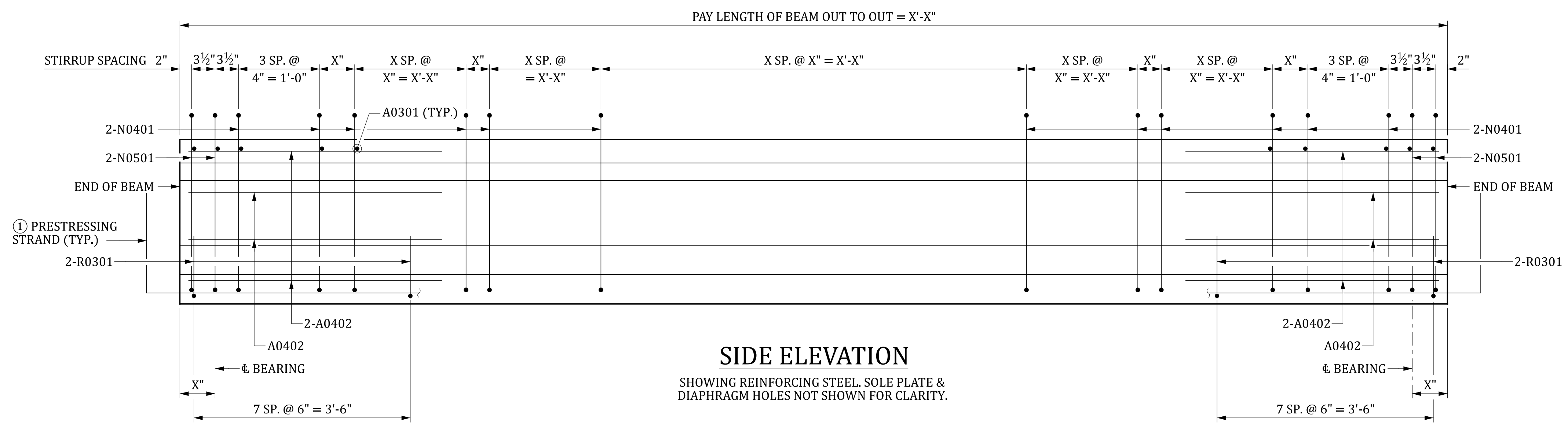


BILL OF MATERIAL ONE AASHTO TYPE I MODIFIED							
MARK	NO REQ'D	DIMENSION					LENGTH
		"a"	"b"	"c"	"d"	"e"	
A0301	X	11"	—	—	—	—	11"
A0401	X	X'-X"	—	—	—	—	X'-X"
A0402	12	4'-6"	—	—	—	—	4'-6"
N0401	X	8"	X'-X"	8"	—	—	X'-X"
N0501	X	10"	X'-X"	9"	—	—	X'-X"
R0301	32	1'-2"	3½"	10"	7"	—	2'-4"
U0501	X	1'-8"	4"	—	—	—	3'-5"

QUANTITIES		
ITEM	UNIT	ONE BEAM
CONCRETE, f _c X,XXX	CY	XXXX.X
REINFORCING STEEL	LB	XXXX
PRESTRESSING STRANDS	LF	XXXX
STRUCTURAL STEEL	LB	AS NECESSARY

FOR INFORMATION ONLY - PAID FOR AS PRESTRESSED BEAM

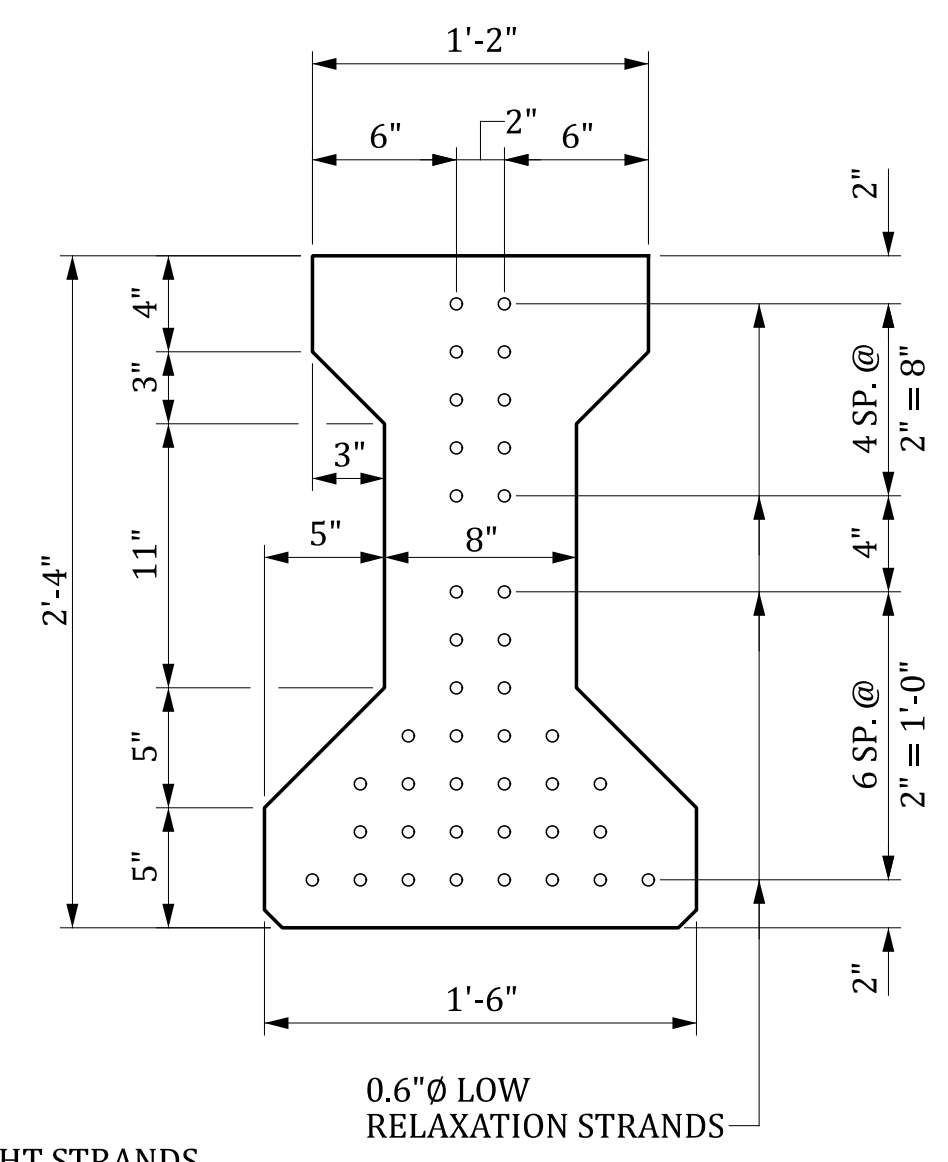


SIDE ELEVATION
 SHOWING REINFORCING STEEL, SOLE PLATE & DIAPHRAGM HOLES NOT SHOWN FOR CLARITY.

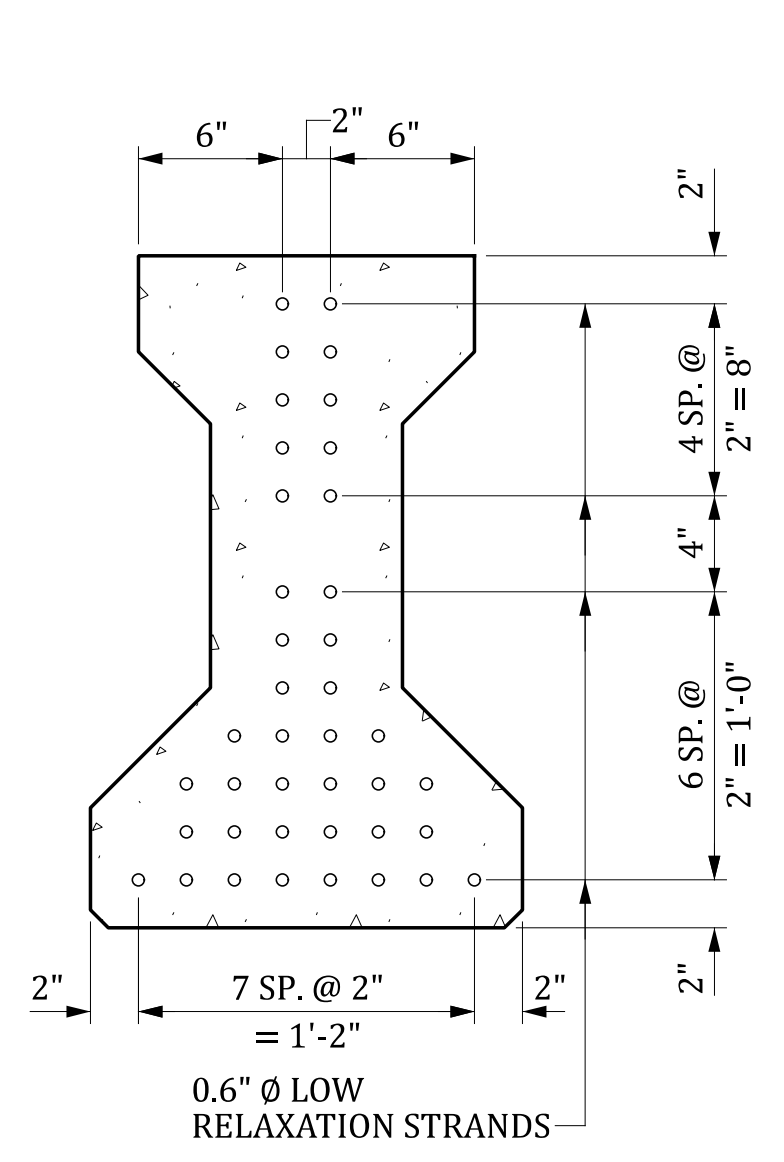
① SEE "AASHTO TYPE I MODIFIED GENERAL DETAILS" SHEET FOR PRESTRESSING STRAND BENDING DETAIL.

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 KSI f _{ci} = X.X KSI

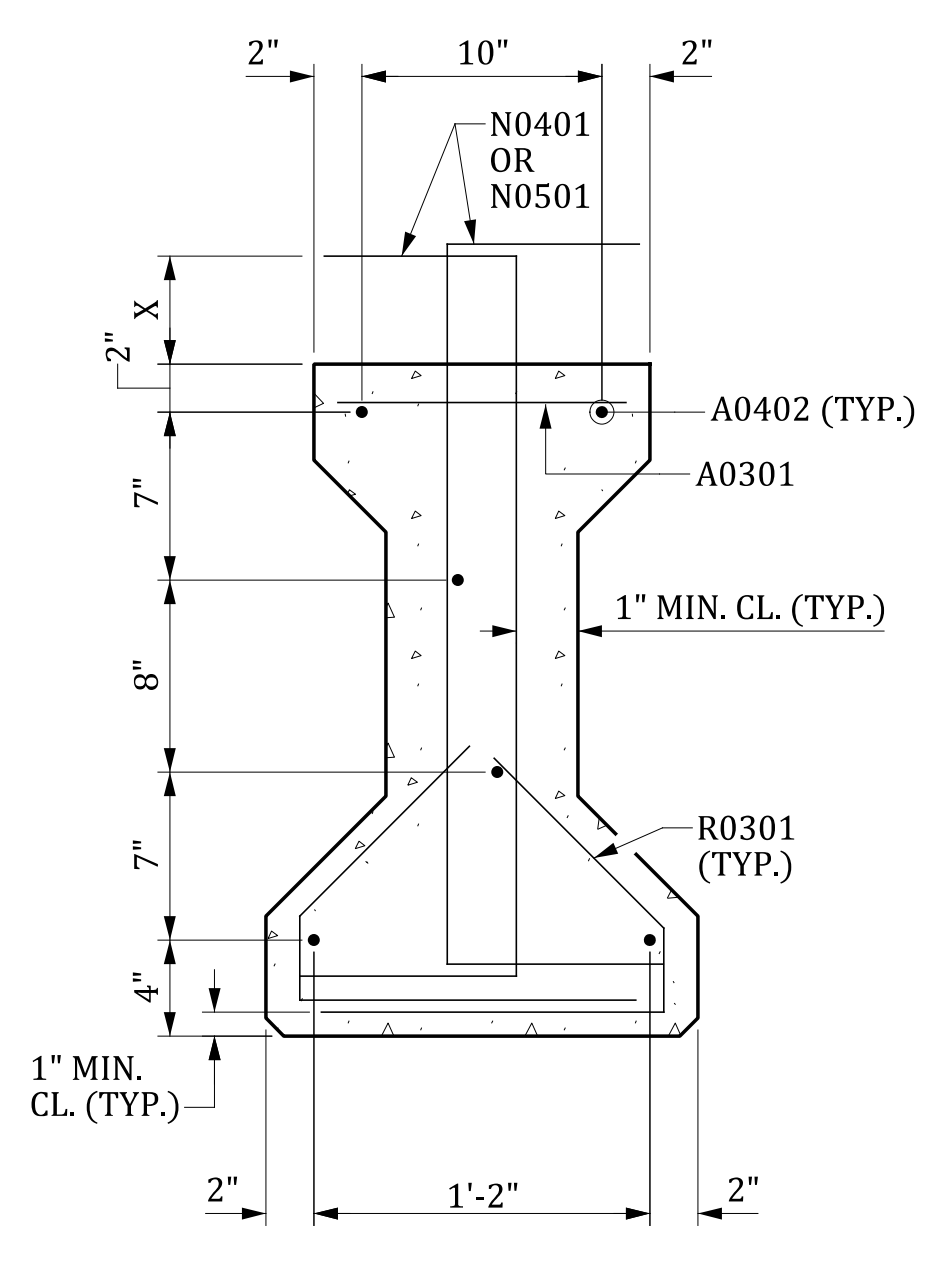
- REINFORCEMENT STEEL
- FULLY BONDED STRANDS
- ① △ FULLY BONDED STRANDS TO BE EXTENDED
- ◇ DEBONDED STRANDS FOR X'-X" FROM END OF BEAM
- ⊙ DEBONDED STRANDS FOR X'-X" FROM END OF BEAM



AT END OF BEAM



AT CENTER OF BEAM



SECTION THRU BEAM
 STRANDS NOT SHOWN FOR CLARITY.

