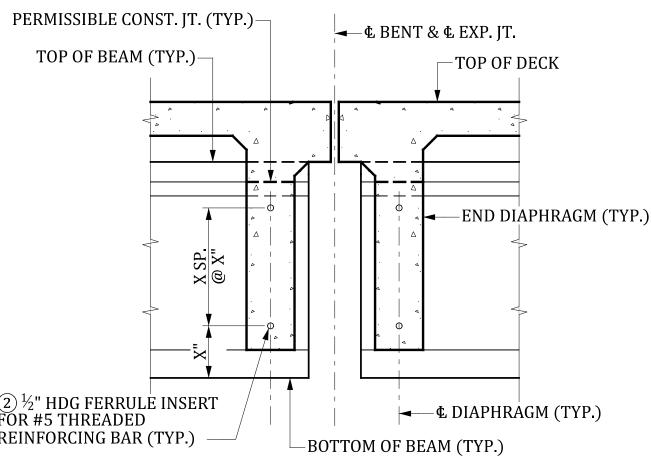
#### SOLE PLATE DETAIL

REINFORCING STEEL AND STRANDS NOT SHOWN.



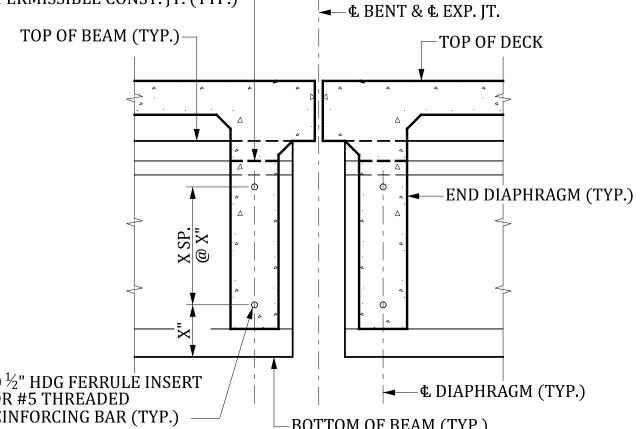
#### <sup>(1)</sup> GROUTED RECESS AT END OF PRETENSIONED STRAND

(1) PROVIDE A 1" RECESS IN THE END OF THE BEAM, ONLY AT BEAM ENDS THAT ARE NOT PERMANENTLY ENCASED IN CONCRETE. CUT ALL STRANDS ½" BACK INTO RECESS AND FILL THE RECESS WITH AN EPOXY MORTAR ESPECIALLY FORMULATED FOR APPLICATIONS ON VERTICAL SURFACES.



REINFORCEMENT AND EXPANSION JOINT DETAILS NOT SHOWN FOR CLARITY.

(2) USE APPROVED HOT-DIPPED GALVANIZED FERRULE INSERTS ( $\frac{1}{2}$ "- 13 UNC) AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. OMIT INSERTS ON OUTSIDE FACE OF EXTERIOR BEAM. ADJUST INSERT LOCATIONS AS NECESSARY TO AVOID REINFORCEMENT IN BEAM. INSTALL INSERTS PERPENDICULAR TO THE FACE OF THE WEB.



# -③ PRESTRESSING STRAND (TYP.) **EXTERIOR FACE** OF BEAM ← **&** EXTERIOR BEAM

BRIDGE PLANS ID

011

####-####

SEE SECTION 704 OF THE STANDARD SPECIFICATIONS FOR

ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING

GALVANIZE ALL OVERHANG BRACKETS IN THE TOP FLANGE OF

SUBMITTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EXTERIOR BEAMS IN ACCORDANCE WITH AASHTO M 111, AASHTO M

232, OR ASTM F 2329 AS APPROPRIATE AND DETAIL ACCORDINGLY IN

THE TENSIONING LOAD IN ALL 0.6" Ø LOW RELAXATION STRANDS IS

43.9 KIPS. DO NOT RELEASE THE STRANDS UNTIL THE COMPRESSIVE STRENGTH OF THE CONCRETE HAS REACHED THE VALUE SHOWN FOR

ON THE TOP SURFACE OF BEAMS WHERE CAST-IN-PLACE CONCRETE

LAITANCE, AND INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY  $\frac{1}{4}$ ". FINISH TOP OF BEAM LEVEL ACROSS WIDTH OF

ALWAYS MAINTAIN PRESTRESSED CONCRETE BEAMS IN AN UPRIGHT

POSITION. WHEN PLACING OR STORING BEAMS, ENSURE BEAM

LOCATE HOLES FOR DIAPHRAGMS AS SHOWN ON "AASHTO BEAM DETAILS" SHEET. FORM HOLES WITH 2" INSIDE Ø PIPE AND PREVENT

MOVEMENT DURING CASTING BY SECURELY FASTENING THE PIPE.

CONTRACTOR IS RESPONSIBLE FOR INVESTIGATING THE CAPACITY OF

BEAM FLANGES TO ENSURE FLANGES ARE ADEQUATE TO SUPPORT ALL

 FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN

USING SLIT CONDUIT, USE TWO CONDUITS WITH THE SLITS LOCATED ON OPPOSITE SIDES OF THE STRAND. USE CONDUIT MADE OF HIGH

THICKNESS OF 0.025". USE CONDUIT WITH AN INSIDE DIAMETER THAT WILL PERMIT FREE MOVEMENT OF THE ENCASED STRAND, BUT NO

DENSITY POLYETHYLENE OR POLYPROPYLENE WITH A MINIMUM

LARGER THAN THE DIAMETER OF THE STRAND PLUS 1/8". PLACE

CONDUIT ON THE STRAND AT THE LOCATION(S) SHOWN ON THE

PLANS ( $\pm 1$ ") TO PREVENT BONDING OF THE CONCRETE. SECURE

SEALING WITH TAPE. USE TAPE MANUFACTURED FROM A NON-

CONDUIT TO PREVENT ANY LONGITUDINAL MOVEMENT ALONG THE STRAND. PREVENT CONCRETE FROM ENTERING THE CONDUIT BY

CORROSIVE MATERIAL THAT IS COMPATIBLE WITH THE CONCRETE,

2) RELEASE STRANDS IN ACCORDANCE WITH SECTION 704 OF THE

BETWEEN THE STRANDS AND THE SHEATHING. USE AN APPROVED

SEALANT THAT IS MADE OF EITHER EPOXY OR SILICONE. IF SILICONE SEALANT IS PROVIDED, USE A LOW MODULUS SILICONE SEALANT THAT

3) WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS

SUPPORTS ARE LOCATED ONLY UNDER THE SOLE PLATES.

WILL BE PLACED, PROVIDE A FINISH THAT IS CLEAN, FREE OF

USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO

PRESTRESSED CONCRETE BEAMS. SHOP DRAWINGS MUST BE

INCLUDE STRAND BENDING PROCEDURE IN SHOP PLANS.

M 203 FOR GRADE 270 (LOW RELAXATION).

NOTES:

THE SHOP PLANS.

FLANGE.

CONSTRUCTION LOADS.

CONDUIT, AND STEEL.

IS WHITE IN COLOR.

STANDARD SPECIFICATIONS.