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

REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DMD	AEL	04-24

X - STRAIGHT STRANDS
 X - DEBONDED STRANDS
 X - DRAPED STRANDS

STRAND LAYOUT

**BILL OF MATERIAL
 ONE AASHTO TYPE II**

MARK	NO REQ'D	DIMENSION					LENGTH
		"a"	"b"	"c"	"d"	"e"	
A0301	X	9"	—	—	—	—	9"
A0401	X	X'-X"	—	—	—	—	X'-X"
A0402	14	4'-8"	—	—	—	—	4'-8"
N0401	X	8"	X'-X"	8"	—	—	X'-X"
N0501	X	10"	X'-X"	9"	—	—	X'-X"
R0301	40	1'-2"	4½"	10"	7"	—	2'-5"
U0501	X	2'-4"	4"	—	—	—	4'-10"

QUANTITIES

ITEM	UNIT	ONE BEAM
CONCRETE, f'c X,XXX	CY	XXXX.X
REINFORCING STEEL	LB	XXXX
PRESTRESSING STRANDS	LF	XXXX
STRUCTURAL STEEL	LB	AS NECESSARY

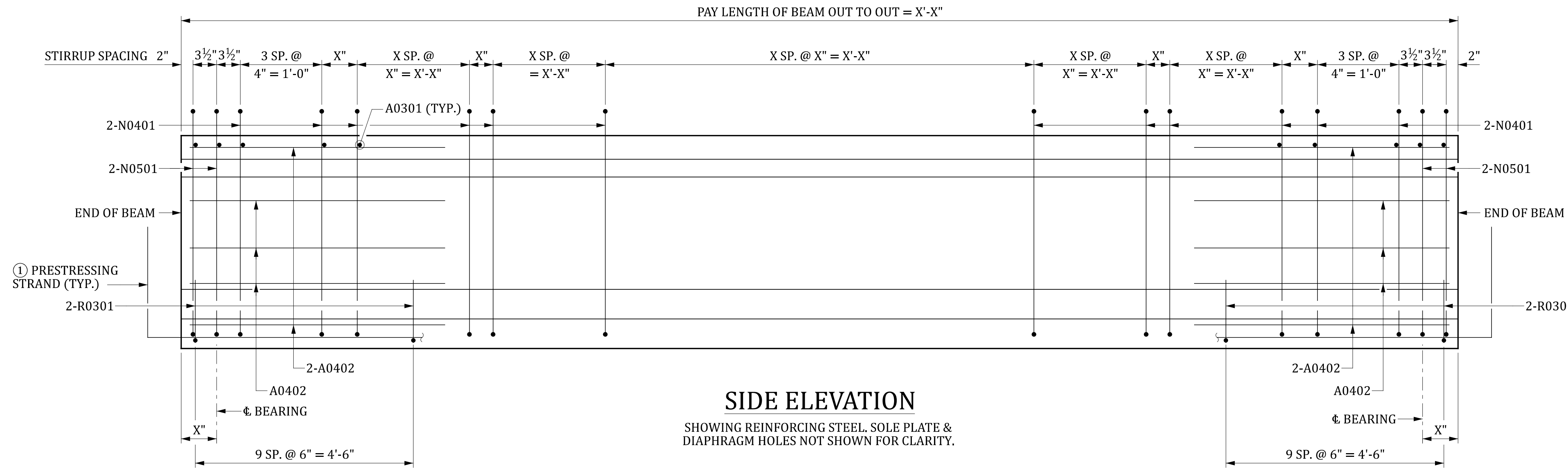
FOR INFORMATION ONLY -
PAID FOR AS PRESTRESSED BEAM

DESIGN DATA

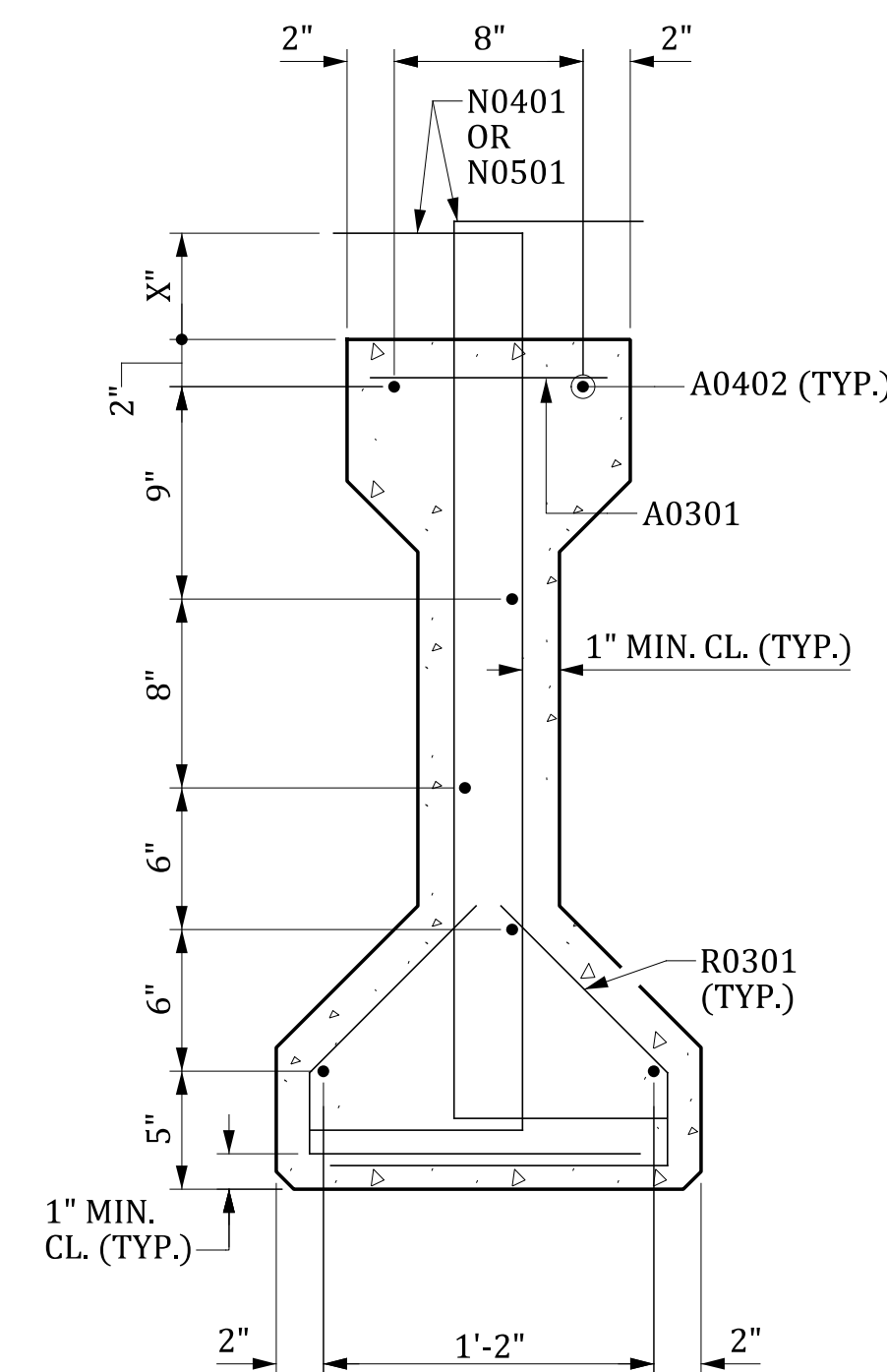
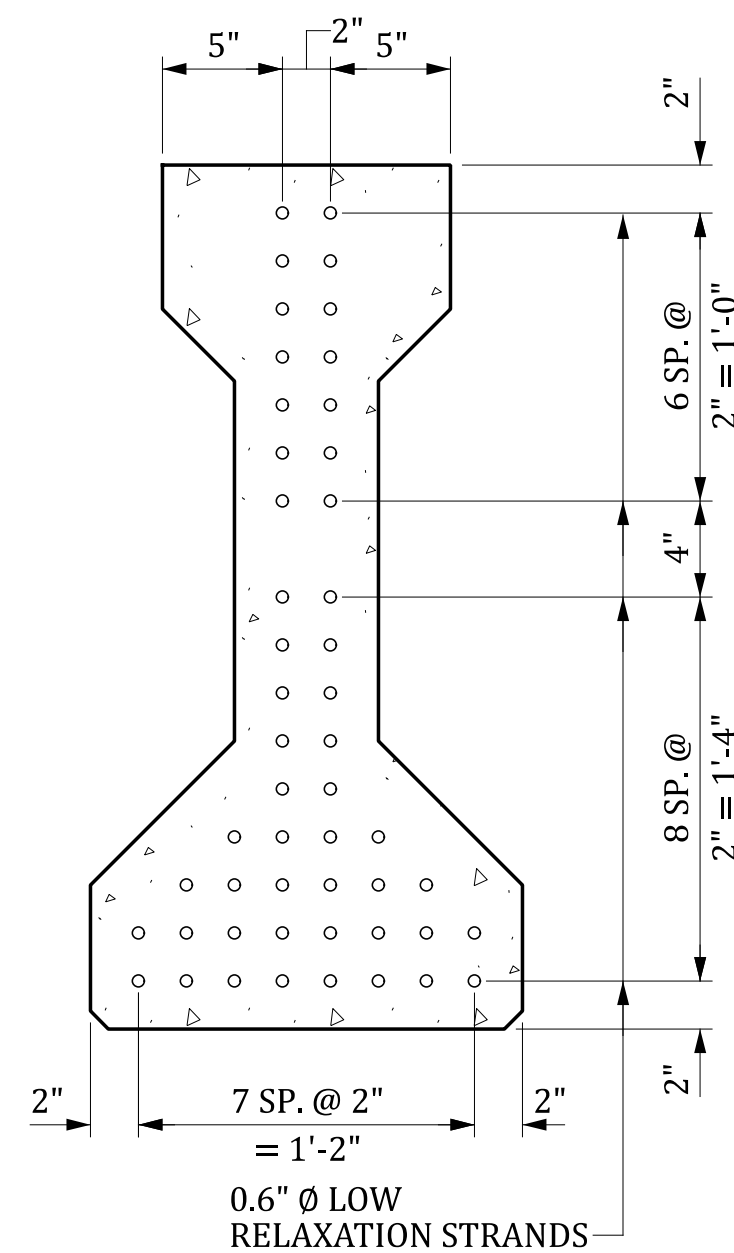
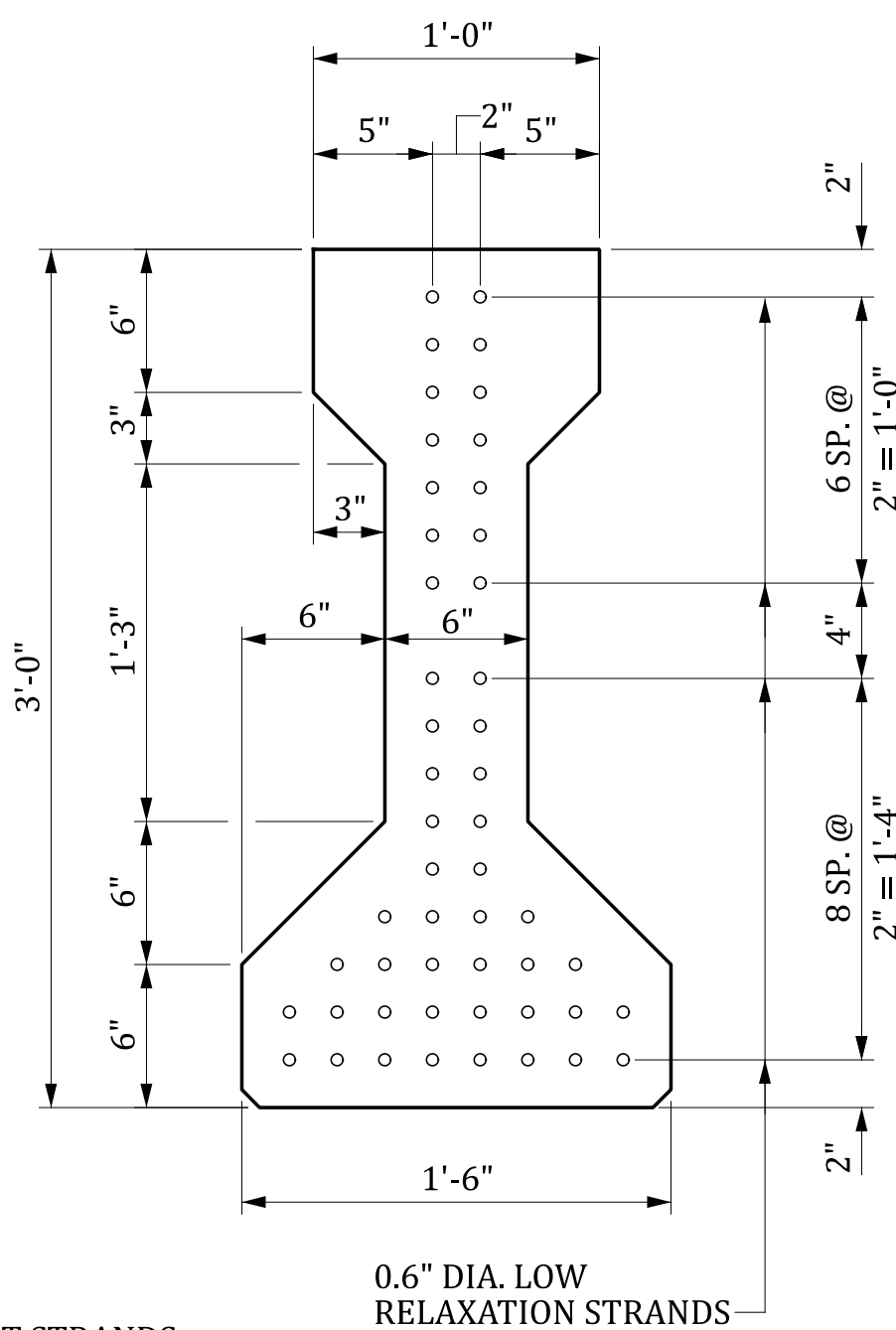
STRANDS:
 0.6" Ø LOW RELAXATION GRADE 270
 AREA=0.217 SQ. IN.
 TENSIONING LOAD = 43.9 KIPS

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



① SEE "AASHTO TYPE II MODIFIED GENERAL DETAILS" SHEET FOR PRESTRESSING STRAND BENDING DETAIL.



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CONSULTANT NAME/LOGO

SOUTH CAROLINA
 DEPARTMENT OF TRANSPORTATION

**PRESTRESSED CONCRETE BEAM
 AASHTO TYPE II SPAN X**

COUNTY: #####

ROUTE: #####

DRAWING NUMBER: 704-AASHTO.T02.SPXXX

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REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	DMD	AEL	DATE	BY	CHK.	DATE
						04-24			

X - STRAIGHT STRANDS
 X - DEBONDED STRANDS
 X - DRAPED STRANDS

STRAND LAYOUT

BILL OF MATERIAL
 ONE AASHTO TYPE III

MARK	NO REQ'D	DIMENSION					LENGTH
		"a"	"b"	"c"	"d"	"e"	
A0301	X	1'-1"	—	—	—	—	1'-1"
A0401	X	X'-X"	—	—	—	—	X'-X"
A0402	16	6'-2"	—	—	—	—	6'-2"
N0401	X	8"	X'-X"	8"	—	—	X'-X"
N0501	X	10"	X'-X"	10"	—	—	X'-X"
R0301	52	1'-4"	5½"	11½"	8⅜"	—	2'-9"
U0501	X	3'-1"	4"	—	—	—	6'-4"

QUANTITIES

ITEM	UNIT	ONE BEAM
CONCRETE, f _c X,XXX	CY	XXXX.X
REINFORCING STEEL	LB	XXXX
PRESTRESSING STRANDS	LF	XXXX
STRUCTURAL STEEL	LB	AS NECESSARY