**DEBONDING:** 

#### HALF ELEVATION END OF BEAM AT INTERIOR BENT

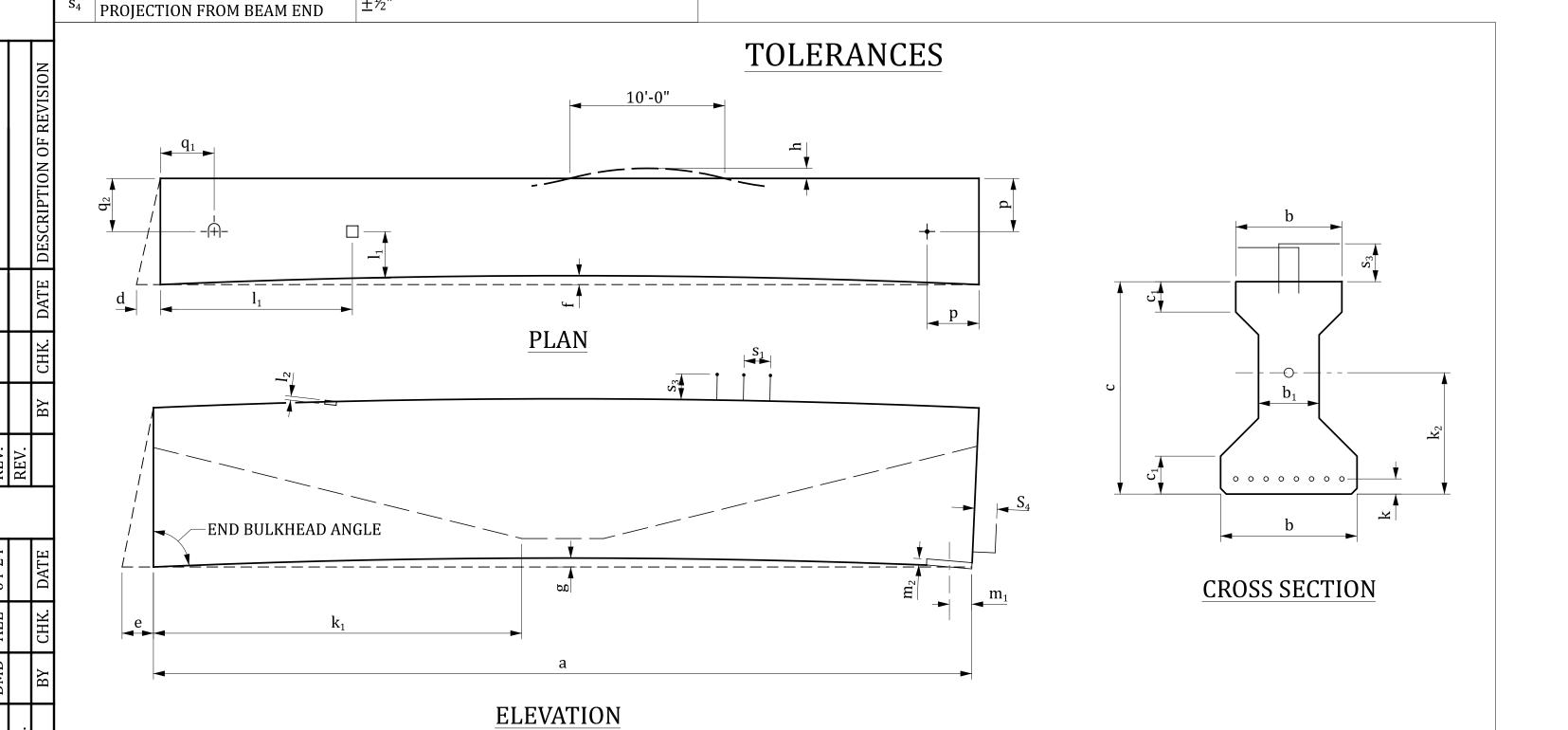
FIELD BEND STRANDS AS NECESSARY FOR OUTSIDE OF EXTERIOR BEAM ONLY (3) NUMBER OF STRANDS SHOWN FOR ILLUSTRATION ONLY.

CONSULTANT NAME/LOGO

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

AASHTO TYPE I MODIFIED GENERAL DETAILS

DRAWING NUMBER: 704-AASHTO.T01MOD.GD01



# (2) ½" HDG FERRULE INSERT FOR #5 THREADED REINFORCING BAR (TYP.) SECTION AT END DIAPHRAGM

#### X'-X" MAX. PRESTRESSING STRAND BENDING DETAIL

-SHOP BEND

(BENDING HEAT NOT

TO EXCEED 1100°F)

3" MIN., 8" MAX.

FOR STRANDS NOT BENT

-END OF BEAM

MILD REINFORCING NOT SHOWN.

BOTTOM OF BEAM-

X - BENT PRESTRESSING STRANDS

(OTHER STRANDS NOT SHOWN)

THIS DRAWING IS FURNISHED FOR INFORMATION ONLY. ALL DIMENSIONS SHOWN ARE SHEET SPECIFIC. ANY USE OF THIS DESIGN AND DRAWING, INCLUDING DIMENSIONS, MUST BE CHECKED BY THE USER'S ENGINEER TO ENSURE DESIGN IS ADEQUATE FOR THE INTENDED USE. ALL DRAWINGS MUST BE SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER WHEN USED.

COUNTY: #### ROUTE: ####

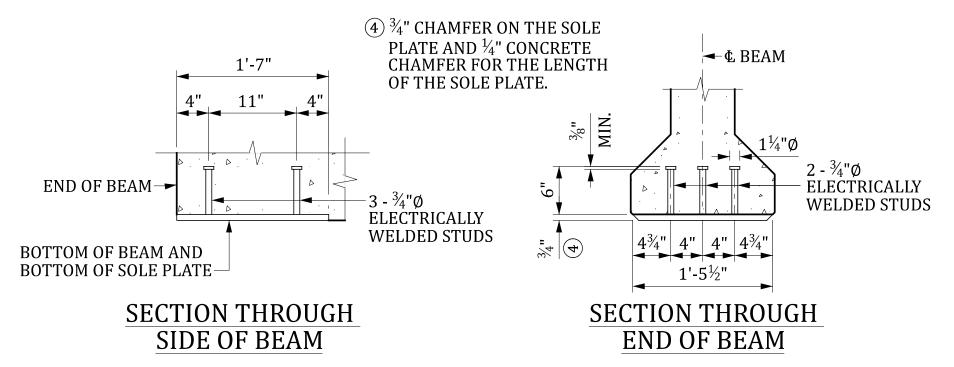
a	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, $\pm 1$ " MAX.
b	WIDTH (OVERALL)	±3/8", -1/4"
$b_1$	WEB WIDTH	+3/8", -1/4"
С	DEPTH (OVERALL)	+½", -¼"
<b>c</b> <sub>1</sub>	FLANGE DEPTH	±½"
d	VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW	$\pm \frac{1}{8}$ " PER 12" WIDTH, $\pm \frac{1}{2}$ " MAX.
e	VARIATION FROM SPECIFIED ELEVATION END SQUARENESS OR SKEW	$\pm \frac{3}{16}$ " PER 12" DEPTH, $\pm 1$ " MAX.
f	SWEEP	⅓" PER 10' LENGTH
g	CAMBER VARIATION FROM DESIGN CAMBER (MEASUREMENT OF CAMBER FOR COMPARISON TO PREDICTED DESIGN VALUES SHOULD BE COMPLETED WITHIN 72 HRS. OF TRANSFER OF PRESTR. FORCE)	$\pm \frac{1}{8}$ " PER 10' $\pm \frac{1}{2}$ " MAX. UP TO 80' LENGTH $\pm 1$ " MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	1/4" IN 10'
_	LOCATION OF STRAND (INDIVIDUAL)	±¼"
k	LOCATION OF STRAND (BUNDLED)	±½"
$k_1$	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	±20"
$\mathbf{k}_2$	LOCATION OF POST-TENSIONING DUCT	±1/4"
$l_1$	LOCATION OF EMBEDMENT	±1"
$l_2$	TIPPING AND FLUSHNESS OF EMBEDMENT	±½"
$m_1$	LOCATION OF BEARING ASSEMBLY	±%"
$m_2$	TIPPING AND FLUSHNESS OF BEARING ASSEMBLY	±½"
р	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	±½"
$q_1$	LOCATION OF HANDLING DEVICE PARALLEL TO LENGTH OF MEMBER	±6"
$q_2$	LOCATION OF HANDLING DEVICE TRANSVERSE TO LENGTH OF MEMBER	±1"
$S_1$	LONGITUDINAL SPACING OF STIRRUPS	±2"
	LONGITUDINAL SPACING OF	±1"