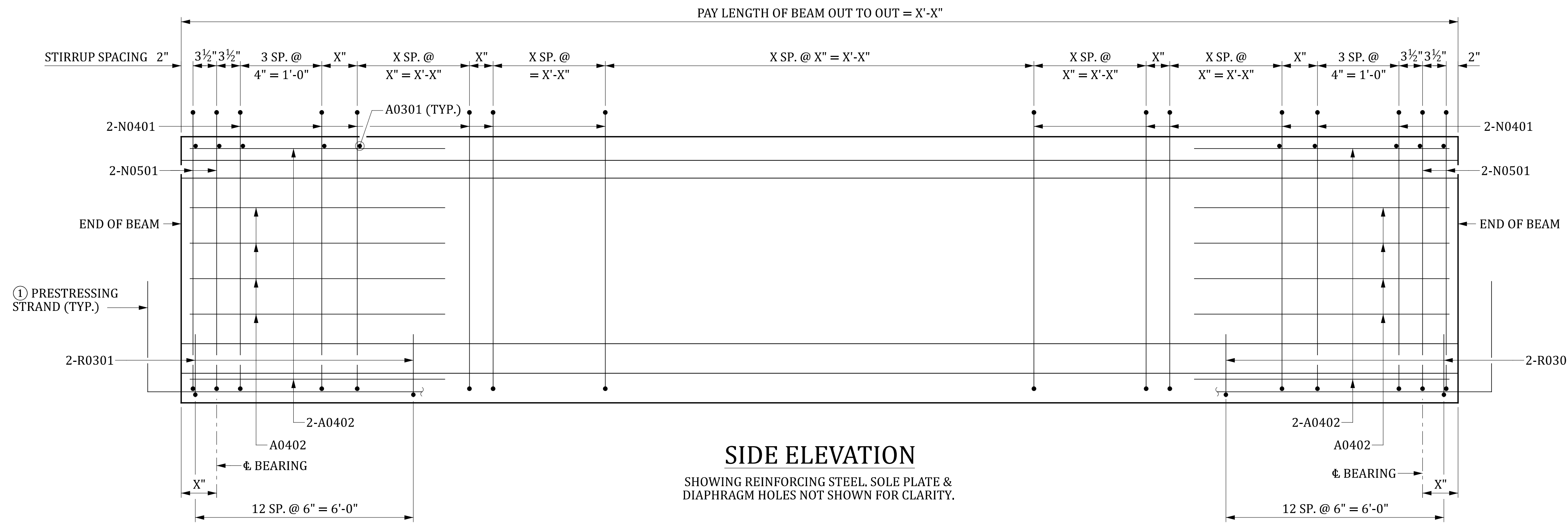
FOR INFORMATION ONLY -
 PAID FOR AS PRESTRESSED BEAM

DESIGN DATA

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

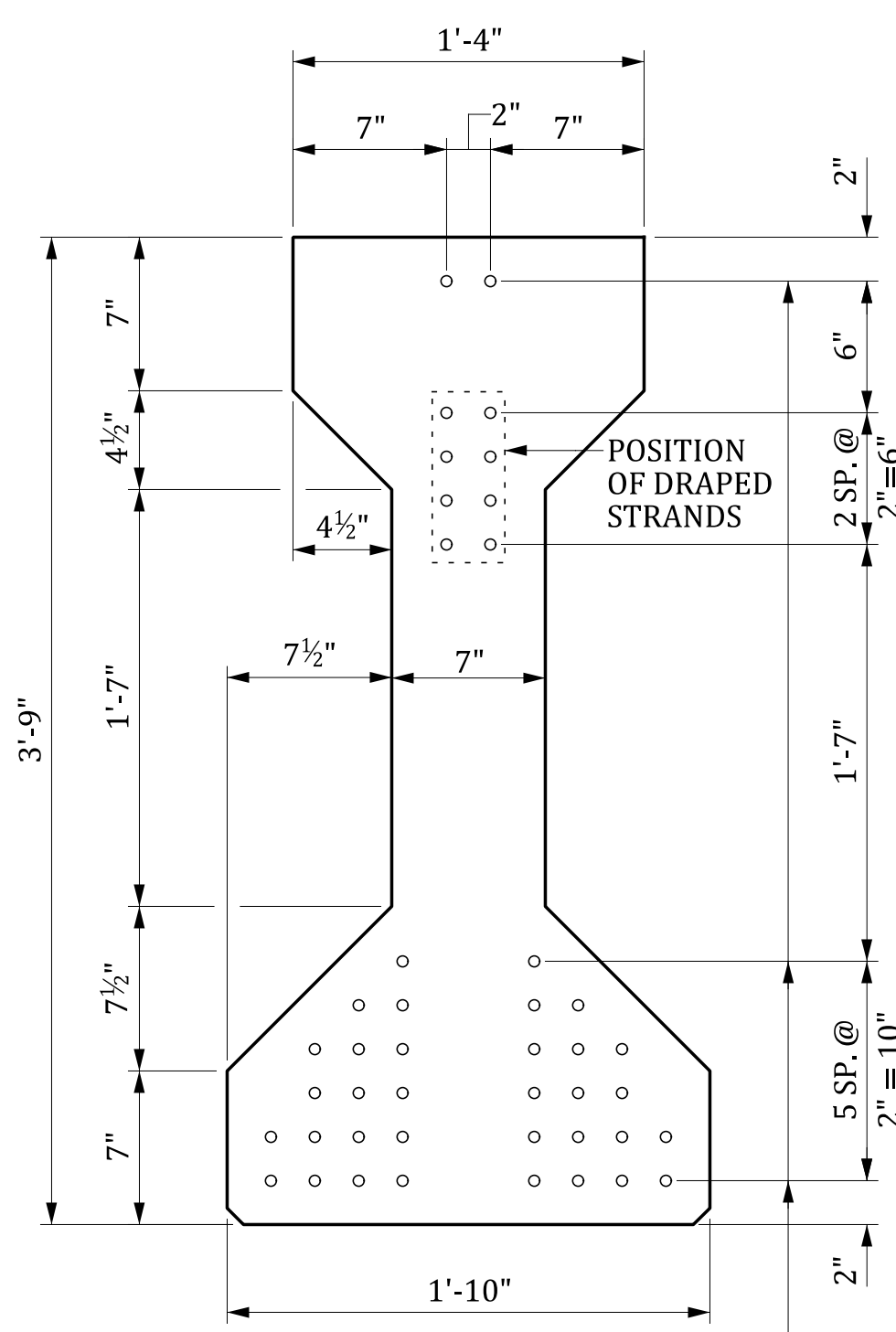
CONCRETE:
 f_c =X.X KSI
 f_{ci} =X.X KSI

- 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

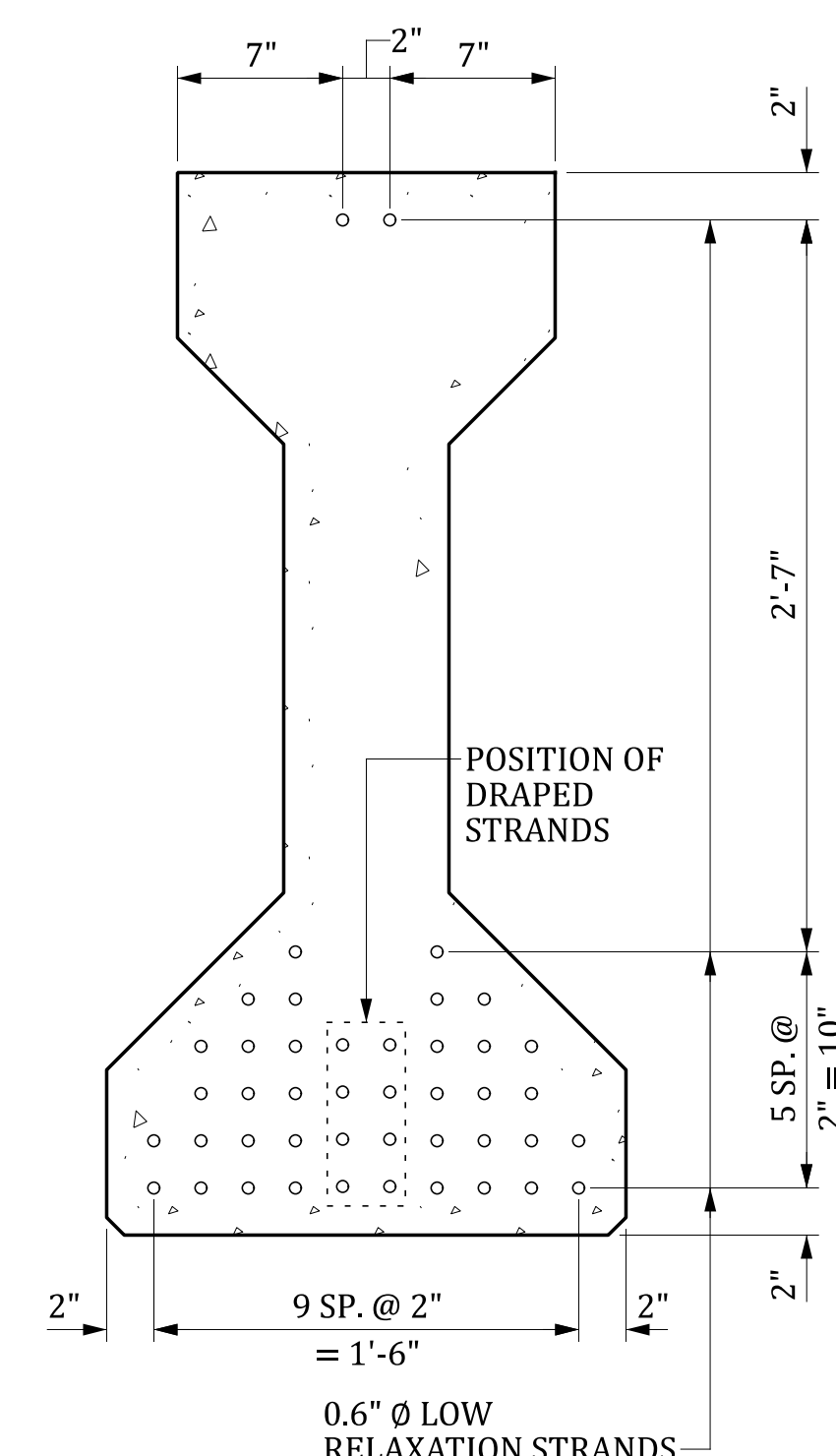


SIDE ELEVATION
 SHOWING REINFORCING STEEL, SOLE PLATE &
 DIAPHRAGM HOLES NOT SHOWN FOR CLARITY.

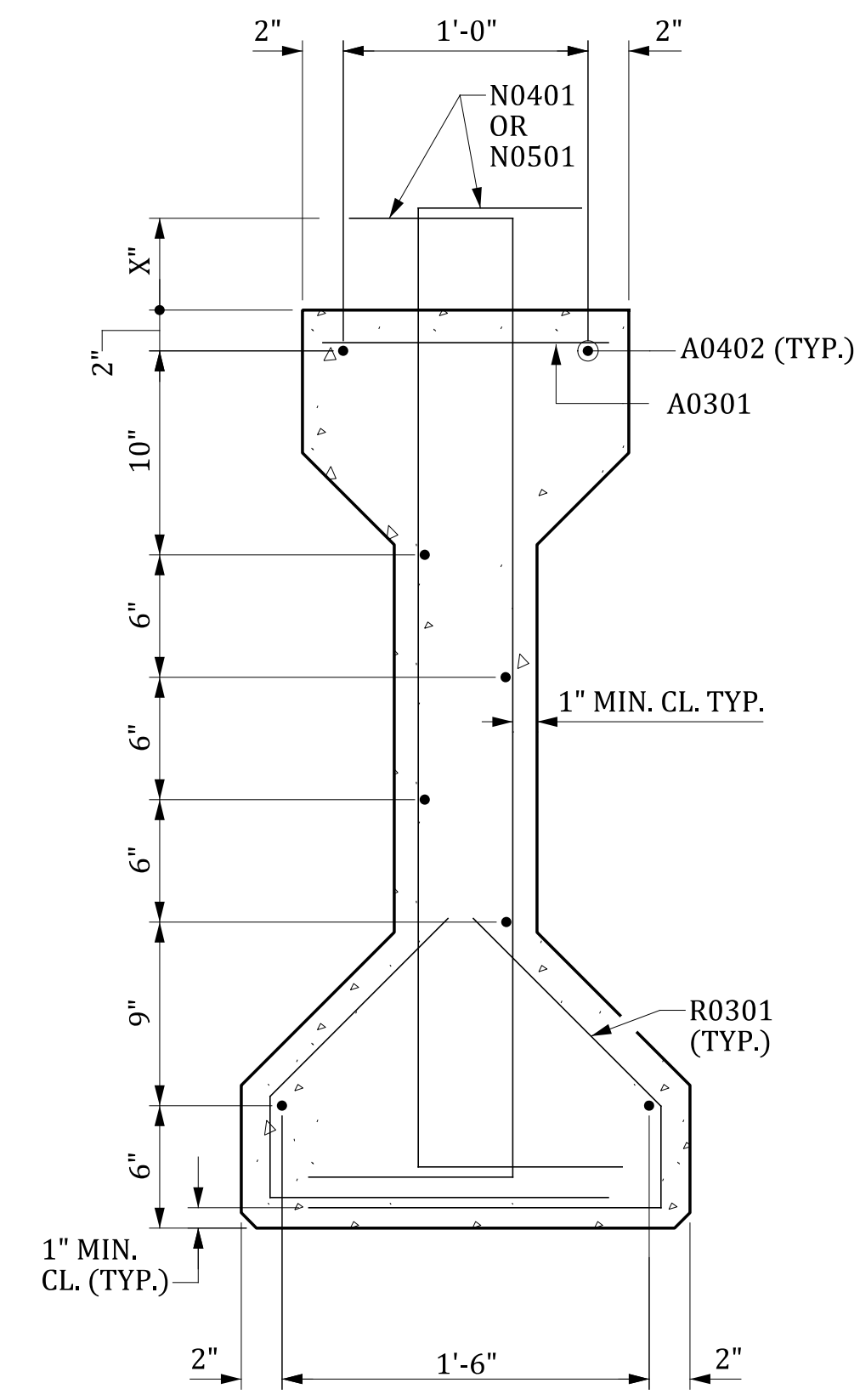
① SEE "AASHTO TYPE III MODIFIED GENERAL DETAILS"
 SHEET FOR PRESTRESSING STRAND BENDING DETAIL.



AT END OF BEAM



AT CENTER OF BEAM



SECTION THRU BEAM
 STRANDS NOT SHOWN FOR CLARITY.

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CONSULTANT NAME/LOGO

SOUTH CAROLINA
 DEPARTMENT OF TRANSPORTATION

PRESTRESSED CONCRETE BEAM
AASHTO TYPE III SPAN X

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

DRAWING NUMBER: 704-AASHTO.T03.SPXXX

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REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	BY	CHK.	DATE

X - STRAIGHT STRANDS
 X - DEBONDED STRANDS
 X - DRAPED STRANDS

STRAND LAYOUT

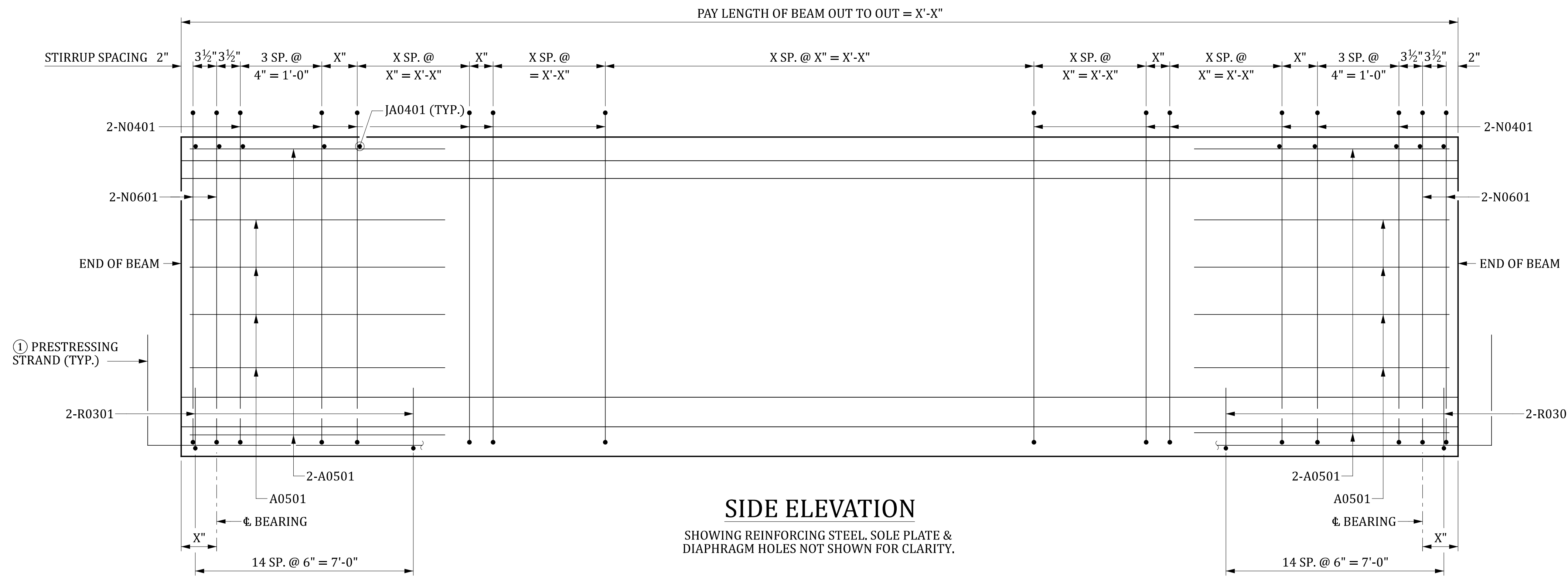
BILL OF MATERIAL ONE AASHTO TYPE IV							
MARK	NO REQ'D	DIMENSION					LENGTH
		"a"	"b"	"c"	"d"	"e"	
A0401	X	X'-X"	—	—	—	—	X'-X"
A0501	16	7'-2"	—	—	—	—	7'-2"
JA0401	X	1'-4"	6½"	11"	7¾"	—	4'-3"
N0401	X	8"	X'-X"	8"	—	—	X'-X"
N0601	X	1'-0"	X'-X"	1'-0"	—	—	X'-X"
R0301	60	1'-6"	6½"	1'-3½"	11"	—	3'-4"
U0501	X	3'-10"	4"	—	—	—	7'-10"

QUANTITIES		
ITEM	UNIT	ONE BEAM
CONCRETE, f _c X,XXX	CY	XXXX.X
REINFORCING STEEL	LB	XXXX
PRESTRESSING STRANDS	LF	XXXX
STRUCTURAL STEEL	LB	AS NECESSARY

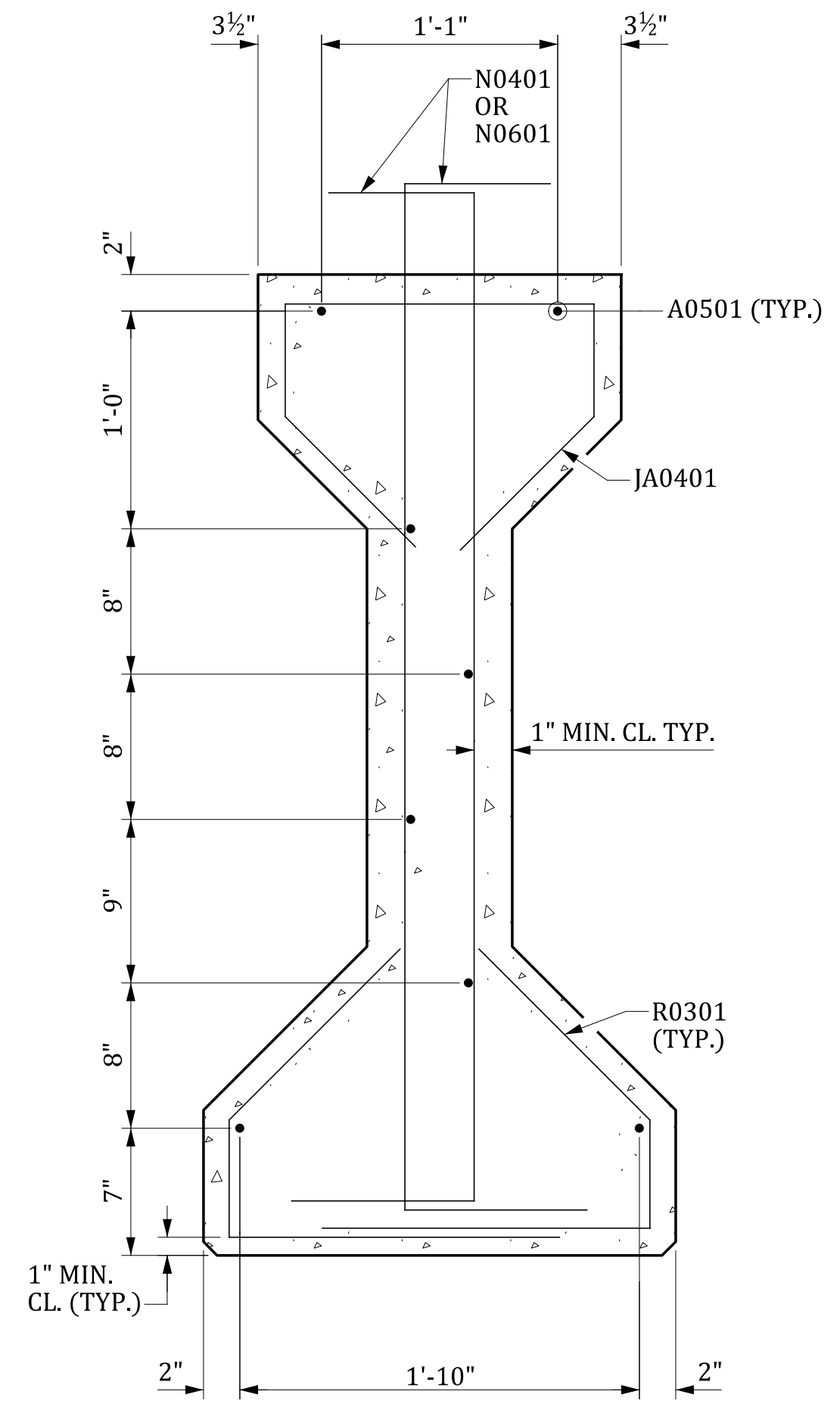
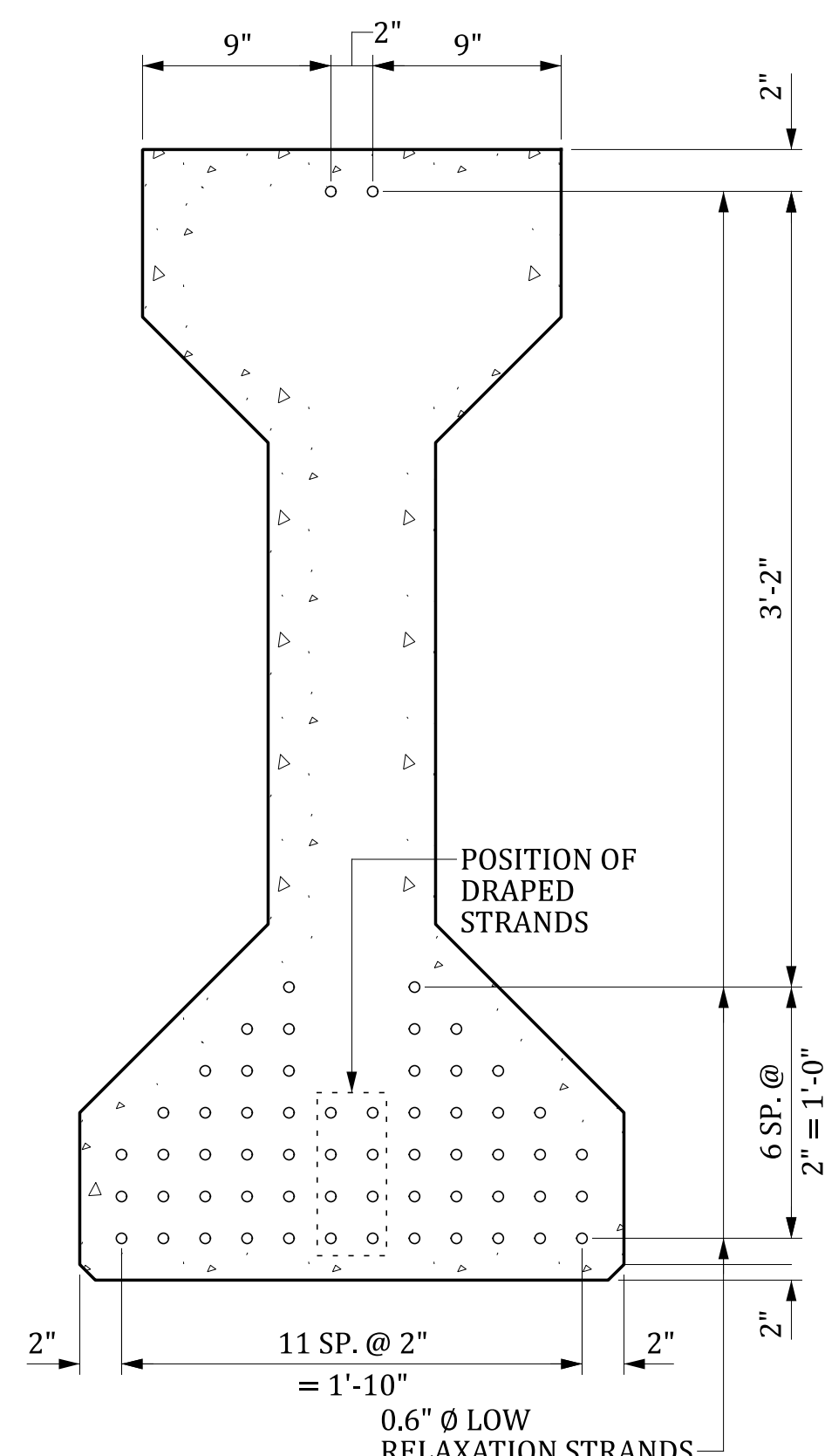
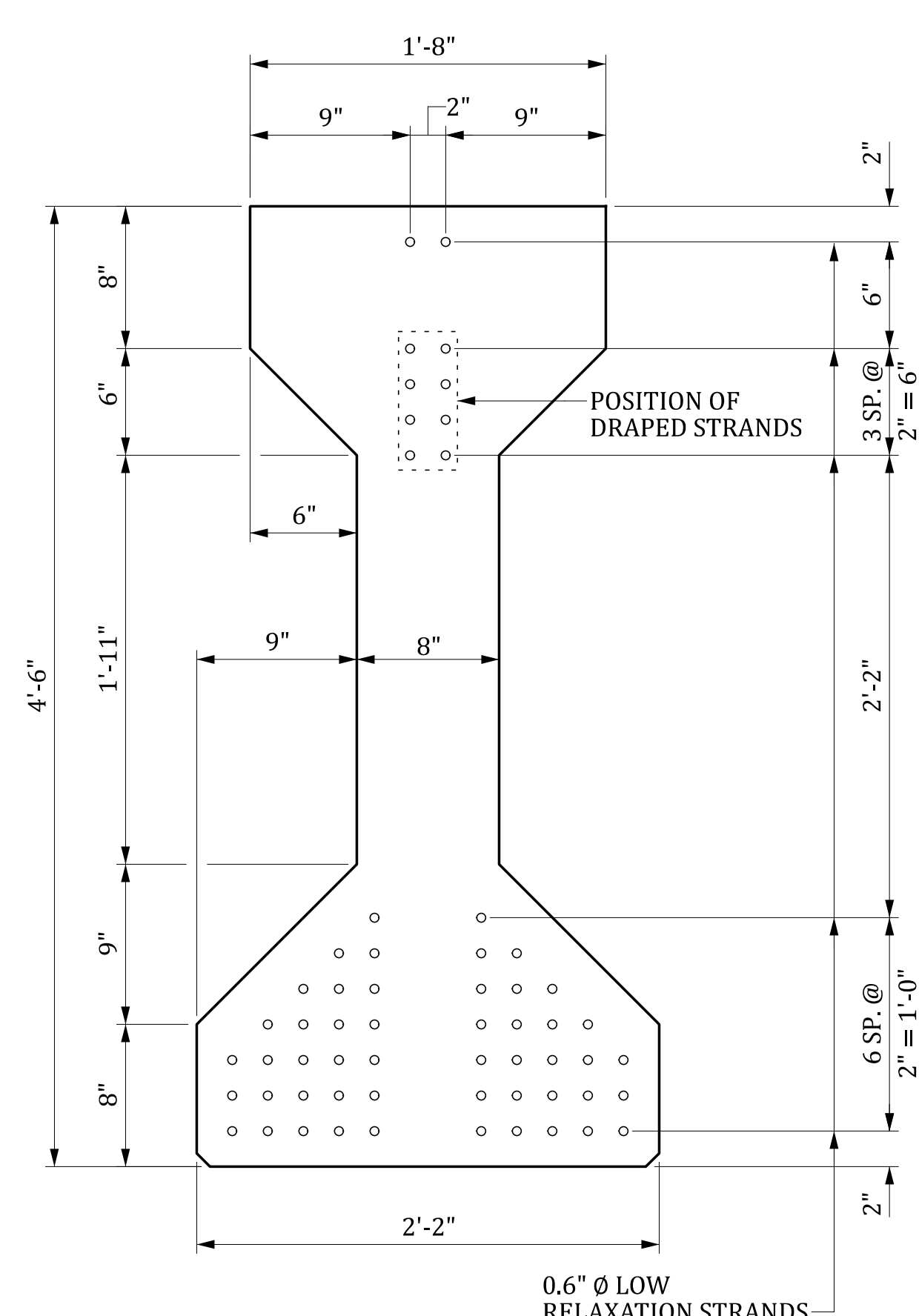
FOR INFORMATION ONLY -
PAID FOR AS PRESTRESSED BEAM

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 KSI
 f_{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



① SEE "AASHTO TYPE IV MODIFIED GENERAL DETAILS" SHEET FOR PRESTRESSING STRAND BENDING DETAIL.



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REV.	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	DMD	AEL	BY	CHK.	DATE