+1/4", -1/2"

STIRRUPS WITHIN DISTANCE "C" +1"

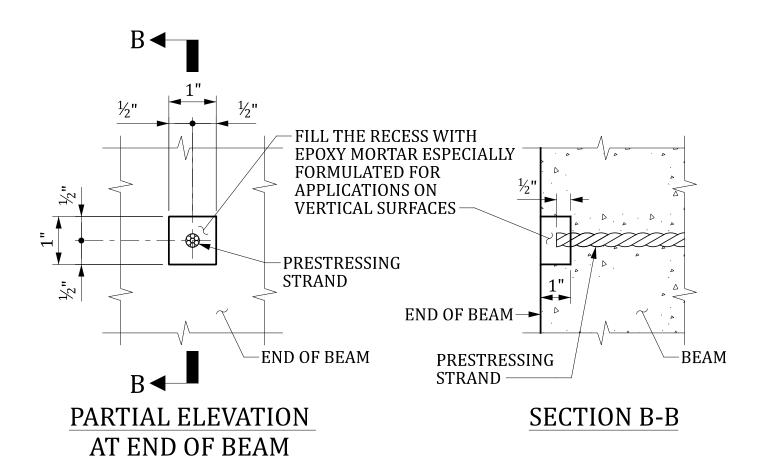
FROM MEMBER ENDS

STIRRUP PROJECTION FROM BEAM SURFACE



#### SOLE PLATE DETAIL

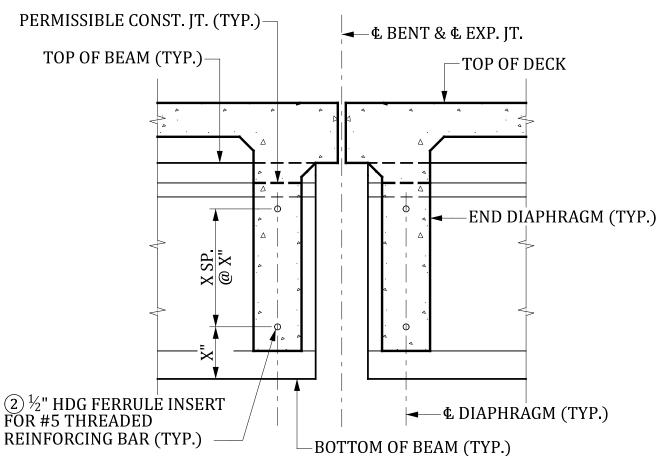
REINFORCING STEEL AND STRANDS NOT SHOWN.



# <sup>(1)</sup> GROUTED RECESS AT END OF

(1) PROVIDE A 1" RECESS IN THE END OF THE BEAM, ONLY AT BEAM ENDS THAT ARE NOT PERMANENTLY ENCASED IN CONCRETE. CUT ALL STRANDS ½" BACK INTO RECESS AND FILL THE RECESS WITH AN EPOXY MORTAR ESPECIALLY FORMULATED FOR APPLICATIONS ON VERTICAL SURFACES.

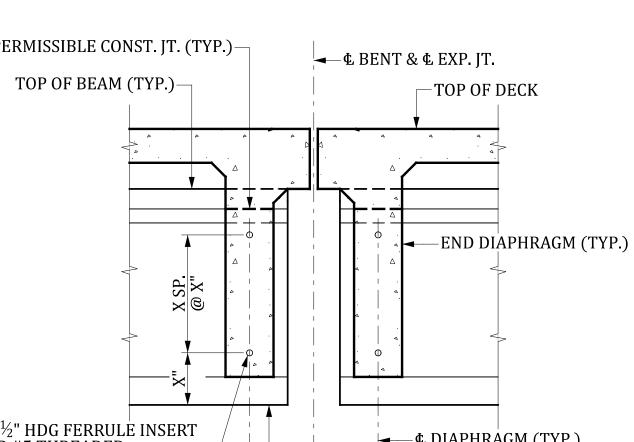
PRETENSIONED STRAND



#### SECTION AT END DIAPHRAGM

REINFORCEMENT AND EXPANSION JOINT DETAILS NOT SHOWN FOR CLARITY.

(2) USE APPROVED HOT-DIPPED GALVANIZED FERRULE INSERTS ( $\frac{1}{2}$ "- 13 UNC) AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. OMIT INSERTS ON OUTSIDE FACE OF EXTERIOR BEAM. ADJUST INSERT LOCATIONS AS NECESSARY TO AVOID REINFORCEMENT IN BEAM. INSTALL INSERTS PERPENDICULAR TO THE FACE OF THE WEB.



# -③ PRESTRESSING STRAND (TYP.) **EXTERIOR FACE** OF BEAM ← **&** EXTERIOR BEAM

#### HALF ELEVATION END OF BEAM AT INTERIOR BENT

FIELD BEND STRANDS AS NECESSARY FOR OUTSIDE OF EXTERIOR BEAM ONLY (3) NUMBER OF STRANDS SHOWN FOR ILLUSTRATION ONLY.

CONSULTANT NAME/LOGO

BRIDGE PLANS ID

012

####-####

SEE SECTION 704 OF THE STANDARD SPECIFICATIONS FOR

ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING

GALVANIZE ALL OVERHANG BRACKETS IN THE TOP FLANGE OF

SUBMITTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EXTERIOR BEAMS IN ACCORDANCE WITH AASHTO M 111, AASHTO M

232, OR ASTM F 2329 AS APPROPRIATE AND DETAIL ACCORDINGLY IN

THE TENSIONING LOAD IN ALL 0.6" Ø LOW RELAXATION STRANDS IS

43.9 KIPS. DO NOT RELEASE THE STRANDS UNTIL THE COMPRESSIVE STRENGTH OF THE CONCRETE HAS REACHED THE VALUE SHOWN FOR

ON THE TOP SURFACE OF BEAMS WHERE CAST-IN-PLACE CONCRETE

LAITANCE, AND INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY  $\frac{1}{4}$ ". FINISH TOP OF BEAM LEVEL ACROSS WIDTH OF

ALWAYS MAINTAIN PRESTRESSED CONCRETE BEAMS IN AN UPRIGHT

POSITION. WHEN PLACING OR STORING BEAMS, ENSURE BEAM

LOCATE HOLES FOR DIAPHRAGMS AS SHOWN ON "AASHTO BEAM DETAILS" SHEET. FORM HOLES WITH 2" INSIDE Ø PIPE AND PREVENT

MOVEMENT DURING CASTING BY SECURELY FASTENING THE PIPE.

CONTRACTOR IS RESPONSIBLE FOR INVESTIGATING THE CAPACITY OF

BEAM FLANGES TO ENSURE FLANGES ARE ADEQUATE TO SUPPORT ALL

 FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN

USING SLIT CONDUIT, USE TWO CONDUITS WITH THE SLITS LOCATED ON OPPOSITE SIDES OF THE STRAND. USE CONDUIT MADE OF HIGH

THICKNESS OF 0.025". USE CONDUIT WITH AN INSIDE DIAMETER THAT WILL PERMIT FREE MOVEMENT OF THE ENCASED STRAND, BUT NO

DENSITY POLYETHYLENE OR POLYPROPYLENE WITH A MINIMUM

LARGER THAN THE DIAMETER OF THE STRAND PLUS 1/8". PLACE

CONDUIT ON THE STRAND AT THE LOCATION(S) SHOWN ON THE

PLANS ( $\pm 1$ ") TO PREVENT BONDING OF THE CONCRETE. SECURE

SEALING WITH TAPE. USE TAPE MANUFACTURED FROM A NON-

CONDUIT TO PREVENT ANY LONGITUDINAL MOVEMENT ALONG THE STRAND. PREVENT CONCRETE FROM ENTERING THE CONDUIT BY

CORROSIVE MATERIAL THAT IS COMPATIBLE WITH THE CONCRETE,

2) RELEASE STRANDS IN ACCORDANCE WITH SECTION 704 OF THE

BETWEEN THE STRANDS AND THE SHEATHING. USE AN APPROVED

SEALANT THAT IS MADE OF EITHER EPOXY OR SILICONE. IF SILICONE SEALANT IS PROVIDED, USE A LOW MODULUS SILICONE SEALANT THAT

3) WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS

SUPPORTS ARE LOCATED ONLY UNDER THE SOLE PLATES.

WILL BE PLACED, PROVIDE A FINISH THAT IS CLEAN, FREE OF

USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO

PRESTRESSED CONCRETE BEAMS. SHOP DRAWINGS MUST BE

INCLUDE STRAND BENDING PROCEDURE IN SHOP PLANS.

M 203 FOR GRADE 270 (LOW RELAXATION).

NOTES:

THE SHOP PLANS.

FLANGE.

CONSTRUCTION LOADS.

CONDUIT, AND STEEL.

IS WHITE IN COLOR.

STANDARD SPECIFICATIONS.

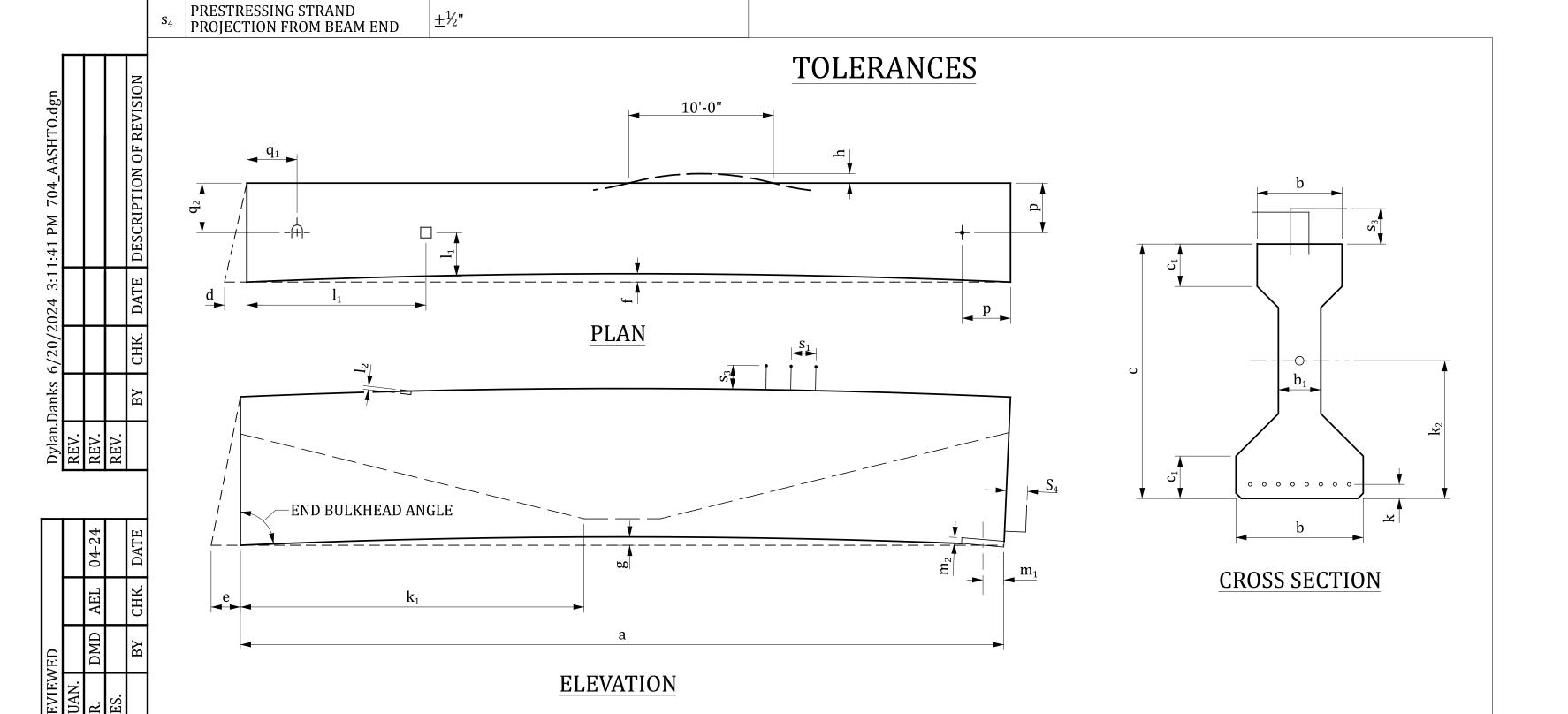
**DEBONDING:** 

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

> AASHTO TYPE II GENERAL DETAILS

> > ROUTE: ####

DRAWING NUMBER: 704-AASHTO.T02.GD01



## -END OF BEAM -SHOP BEND (BENDING HEAT NOT BOTTOM OF BEAM-TO EXCEED 1100°F) X - BENT PRESTRESSING STRANDS 3" MIN., 8" MAX. (OTHER STRANDS NOT SHOWN) FOR STRANDS NOT BENT X'-X" MAX.

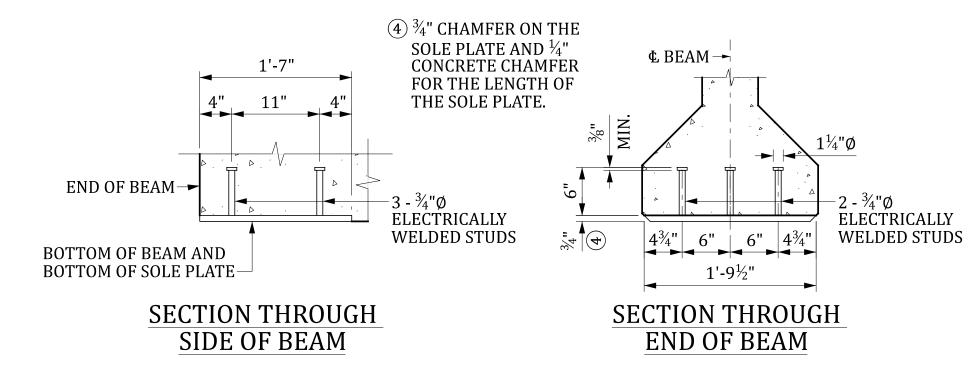
#### PRESTRESSING STRAND BENDING DETAIL

MILD REINFORCING NOT SHOWN.