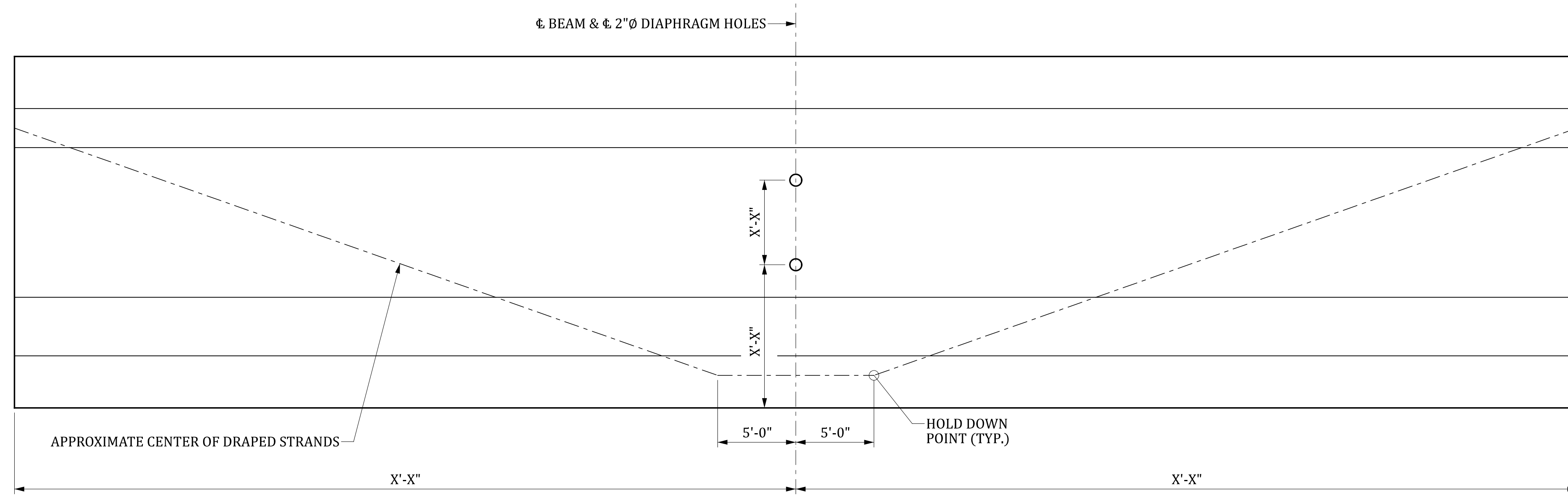
X - STRAIGHT STRANDS
 X - DEBONDED STRANDS
 X - DRAPED STRANDS

CONSULTANT NAME/LOGO

SOUTH CAROLINA
 DEPARTMENT OF TRANSPORTATION

**PRESTRESSED CONCRETE BEAM
 AASHTO TYPE IV SPAN X**

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



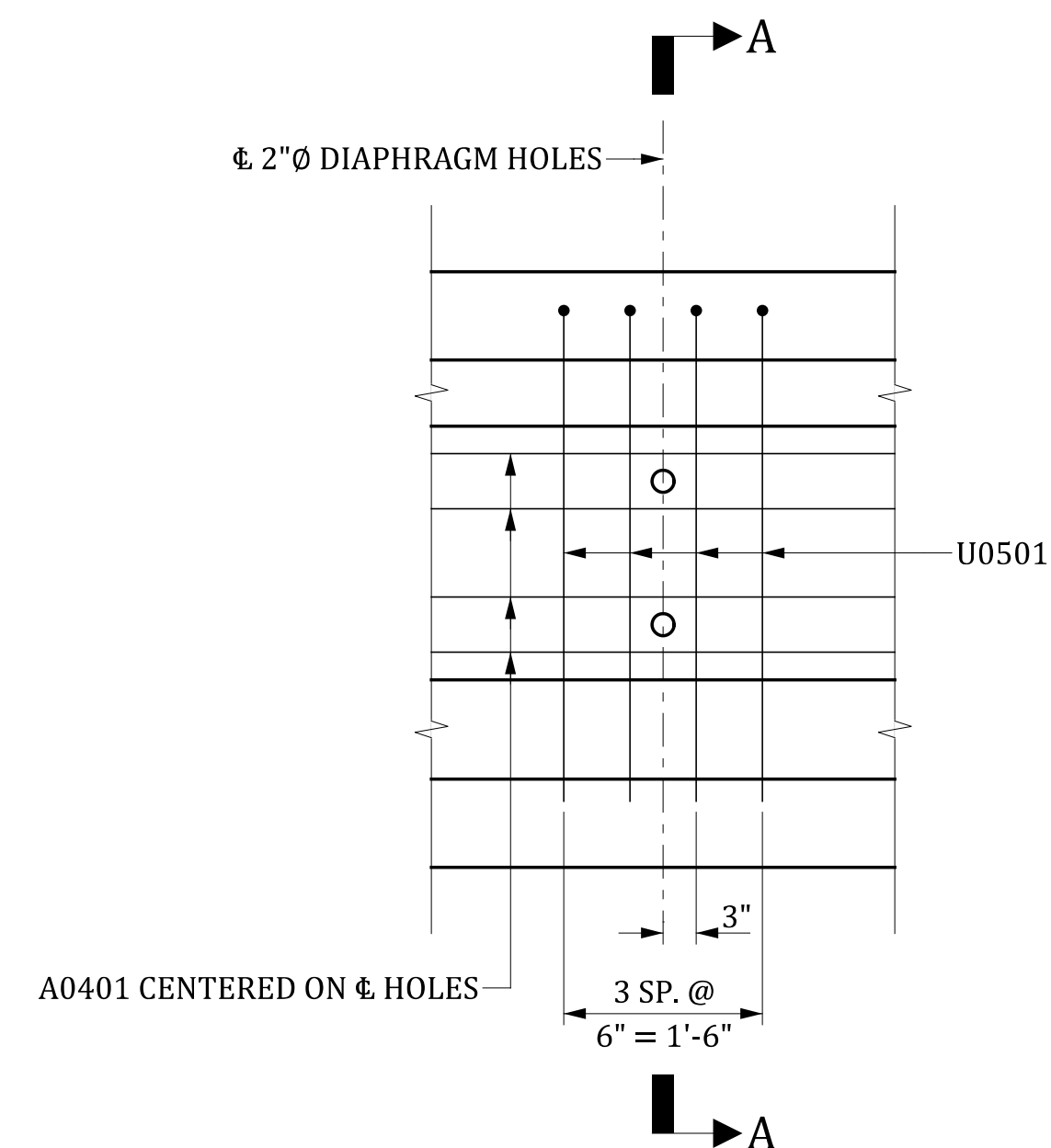
INTERMEDIATE DIAPHRAGM LOCATION DETAIL

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

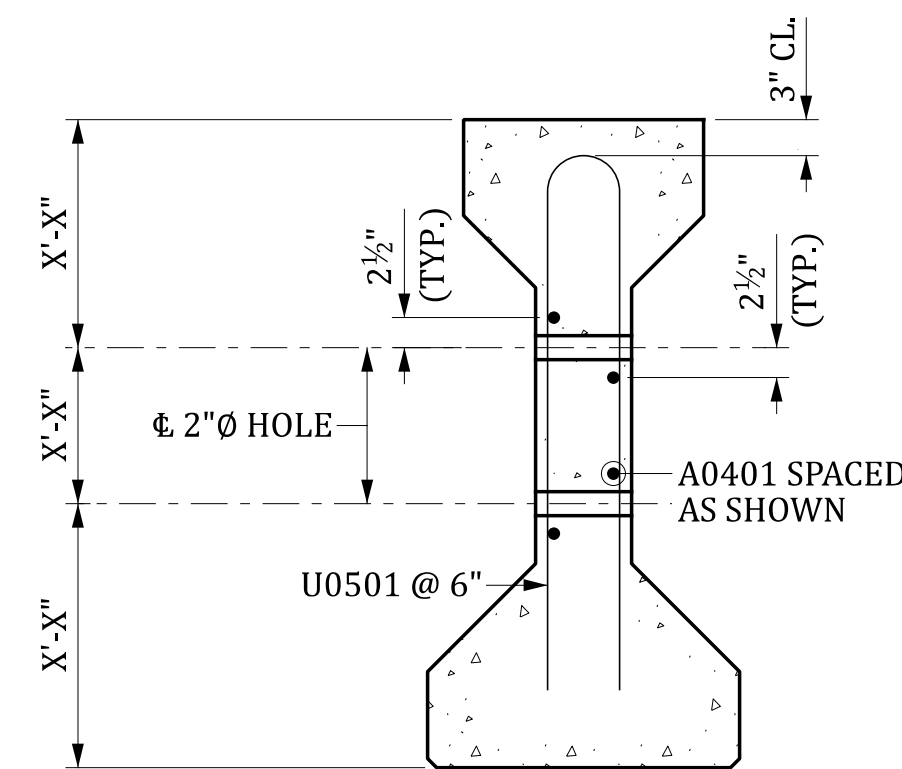
* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

** 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 REINFORCEMENT DETAIL



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

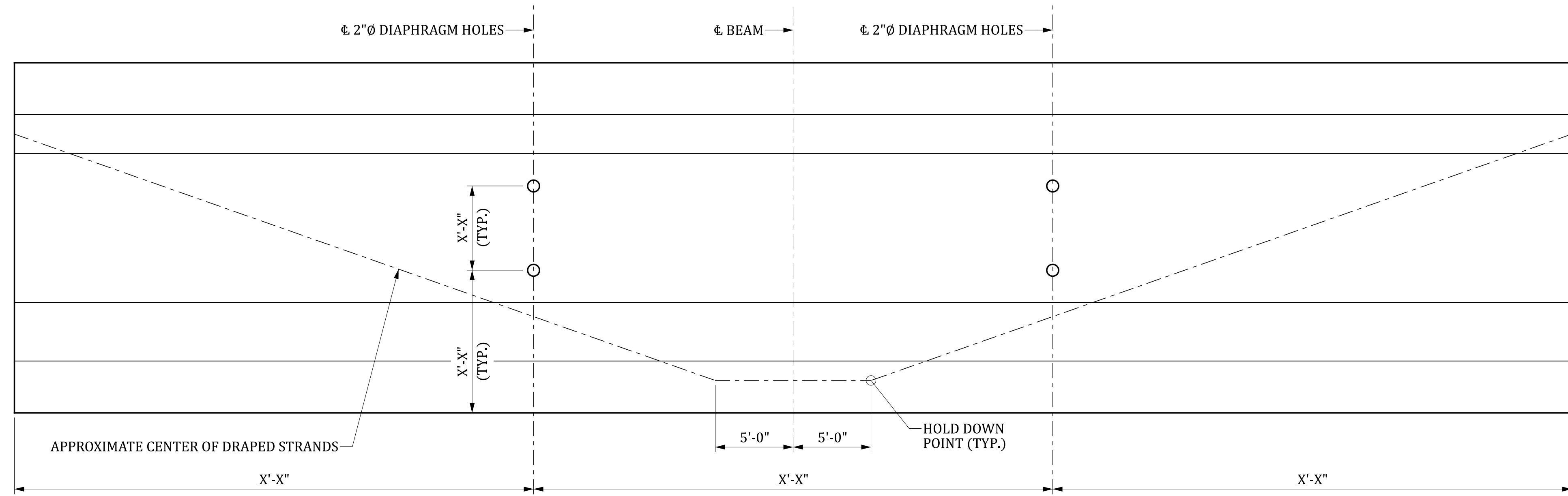
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REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DMD	AEL	04-24	BY	CHK.	DATE

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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO BEAM DETAILS SPAN X - ALT 1	
COUNTY: ###	ROUTE: ###



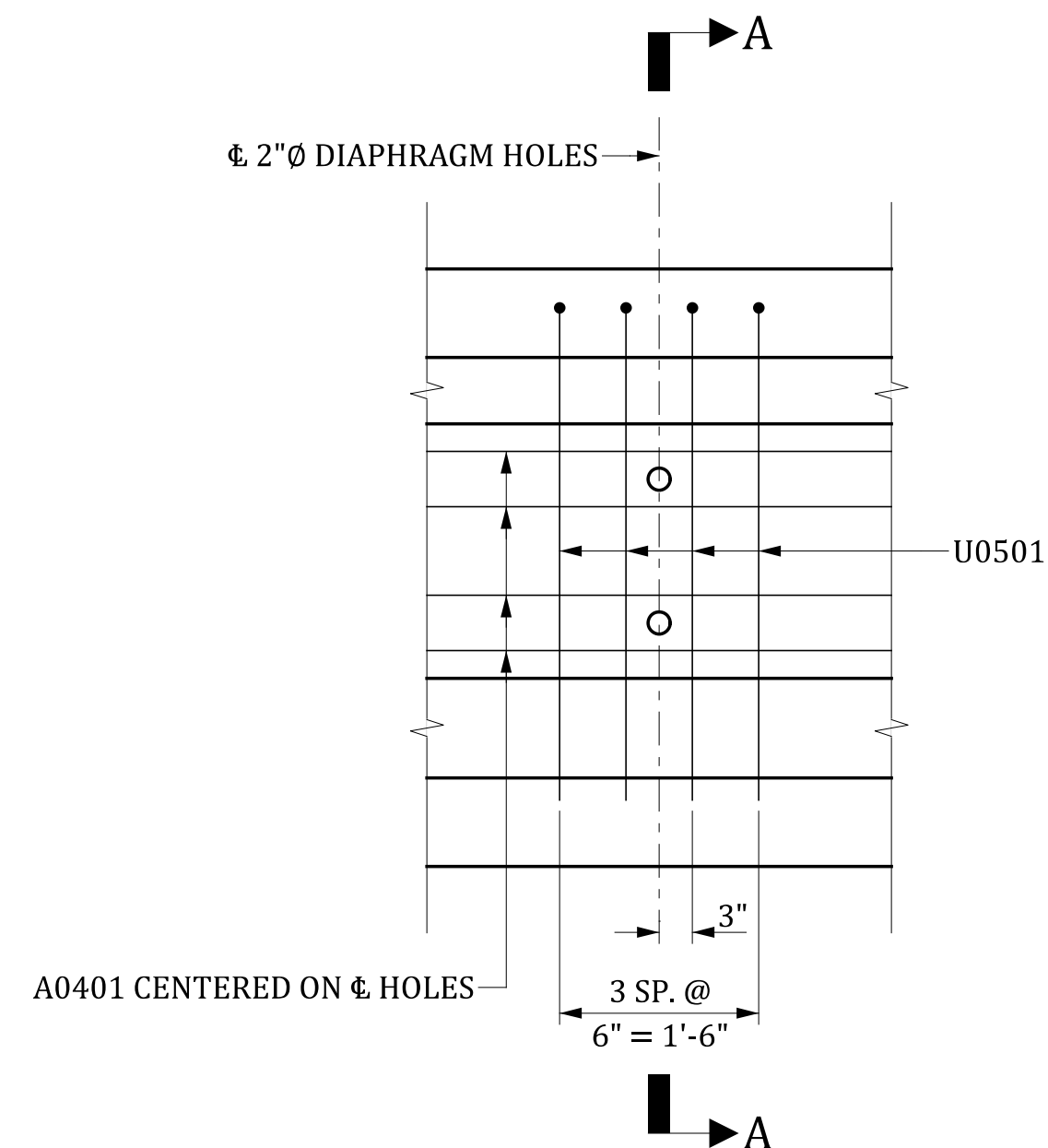
INTERMEDIATE DIAPHRAGM LOCATION DETAIL

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

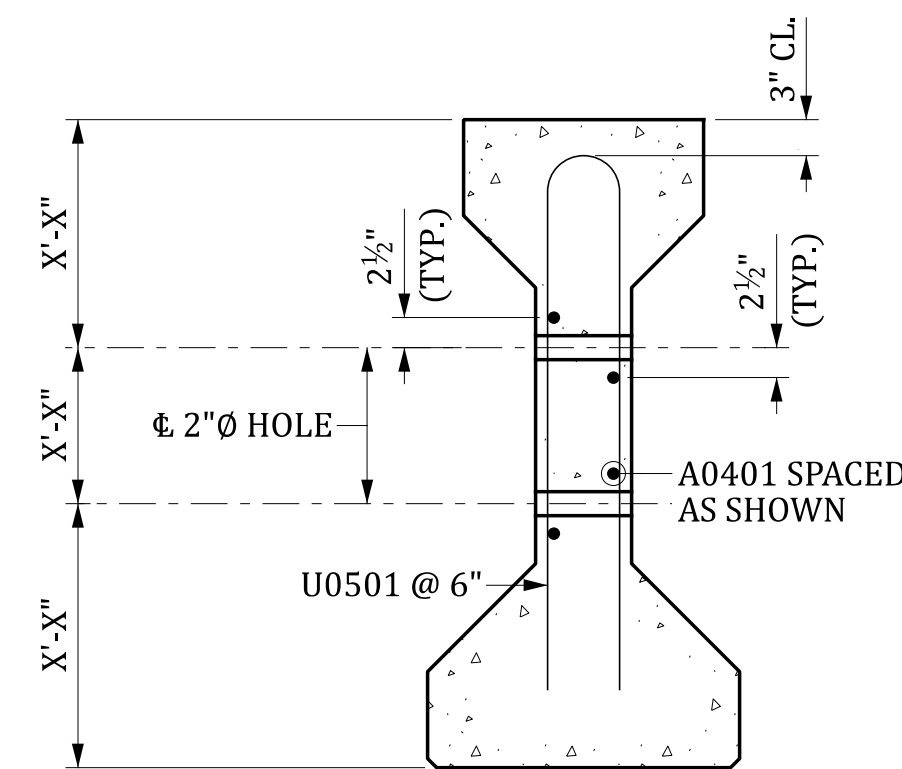
* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

** 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 REINFORCEMENT DETAIL



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

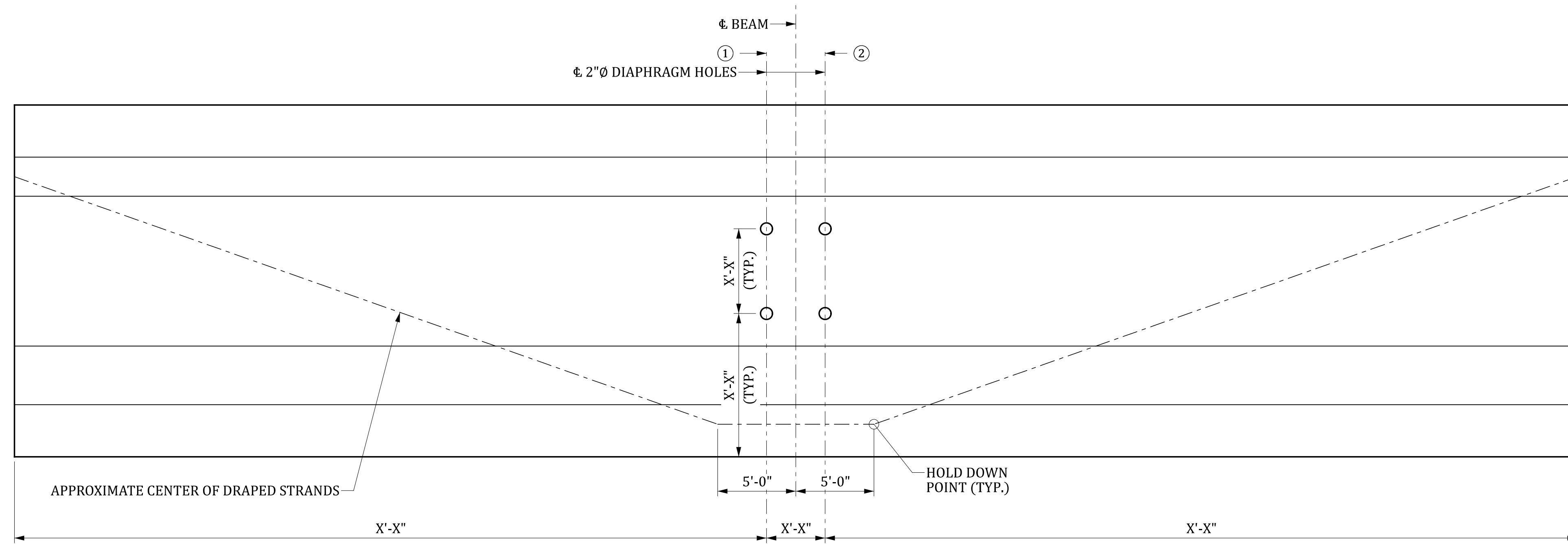
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REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DMD	AEL	04-24	BY	CHK.	DATE

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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO BEAM DETAILS SPAN X - ALT 2	
COUNTY: ###	ROUTE: ###



INTERMEDIATE DIAPHRAGM LOCATION DETAIL
INTERIOR BEAM SHOWN.