THIS DRAWING IS FURNISHED FOR INFORMATION ONLY. ALL DIMENSIONS SHOWN ARE SHEET SPECIFIC. ANY USE OF THIS DESIGN AND DRAWING, INCLUDING DIMENSIONS, MUST BE CHECKED BY THE USER'S ENGINEER TO ENSURE DESIGN IS ADEQUATE FOR THE INTENDED USE. ALL DRAWINGS MUST BE SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL

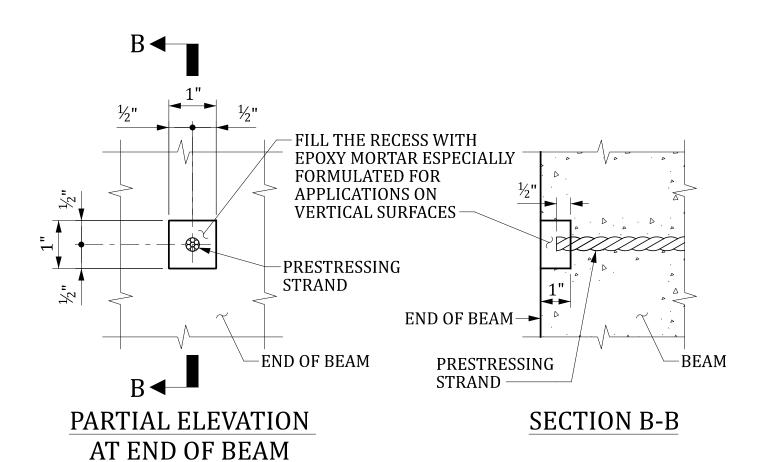
ENGINEER WHEN USED.

a	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, $\pm 1$ " MAX.
b	WIDTH (OVERALL)	±3/8", -1/4"
$b_1$	WEB WIDTH	+3/8", -1/4"
С	DEPTH (OVERALL)	+½", -¼"
$c_1$	FLANGE DEPTH	±1/4"
d	VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW	$\pm\%$ " PER 12" WIDTH, $\pm\%$ " MAX.
e	VARIATION FROM SPECIFIED ELEVATION END SQUARENESS OR SKEW	$\pm \frac{3}{16}$ " PER 12" DEPTH, $\pm 1$ " MAX.
f	SWEEP	⅓" PER 10' LENGTH
g	CAMBER VARIATION FROM DESIGN CAMBER (MEASUREMENT OF CAMBER FOR COMPARISON TO PREDICTED DESIGN VALUES SHOULD BE COMPLETED WITHIN 72 HRS. OF TRANSFER OF PRESTR. FORCE)	±½" PER 10'   ±½" MAX. UP TO 80' LENGTH   ±1" MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	½" IN 10'
,	LOCATION OF STRAND (INDIVIDUAL)	±½"
k	LOCATION OF STRAND (BUNDLED)	±½"
$k_1$	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	±20"
$k_2$	LOCATION OF POST-TENSIONING DUCT	±½"
$l_1$	LOCATION OF EMBEDMENT	±1"
$l_2$	TIPPING AND FLUSHNESS OF EMBEDMENT	±½"
$m_1$	LOCATION OF BEARING ASSEMBLY	±%"
$m_2$	TIPPING AND FLUSHNESS OF BEARING ASSEMBLY	±1/8"
р	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	±½"
$q_1$	LOCATION OF HANDLING DEVICE PARALLEL TO LENGTH OF MEMBER	±6"
$q_2$	LOCATION OF HANDLING DEVICE TRANSVERSE TO LENGTH OF MEMBER	±1"
$s_1$	LONGITUDINAL SPACING OF STIRRUPS	±2"
$s_2$	LONGITUDINAL SPACING OF STIRRUPS WITHIN DISTANCE "C" FROM MEMBER ENDS	±1"
$s_3$	STIRRUP PROJECTION FROM BEAM SURFACE	+1/4", -1/2"



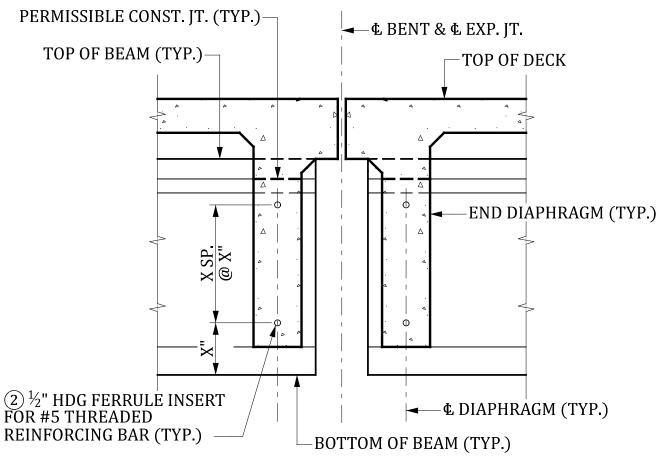
#### SOLE PLATE DETAIL

REINFORCING STEEL AND STRANDS NOT SHOWN.



### (1) GROUTED RECESS AT END OF PRETENSIONED STRAND

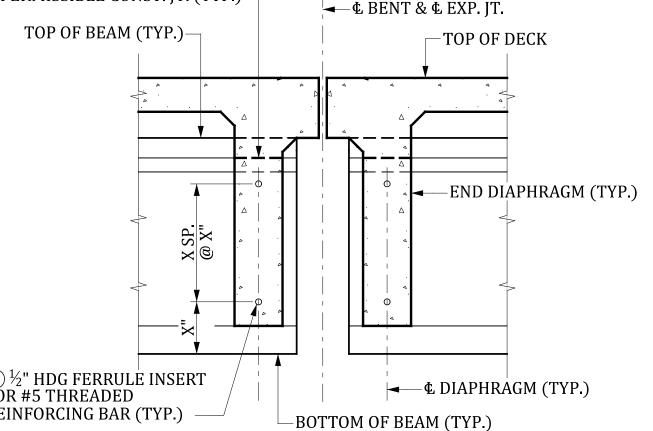
(1) PROVIDE A 1" RECESS IN THE END OF THE BEAM, ONLY AT BEAM ENDS THAT ARE NOT PERMANENTLY ENCASED IN CONCRETE. CUT ALL STRANDS ½" BACK INTO RECESS AND FILL THE RECESS WITH AN EPOXY MORTAR ESPECIALLY FORMULATED FOR APPLICATIONS ON VERTICAL SURFACES.



#### SECTION AT END DIAPHRAGM

REINFORCEMENT AND EXPANSION JOINT DETAILS NOT SHOWN FOR CLARITY.

(2) USE APPROVED HOT-DIPPED GALVANIZED FERRULE INSERTS ( $\frac{1}{2}$ "- 13 UNC) AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. OMIT INSERTS ON OUTSIDE FACE OF EXTERIOR BEAM. ADJUST INSERT LOCATIONS AS NECESSARY TO AVOID REINFORCEMENT IN BEAM. INSTALL INSERTS PERPENDICULAR TO THE FACE OF THE WEB.



# -③ PRESTRESSING STRAND (TYP.) **EXTERIOR FACE** OF BEAM ← **&** EXTERIOR BEAM

### HALF ELEVATION END OF BEAM AT INTERIOR BENT

FIELD BEND STRANDS AS NECESSARY FOR OUTSIDE OF EXTERIOR BEAM ONLY (3) NUMBER OF STRANDS SHOWN FOR ILLUSTRATION ONLY.

CONSULTANT NAME/LOGO

BRIDGE PLANS ID

013

####-####

SEE SECTION 704 OF THE STANDARD SPECIFICATIONS FOR

ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING

GALVANIZE ALL OVERHANG BRACKETS IN THE TOP FLANGE OF

SUBMITTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EXTERIOR BEAMS IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPROPRIATE AND DETAIL ACCORDINGLY IN

USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO

THE TENSIONING LOAD IN ALL 0.6" Ø LOW RELAXATION STRANDS IS

43.9 KIPS. DO NOT RELEASE THE STRANDS UNTIL THE COMPRESSIVE STRENGTH OF THE CONCRETE HAS REACHED THE VALUE SHOWN FOR

ON THE TOP SURFACE OF BEAMS WHERE CAST-IN-PLACE CONCRETE

LAITANCE, AND INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY  $\frac{1}{4}$ ". FINISH TOP OF BEAM LEVEL ACROSS WIDTH OF

ALWAYS MAINTAIN PRESTRESSED CONCRETE BEAMS IN AN UPRIGHT

POSITION. WHEN PLACING OR STORING BEAMS, ENSURE BEAM

LOCATE HOLES FOR DIAPHRAGMS AS SHOWN ON "AASHTO BEAM DETAILS" SHEET. FORM HOLES WITH 2" INSIDE Ø PIPE AND PREVENT

MOVEMENT DURING CASTING BY SECURELY FASTENING THE PIPE.

CONTRACTOR IS RESPONSIBLE FOR INVESTIGATING THE CAPACITY OF

BEAM FLANGES TO ENSURE FLANGES ARE ADEQUATE TO SUPPORT ALL

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE

THICKNESS OF 0.025". USE CONDUIT WITH AN INSIDE DIAMETER THAT WILL PERMIT FREE MOVEMENT OF THE ENCASED STRAND, BUT NO

OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH THE SLITS LOCATED ON OPPOSITE SIDES OF THE STRAND. USE CONDUIT MADE OF HIGH

DENSITY POLYETHYLENE OR POLYPROPYLENE WITH A MINIMUM

LARGER THAN THE DIAMETER OF THE STRAND PLUS 1/8". PLACE

CONDUIT ON THE STRAND AT THE LOCATION(S) SHOWN ON THE

PLANS ( $\pm 1$ ") TO PREVENT BONDING OF THE CONCRETE. SECURE

SEALING WITH TAPE. USE TAPE MANUFACTURED FROM A NON-

CONDUIT TO PREVENT ANY LONGITUDINAL MOVEMENT ALONG THE STRAND. PREVENT CONCRETE FROM ENTERING THE CONDUIT BY

CORROSIVE MATERIAL THAT IS COMPATIBLE WITH THE CONCRETE,

2) RELEASE STRANDS IN ACCORDANCE WITH SECTION 704 OF THE

BETWEEN THE STRANDS AND THE SHEATHING. USE AN APPROVED

SEALANT THAT IS MADE OF EITHER EPOXY OR SILICONE. IF SILICONE SEALANT IS PROVIDED, USE A LOW MODULUS SILICONE SEALANT THAT

3) WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS

SUPPORTS ARE LOCATED ONLY UNDER THE SOLE PLATES.

WILL BE PLACED, PROVIDE A FINISH THAT IS CLEAN, FREE OF

PRESTRESSED CONCRETE BEAMS. SHOP DRAWINGS MUST BE

INCLUDE STRAND BENDING PROCEDURE IN SHOP PLANS.

M 203 FOR GRADE 270 (LOW RELAXATION).

NOTES:

THE SHOP PLANS.

FLANGE.

CONSTRUCTION LOADS.

CONDUIT, AND STEEL.

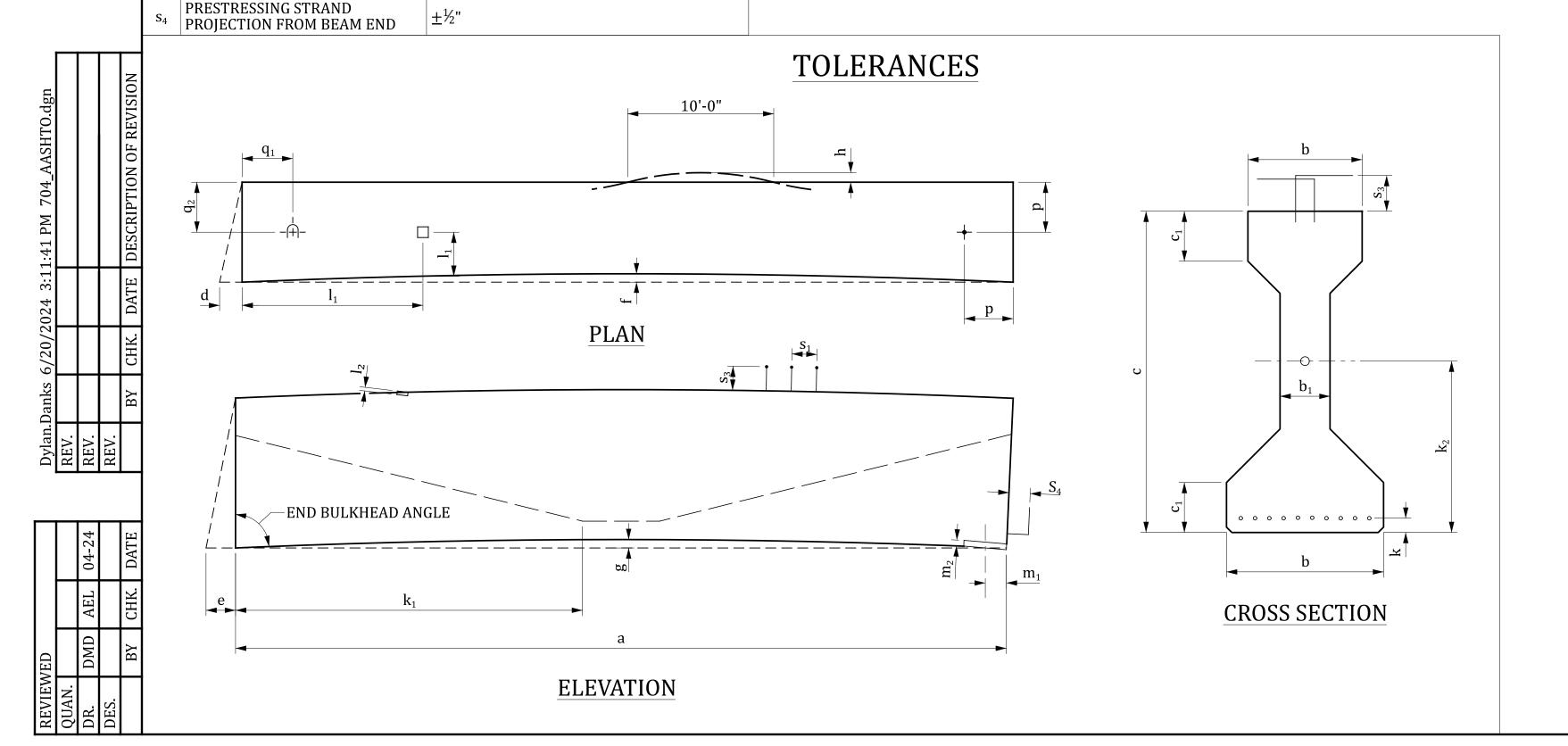
IS WHITE IN COLOR.

STANDARD SPECIFICATIONS.

**DEBONDING:** 

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

> AASHTO TYPE III GENERAL DETAILS



### -END OF BEAM -SHOP BEND (BENDING HEAT NOT BOTTOM OF BEAM-TO EXCEED 1100°F) X - BENT PRESTRESSING STRANDS 3" MIN., 8" MAX. (OTHER STRANDS NOT SHOWN) FOR STRANDS NOT BENT X'-X" MAX.

#### PRESTRESSING STRAND BENDING DETAIL

MILD REINFORCING NOT SHOWN.

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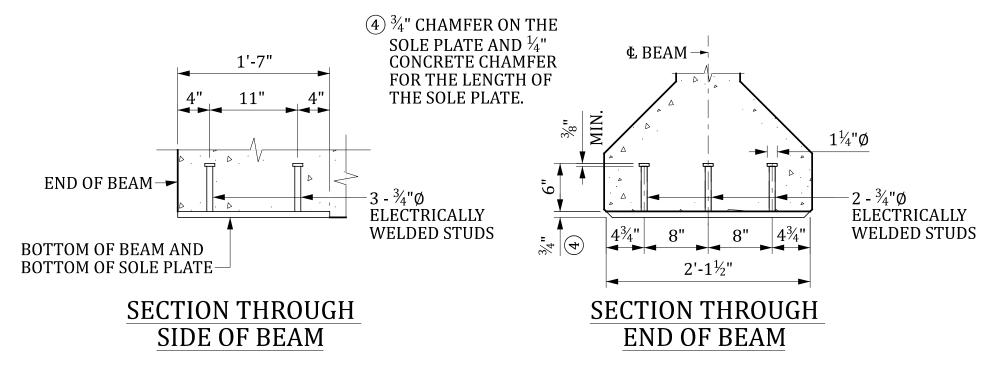
COUNTY: #### ROUTE: ####