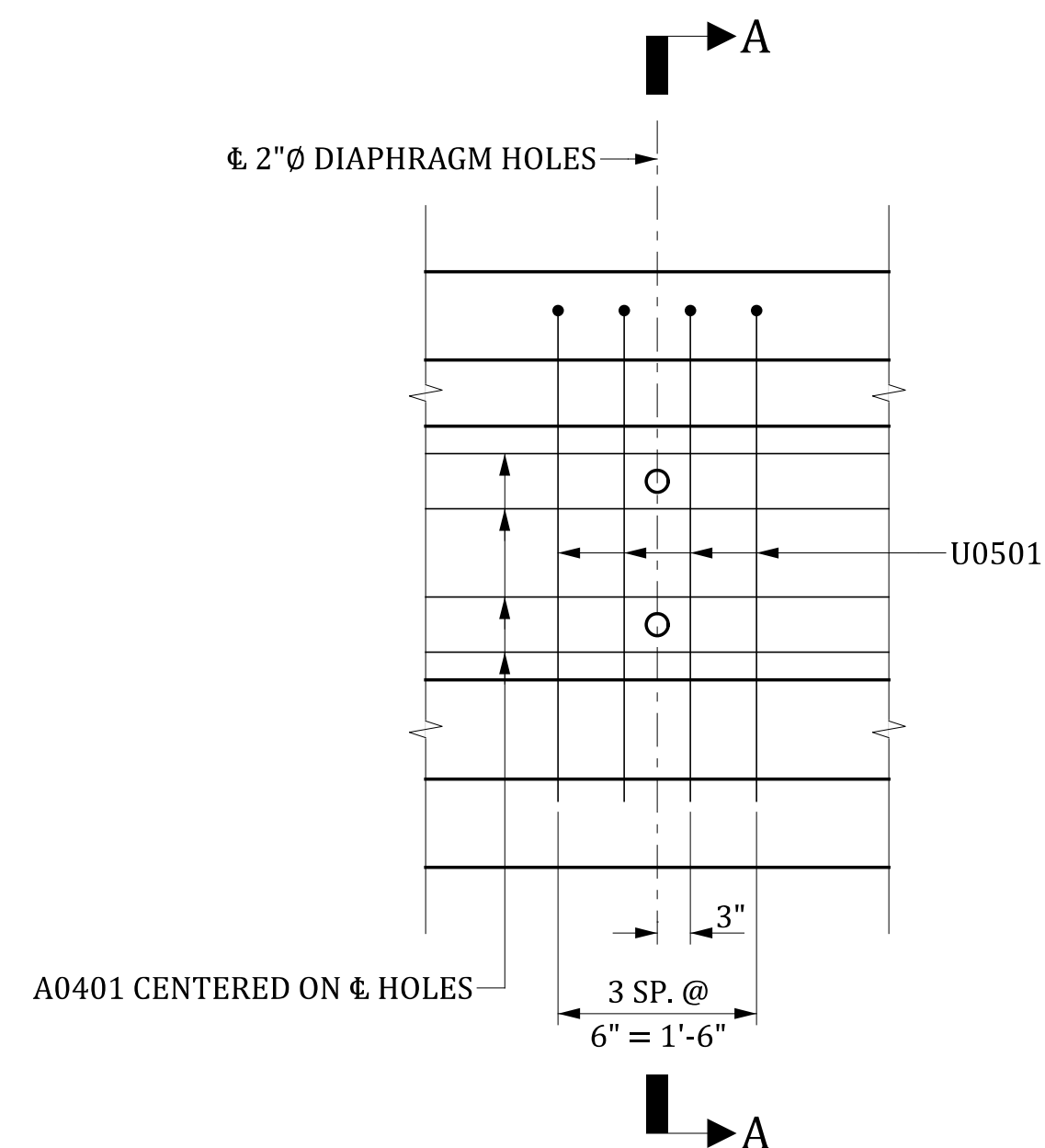
- ① OMIT THESE HOLES ON BEAM 1.
- ② OMIT THESE HOLES ON BEAM X.

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

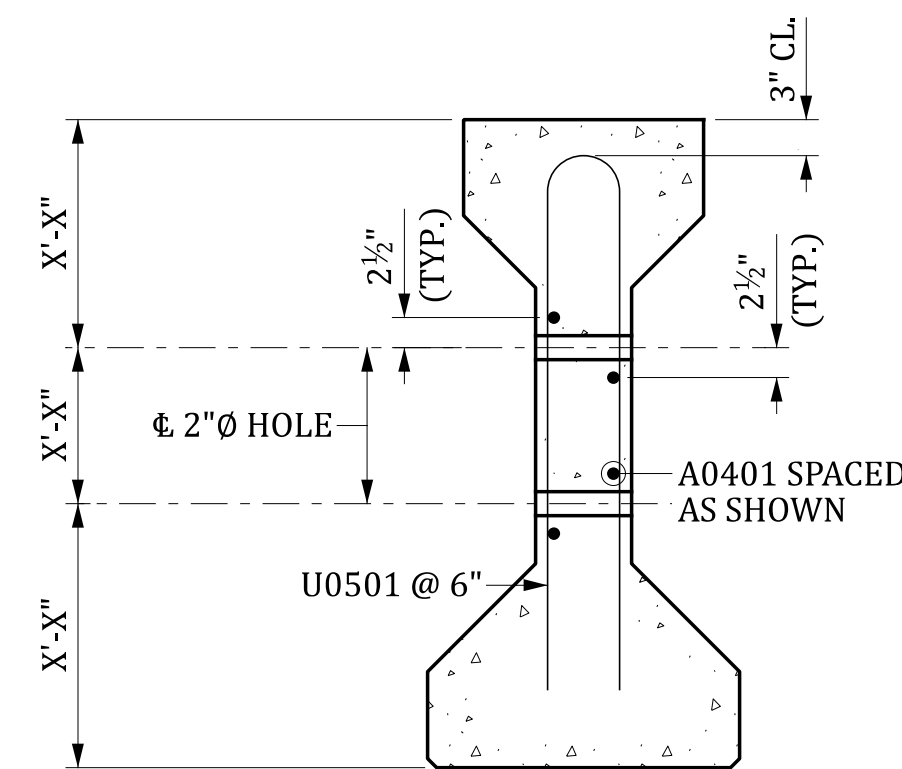
* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

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

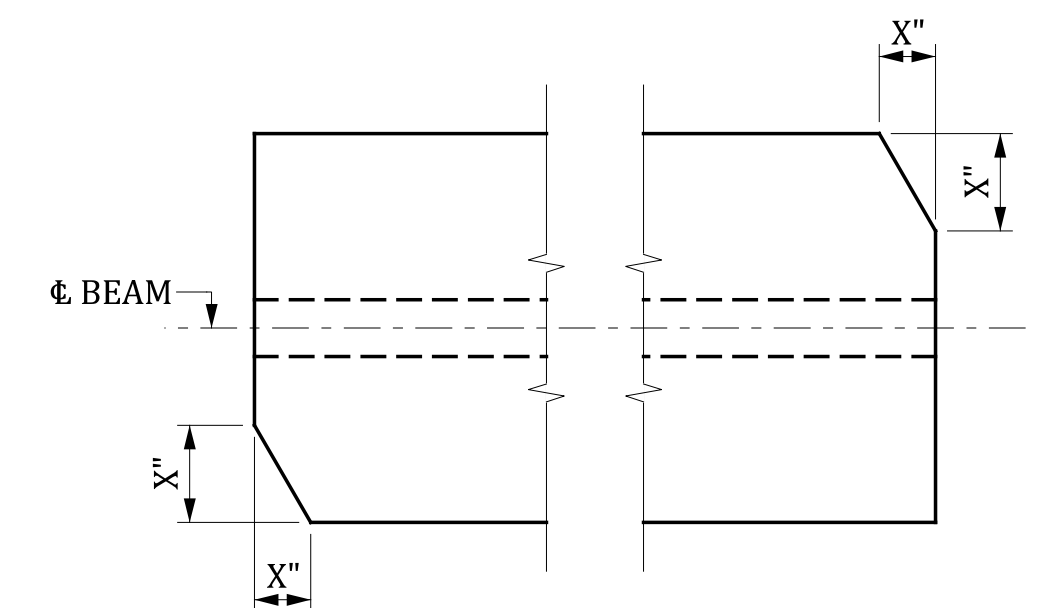
"+" INDICATES UPWARD MOVEMENT
"-" INDICATES DOWNWARD MOVEMENT



INTERMEDIATE DIAPHRAGM REINFORCEMENT DETAIL



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



TOP FLANGE CLIP DETAIL

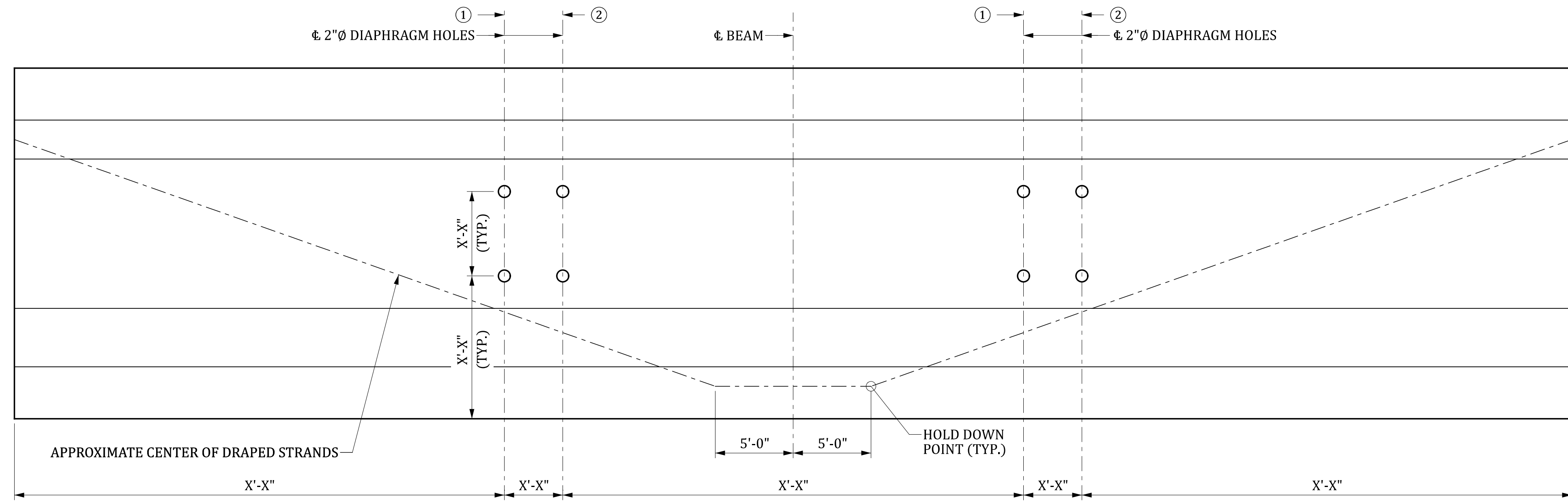
REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DMD	AEL	04-24

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	
AASHTO BEAM DETAILS SPAN X - ALT 3	
COUNTY: ####	ROUTE: ####

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INTERMEDIATE DIAPHRAGM LOCATION DETAIL
INTERIOR BEAM SHOWN.

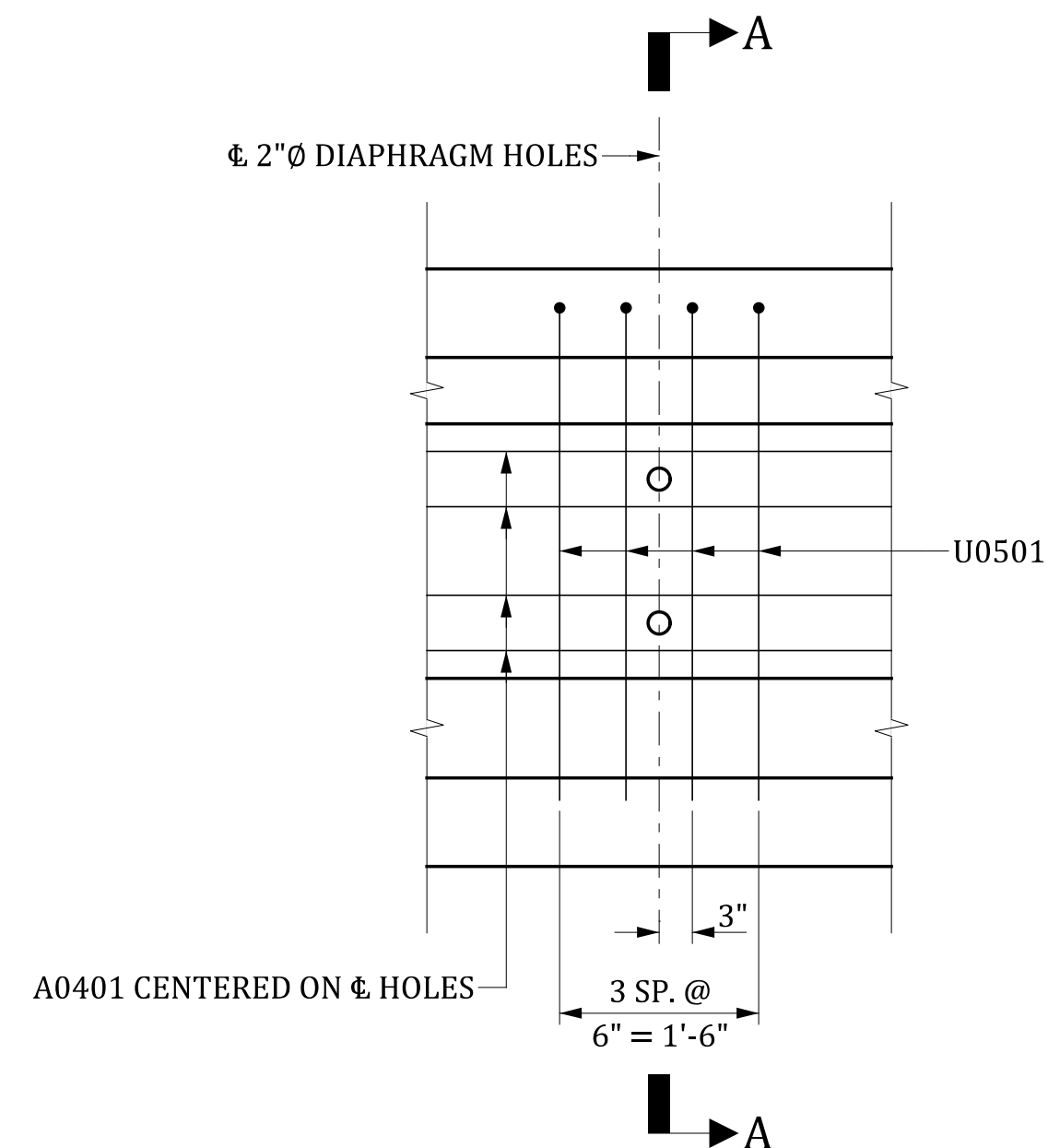
- ① OMIT THESE HOLES ON BEAM 1.
- ② OMIT THESE HOLES ON BEAM X.