DRAWING NUMBER: 704-AASHTO.T03.GD01

a	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, $\pm 1$ " MAX.
b	WIDTH (OVERALL)	±3/8", -1/4"
$b_1$	WEB WIDTH	+3/8", -1/4"
С	DEPTH (OVERALL)	+½", -¼"
$c_1$	FLANGE DEPTH	±½"
d	VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW	$\pm\%$ " PER 12" WIDTH, $\pm\%$ " MAX.
e	VARIATION FROM SPECIFIED ELEVATION END SQUARENESS OR SKEW	$\pm \frac{3}{16}$ " PER 12" DEPTH, $\pm 1$ " MAX.
f	SWEEP	⅓" PER 10' LENGTH
g	CAMBER VARIATION FROM DESIGN CAMBER (MEASUREMENT OF CAMBER FOR COMPARISON TO PREDICTED DESIGN VALUES SHOULD BE COMPLETED WITHIN 72 HRS. OF TRANSFER OF PRESTR. FORCE)	±½" PER 10' ±½" MAX. UP TO 80' LENGTH ±1" MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	1/4" IN 10'
_	LOCATION OF STRAND (INDIVIDUAL)	±½"
k	LOCATION OF STRAND (BUNDLED)	±½"
$\mathbf{k}_1$	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	<u>±</u> 20"
$\mathbf{k}_2$	LOCATION OF POST-TENSIONING DUCT	±¼"
$l_1$	LOCATION OF EMBEDMENT	<u>±</u> 1"
$l_2$	TIPPING AND FLUSHNESS OF EMBEDMENT	±½"
$m_1$	LOCATION OF BEARING ASSEMBLY	±%"
m <sub>2</sub>	TIPPING AND FLUSHNESS OF BEARING ASSEMBLY	±½"
p	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	±½"
$q_1$	LOCATION OF HANDLING DEVICE PARALLEL TO LENGTH OF MEMBER	±6"
$q_2$	LOCATION OF HANDLING DEVICE TRANSVERSE TO LENGTH OF MEMBER	±1"
$s_1$	LONGITUDINAL SPACING OF STIRRUPS	±2"
$s_2$	LONGITUDINAL SPACING OF STIRRUPS WITHIN DISTANCE "C" FROM MEMBER ENDS	±1"
$s_3$	STIRRUP PROJECTION FROM BEAM SURFACE	+1/4", -1/2"

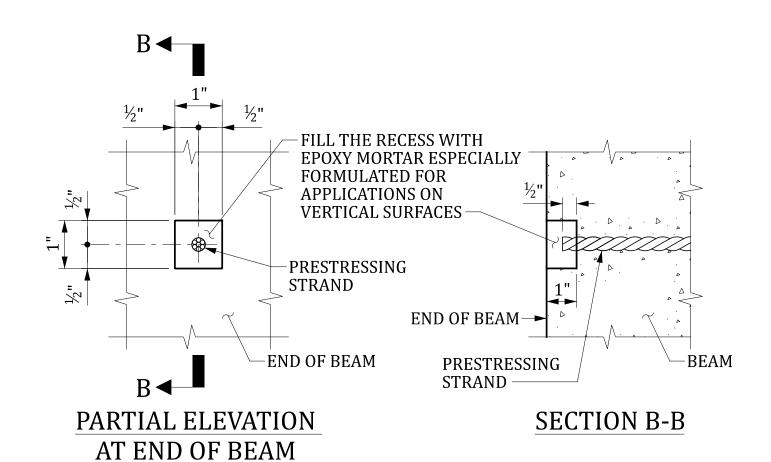
PRESTRESSING STRAND

PROJECTION FROM BEAM END



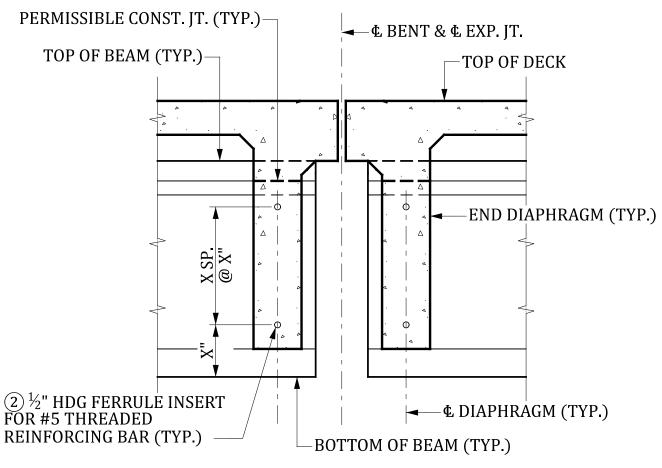
#### SOLE PLATE DETAIL

REINFORCING STEEL AND STRANDS NOT SHOWN.



### (1) GROUTED RECESS AT END OF PRETENSIONED STRAND

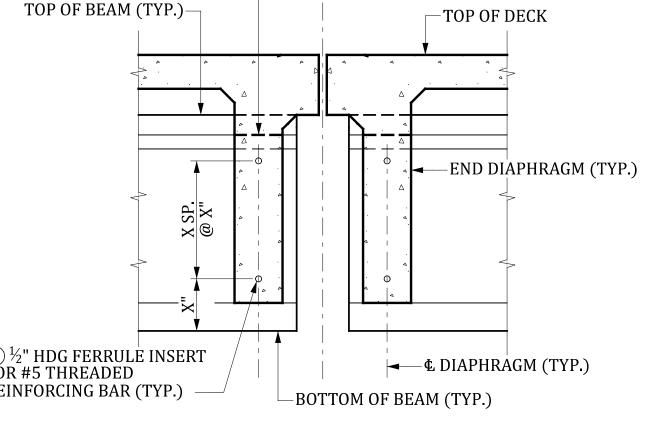
(1) PROVIDE A 1" RECESS IN THE END OF THE BEAM, ONLY AT BEAM ENDS THAT ARE NOT PERMANENTLY ENCASED IN CONCRETE. CUT ALL STRANDS ½" BACK INTO RECESS AND FILL THE RECESS WITH AN EPOXY MORTAR ESPECIALLY FORMULATED FOR APPLICATIONS ON VERTICAL SURFACES.



#### SECTION AT END DIAPHRAGM

REINFORCEMENT AND EXPANSION JOINT DETAILS NOT SHOWN FOR CLARITY.

(2) USE APPROVED HOT-DIPPED GALVANIZED FERRULE INSERTS ( $\frac{1}{2}$ "- 13 UNC) AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. OMIT INSERTS ON OUTSIDE FACE OF EXTERIOR BEAM. ADJUST INSERT LOCATIONS AS NECESSARY TO AVOID REINFORCEMENT IN BEAM. INSTALL INSERTS PERPENDICULAR TO THE FACE OF THE WEB.



# -③ PRESTRESSING STRAND (TYP.) **EXTERIOR FACE** OF BEAM ← **&** EXTERIOR BEAM

BRIDGE PLANS ID

014

####-####

SEE SECTION 704 OF THE STANDARD SPECIFICATIONS FOR

INCLUDE STRAND BENDING PROCEDURE IN SHOP PLANS.

M 203 FOR GRADE 270 (LOW RELAXATION).

ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING

GALVANIZE ALL OVERHANG BRACKETS IN THE TOP FLANGE OF

SUBMITTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

EXTERIOR BEAMS IN ACCORDANCE WITH AASHTO M 111, AASHTO M

232, OR ASTM F 2329 AS APPROPRIATE AND DETAIL ACCORDINGLY IN

THE TENSIONING LOAD IN ALL 0.6" Ø LOW RELAXATION STRANDS IS

43.9 KIPS. DO NOT RELEASE THE STRANDS UNTIL THE COMPRESSIVE STRENGTH OF THE CONCRETE HAS REACHED THE VALUE SHOWN FOR

ON THE TOP SURFACE OF BEAMS WHERE CAST-IN-PLACE CONCRETE

LAITANCE, AND INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY  $\frac{1}{4}$ ". FINISH TOP OF BEAM LEVEL ACROSS WIDTH OF

ALWAYS MAINTAIN PRESTRESSED CONCRETE BEAMS IN AN UPRIGHT

POSITION. WHEN PLACING OR STORING BEAMS, ENSURE BEAM

LOCATE HOLES FOR DIAPHRAGMS AS SHOWN ON "AASHTO BEAM DETAILS" SHEET. FORM HOLES WITH 2" INSIDE Ø PIPE AND PREVENT

MOVEMENT DURING CASTING BY SECURELY FASTENING THE PIPE.

CONTRACTOR IS RESPONSIBLE FOR INVESTIGATING THE CAPACITY OF

BEAM FLANGES TO ENSURE FLANGES ARE ADEQUATE TO SUPPORT ALL

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE

THICKNESS OF 0.025". USE CONDUIT WITH AN INSIDE DIAMETER THAT WILL PERMIT FREE MOVEMENT OF THE ENCASED STRAND, BUT NO

OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH THE SLITS LOCATED ON OPPOSITE SIDES OF THE STRAND. USE CONDUIT MADE OF HIGH

DENSITY POLYETHYLENE OR POLYPROPYLENE WITH A MINIMUM

LARGER THAN THE DIAMETER OF THE STRAND PLUS 1/8". PLACE

CONDUIT ON THE STRAND AT THE LOCATION(S) SHOWN ON THE

PLANS ( $\pm 1$ ") TO PREVENT BONDING OF THE CONCRETE. SECURE

SEALING WITH TAPE. USE TAPE MANUFACTURED FROM A NON-

CONDUIT TO PREVENT ANY LONGITUDINAL MOVEMENT ALONG THE STRAND. PREVENT CONCRETE FROM ENTERING THE CONDUIT BY

CORROSIVE MATERIAL THAT IS COMPATIBLE WITH THE CONCRETE,

2) RELEASE STRANDS IN ACCORDANCE WITH SECTION 704 OF THE

BETWEEN THE STRANDS AND THE SHEATHING. USE AN APPROVED

SEALANT THAT IS MADE OF EITHER EPOXY OR SILICONE. IF SILICONE SEALANT IS PROVIDED, USE A LOW MODULUS SILICONE SEALANT THAT

3) WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS

SUPPORTS ARE LOCATED ONLY UNDER THE SOLE PLATES.

WILL BE PLACED, PROVIDE A FINISH THAT IS CLEAN, FREE OF

USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO

PRESTRESSED CONCRETE BEAMS. SHOP DRAWINGS MUST BE

NOTES:

THE SHOP PLANS.

FLANGE.

CONSTRUCTION LOADS.

CONDUIT, AND STEEL.

IS WHITE IN COLOR.

STANDARD SPECIFICATIONS.

**DEBONDING:** 

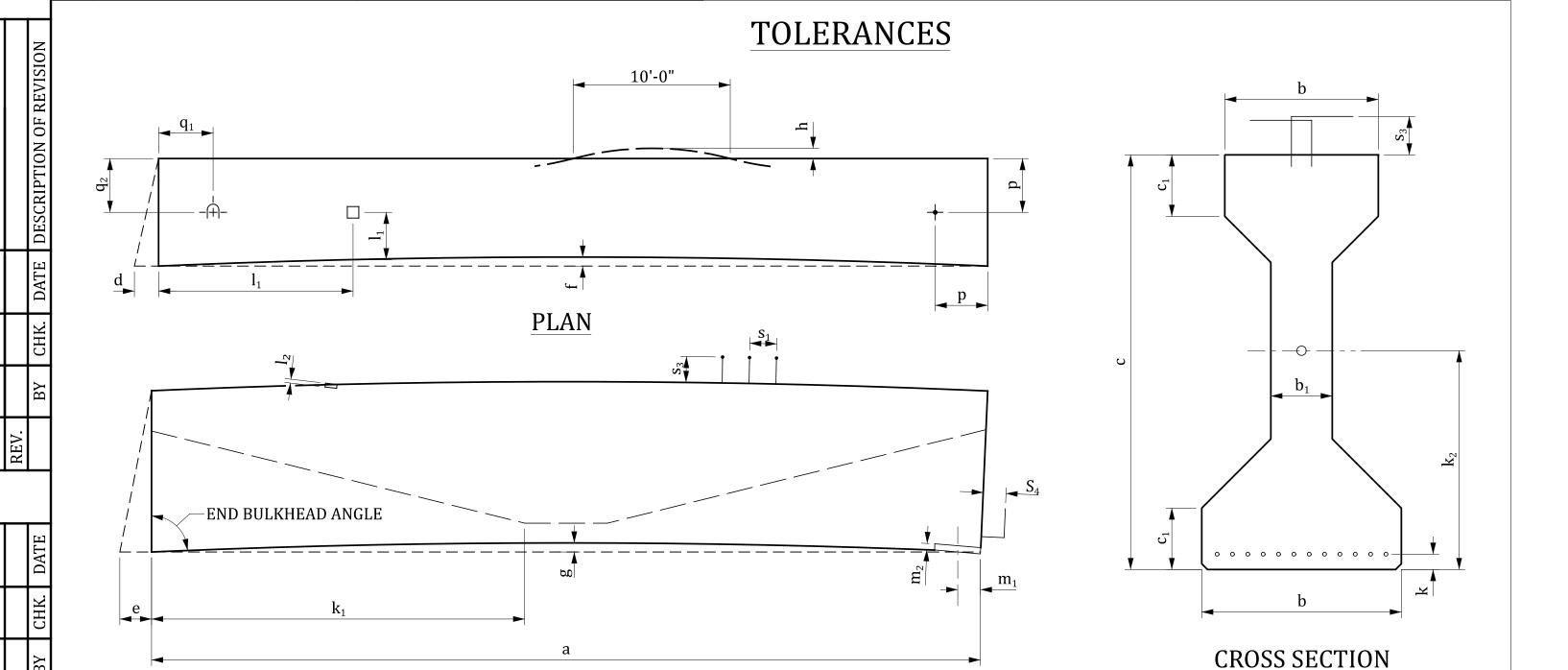
#### HALF ELEVATION END OF BEAM AT INTERIOR BENT

FIELD BEND STRANDS AS NECESSARY FOR OUTSIDE OF EXTERIOR BEAM ONLY (3) NUMBER OF STRANDS SHOWN FOR ILLUSTRATION ONLY.

CONSULTANT NAME/LOGO

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

> AASHTO TYPE IV GENERAL DETAILS



**ELEVATION** 

### -END OF BEAM -SHOP BEND (BENDING HEAT NOT BOTTOM OF BEAM-TO EXCEED 1100°F) X - BENT PRESTRESSING STRANDS 3" MIN., 8" MAX. (OTHER STRANDS NOT SHOWN) FOR STRANDS NOT BENT X'-X" MAX.

#### PRESTRESSING STRAND BENDING DETAIL

MILD REINFORCING NOT SHOWN.

THIS DRAWING IS FURNISHED FOR INFORMATION ONLY. ALL DIMENSIONS SHOWN ARE SHEET SPECIFIC. ANY USE OF THIS DESIGN AND DRAWING, INCLUDING DIMENSIONS, MUST BE CHECKED BY THE USER'S ENGINEER TO ENSURE DESIGN IS ADEQUATE FOR THE INTENDED USE. ALL DRAWINGS MUST BE SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER WHEN USED.

> COUNTY: #### ROUTE: ####

#### DRAWING NUMBER: 704-AASHTO.T04.GD01