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

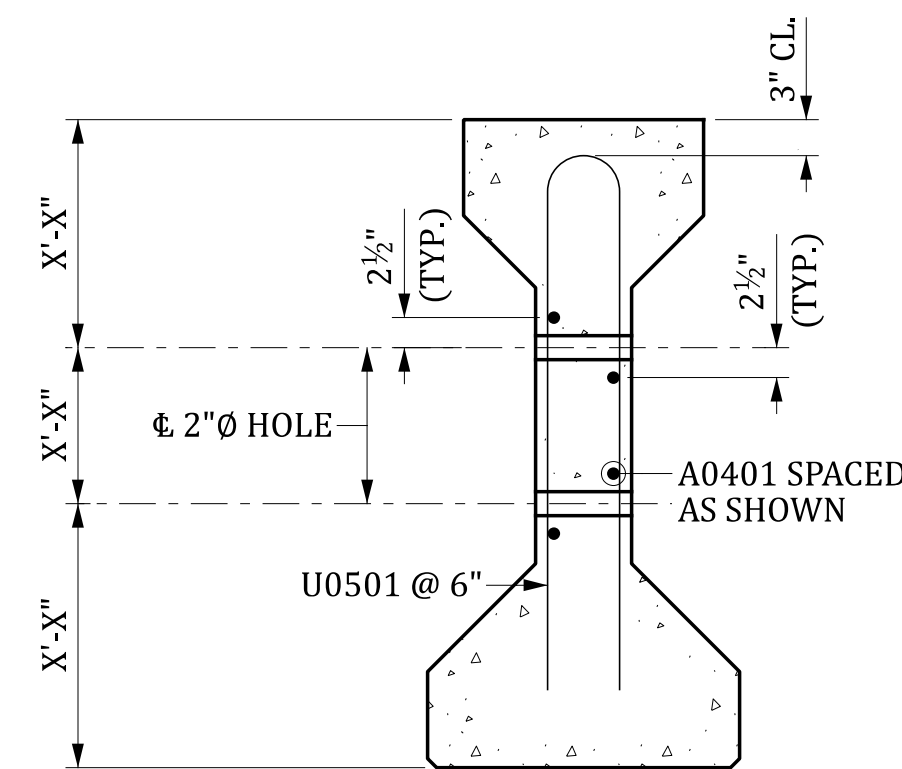
* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

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

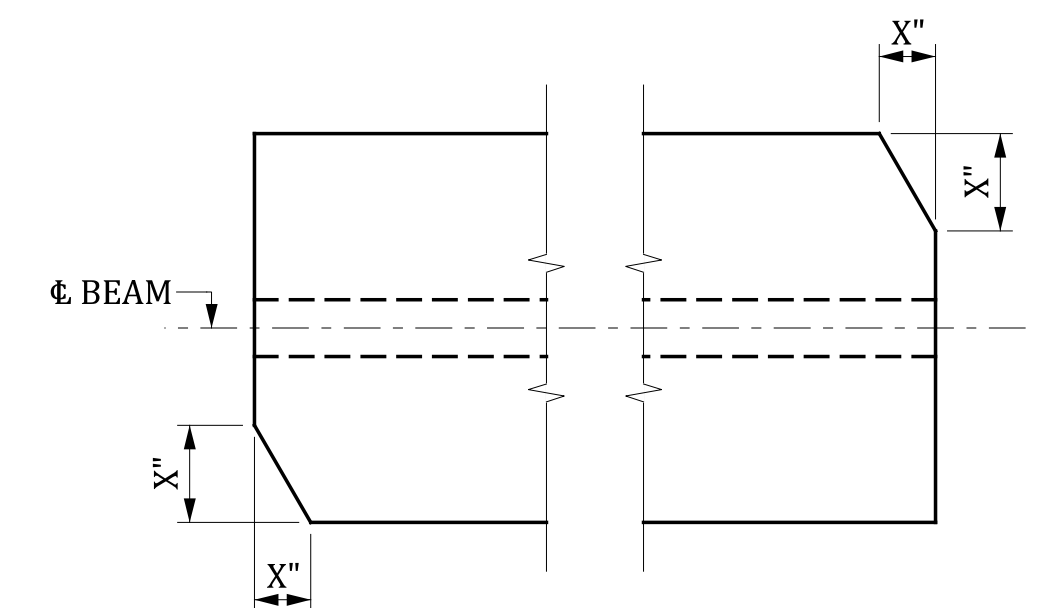
"+" INDICATES UPWARD MOVEMENT
"-" INDICATES DOWNWARD MOVEMENT



INTERMEDIATE DIAPHRAGM REINFORCEMENT DETAIL



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



TOP FLANGE CLIP DETAIL

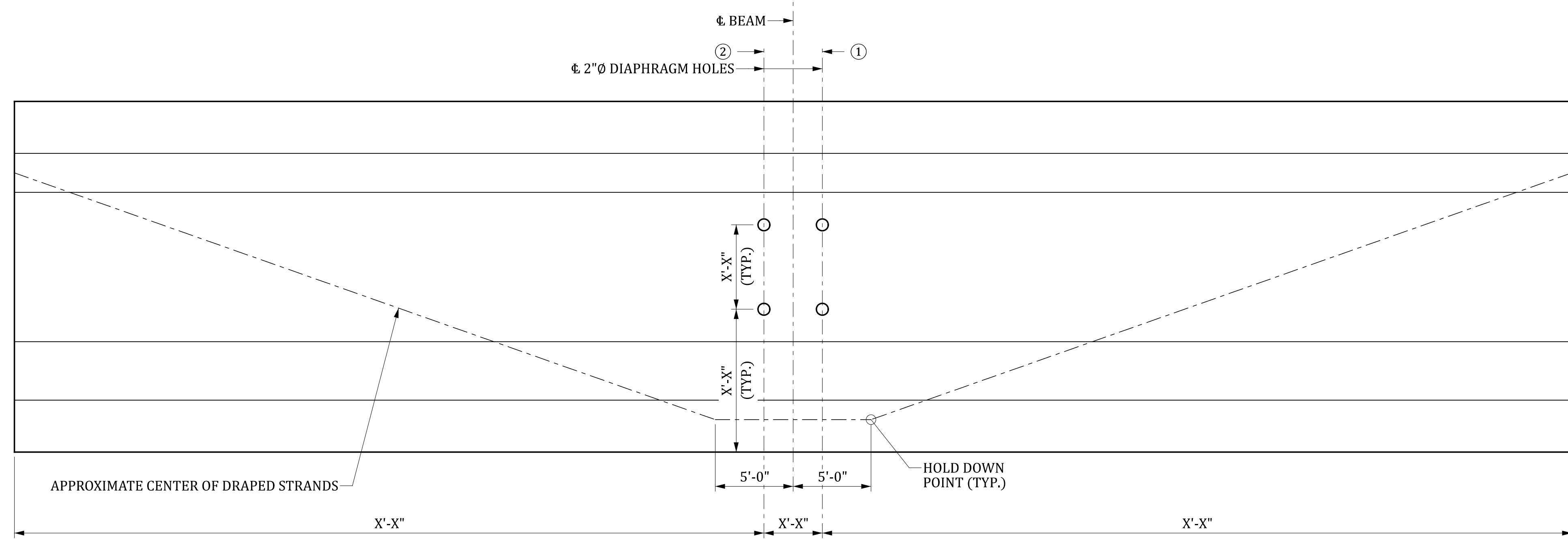
Dylan Danks 6/20/2024 3:11:38 PM 704_AASHTO.dgn

REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	BY	CHK.	DATE

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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO BEAM DETAILS SPAN X - ALT 4	
COUNTY: ####	ROUTE: ####



INTERMEDIATE DIAPHRAGM LOCATION DETAIL
INTERIOR BEAM SHOWN.

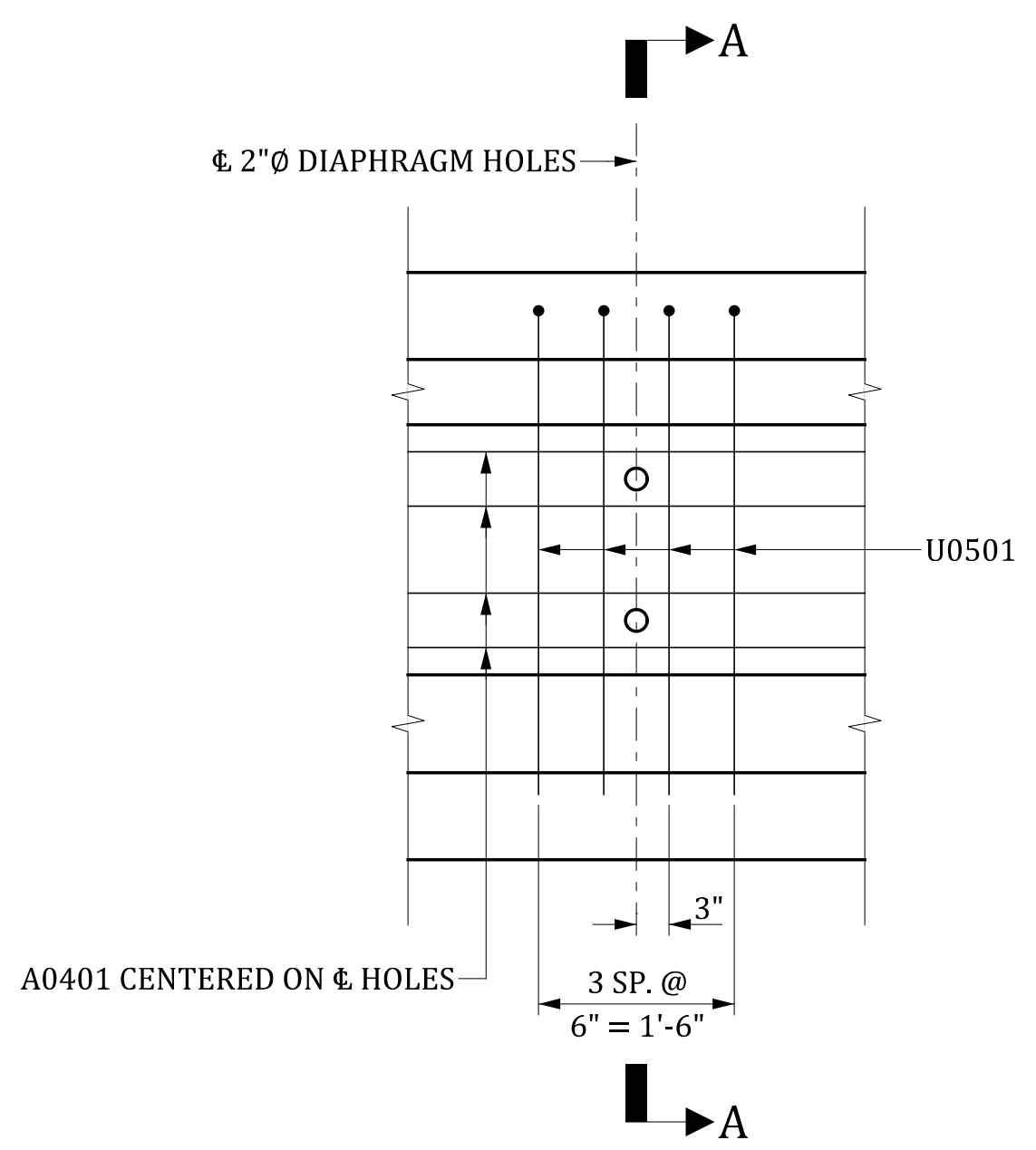
- ① OMIT THESE HOLES ON BEAM 1.
- ② OMIT THESE HOLES ON BEAM X.

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

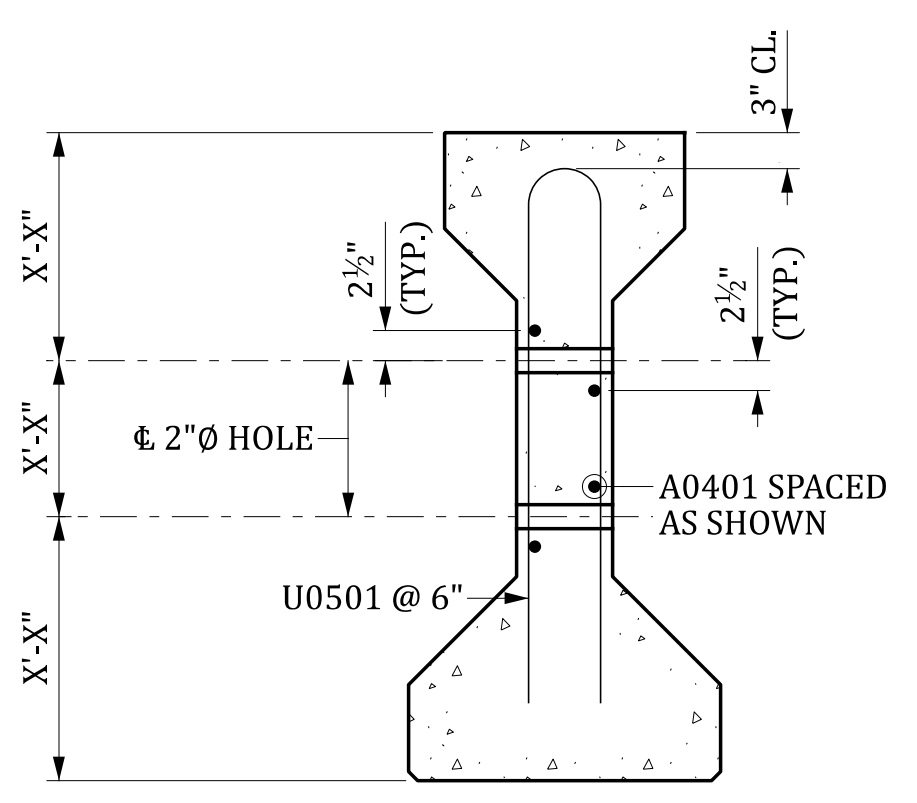
* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION

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

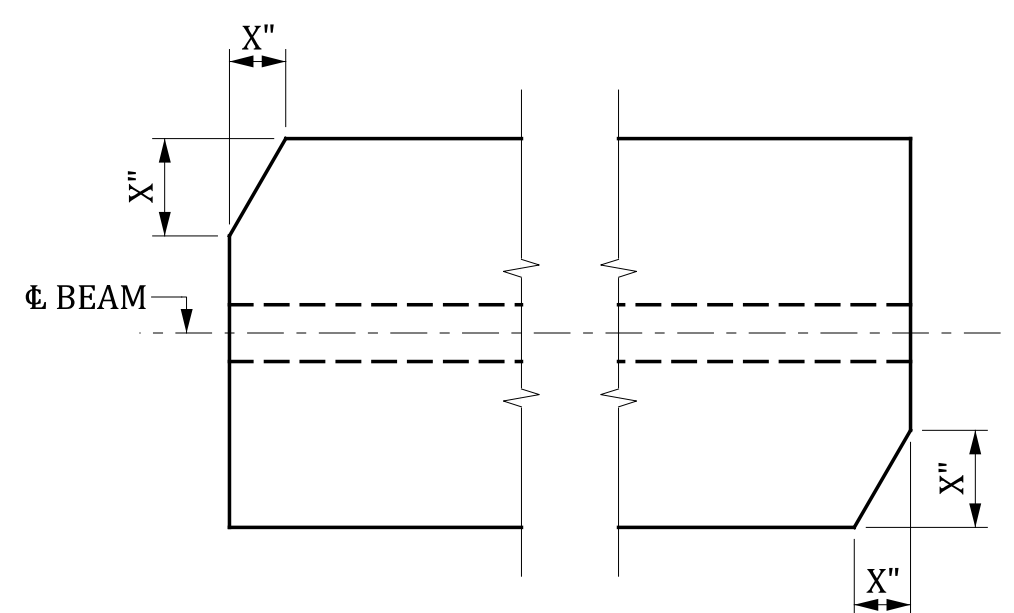
"+" INDICATES UPWARD MOVEMENT
"-" INDICATES DOWNWARD MOVEMENT



INTERMEDIATE DIAPHRAGM REINFORCEMENT DETAIL



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



TOP FLANGE CLIP DETAIL

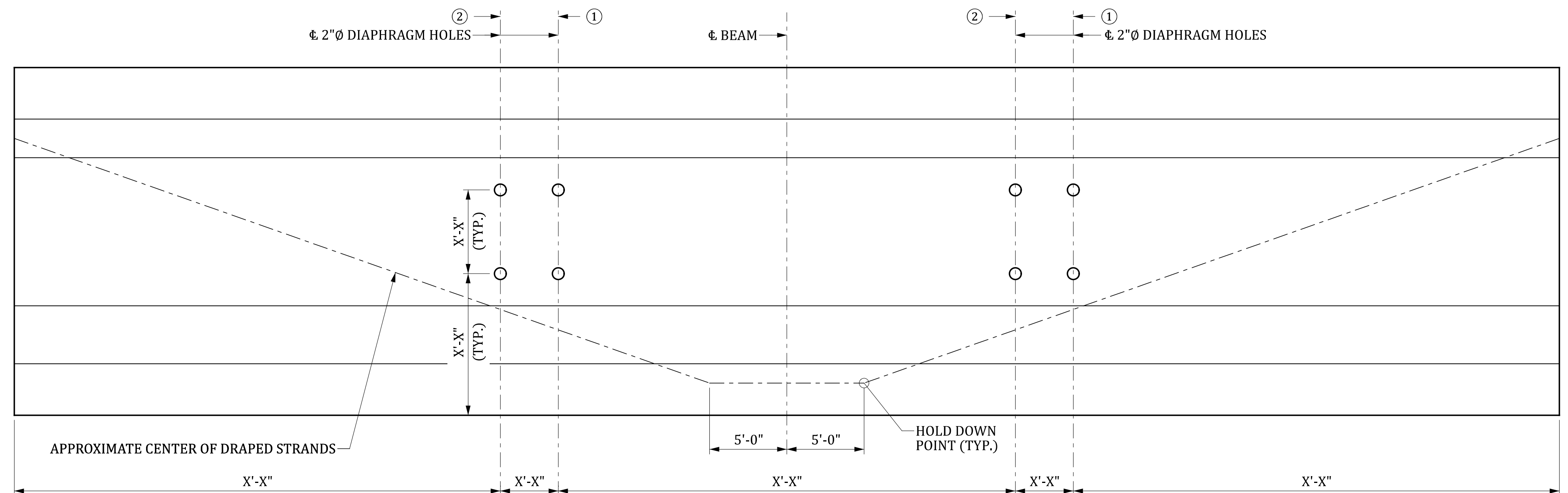
Dylan Danks 6/20/2024 3:11:39 PM 704_AASHTO.dgn

REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DMD	AEL	DATE

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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO BEAM DETAILS SPAN X - ALT 5	
COUNTY: ####	ROUTE: ####

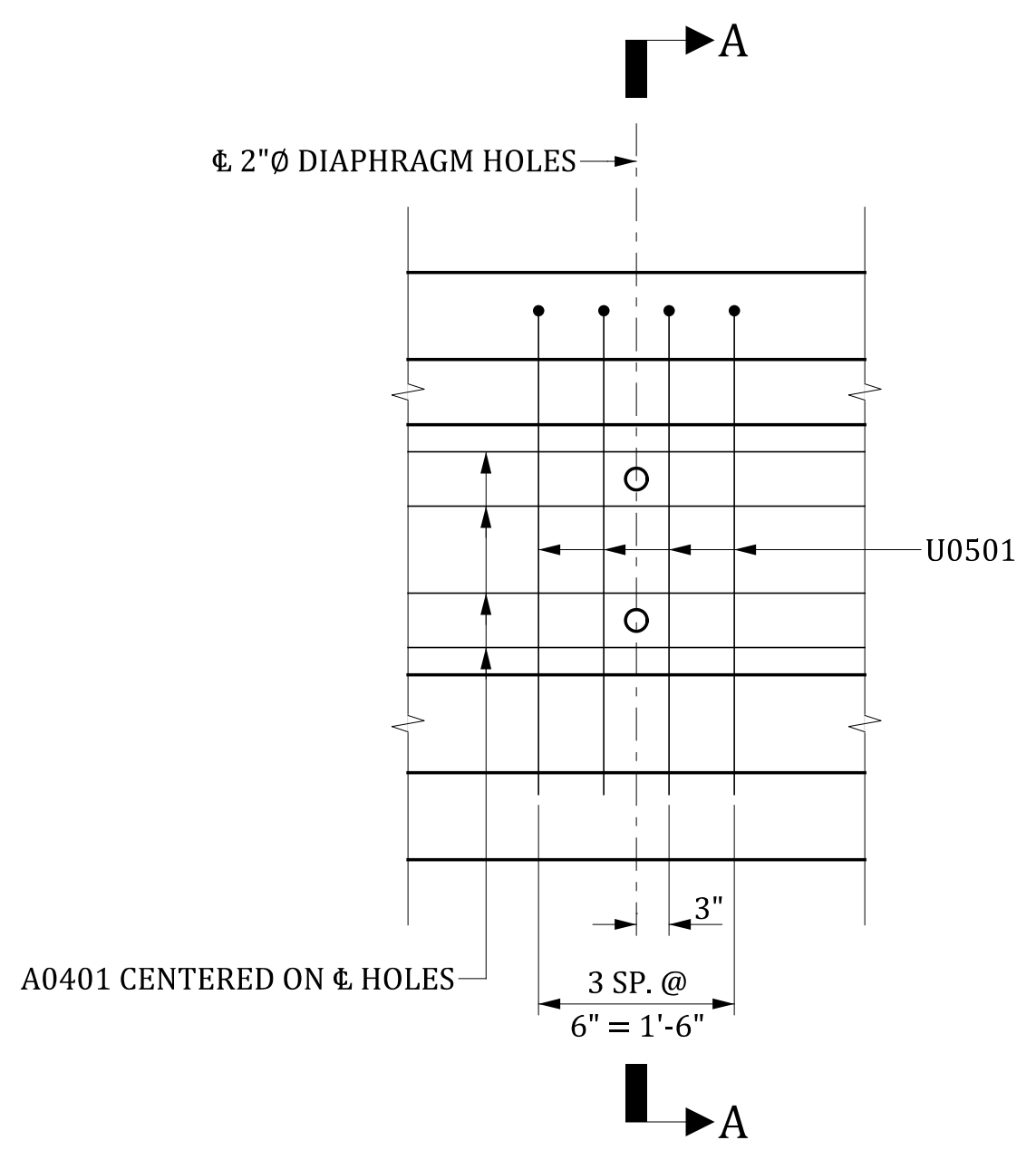


INTERMEDIATE DIAPHRAGM LOCATION DETAIL
INTERIOR BEAM SHOWN.

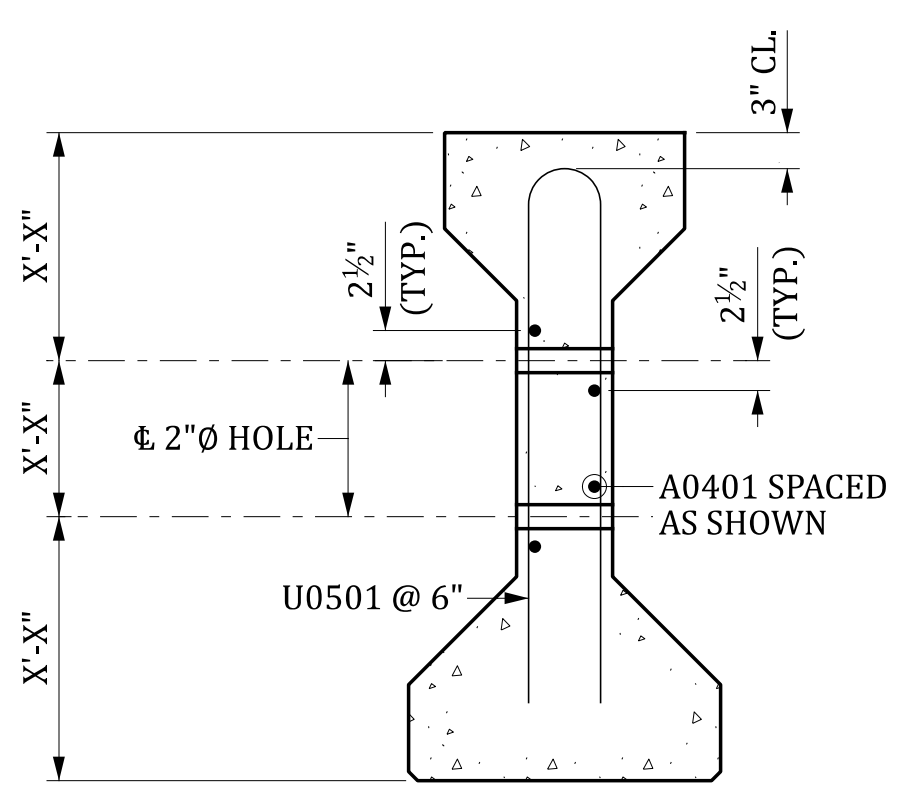
- ① OMIT THESE HOLES ON BEAM 1.
- ② OMIT THESE HOLES ON BEAM X.

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

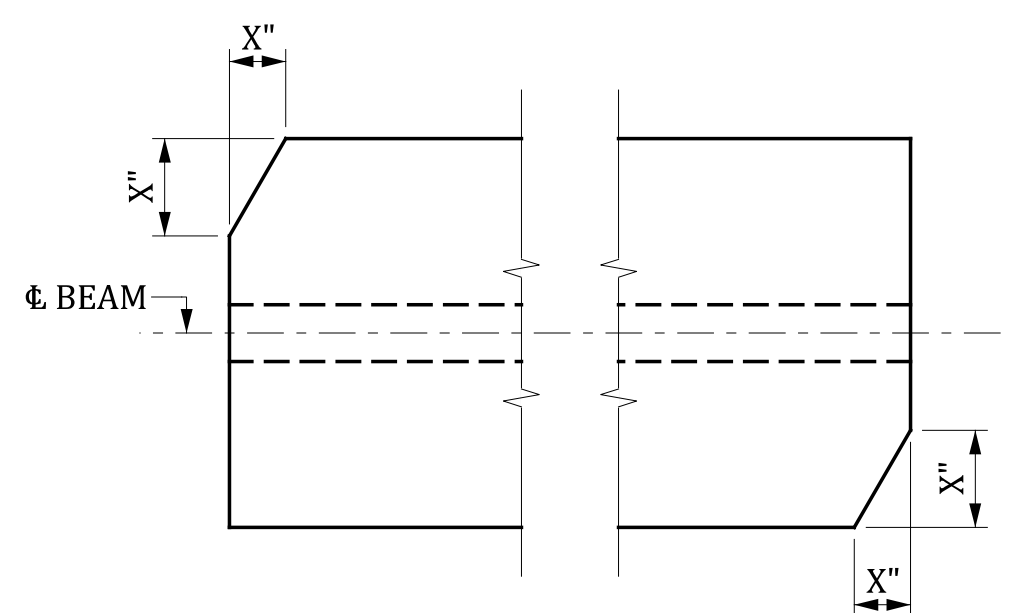
* BASED ON A BEAM AGE OF 60 DAYS AT THE TIME OF ERECTION
 ** DEFLECTION DUE TO WEIGHT OF METAL FORMS AND THE WEIGHT OF THE CONCRETE IN THE FLUTES OF THE FORMS.
 "+" INDICATES UPWARD MOVEMENT
 "-" INDICATES DOWNWARD MOVEMENT



INTERMEDIATE DIAPHRAGM REINFORCEMENT DETAIL



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



TOP FLANGE CLIP DETAIL

Dylan Danks 6/20/2024 3:11:39 PM 704_AASHTO.dgn

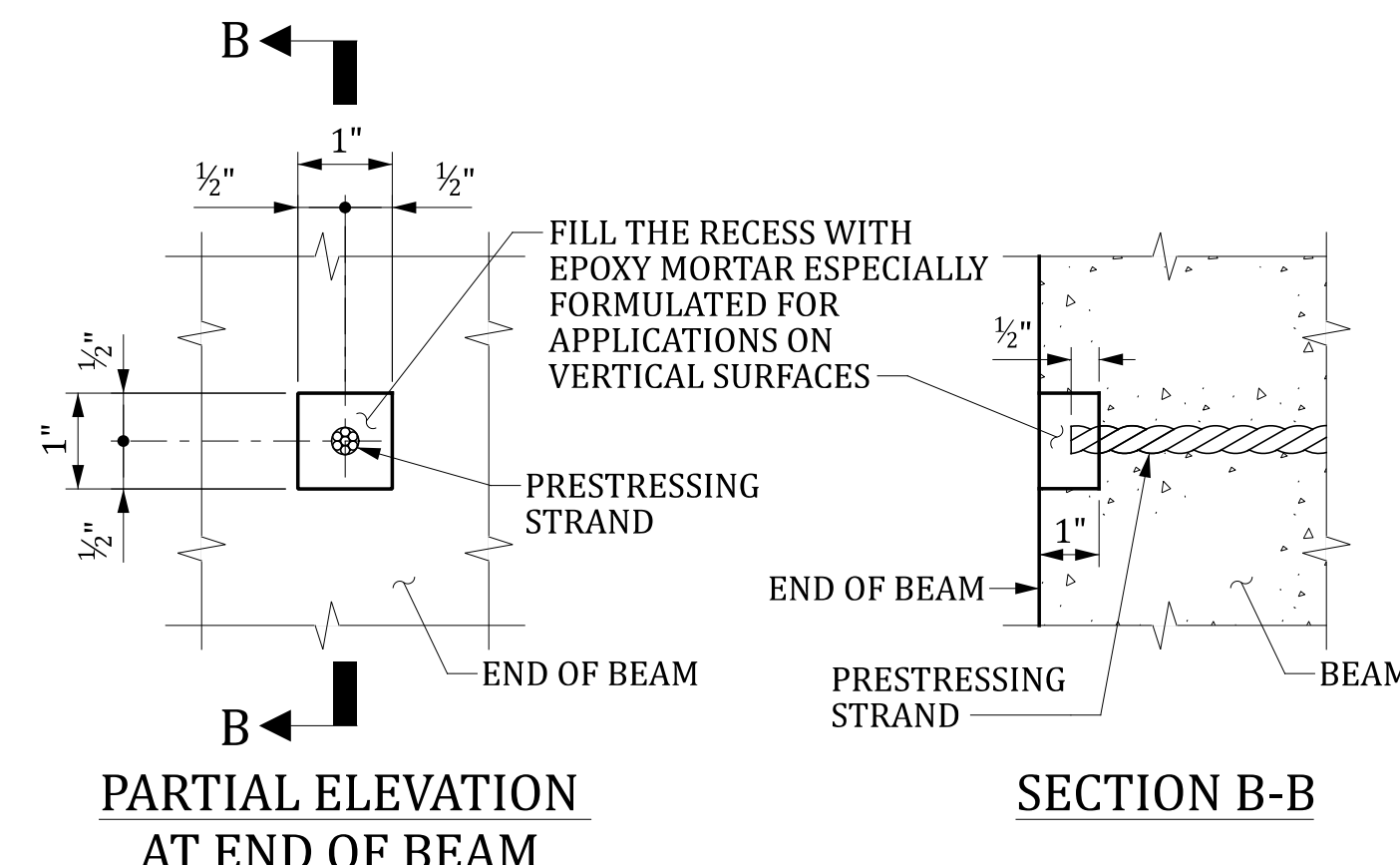
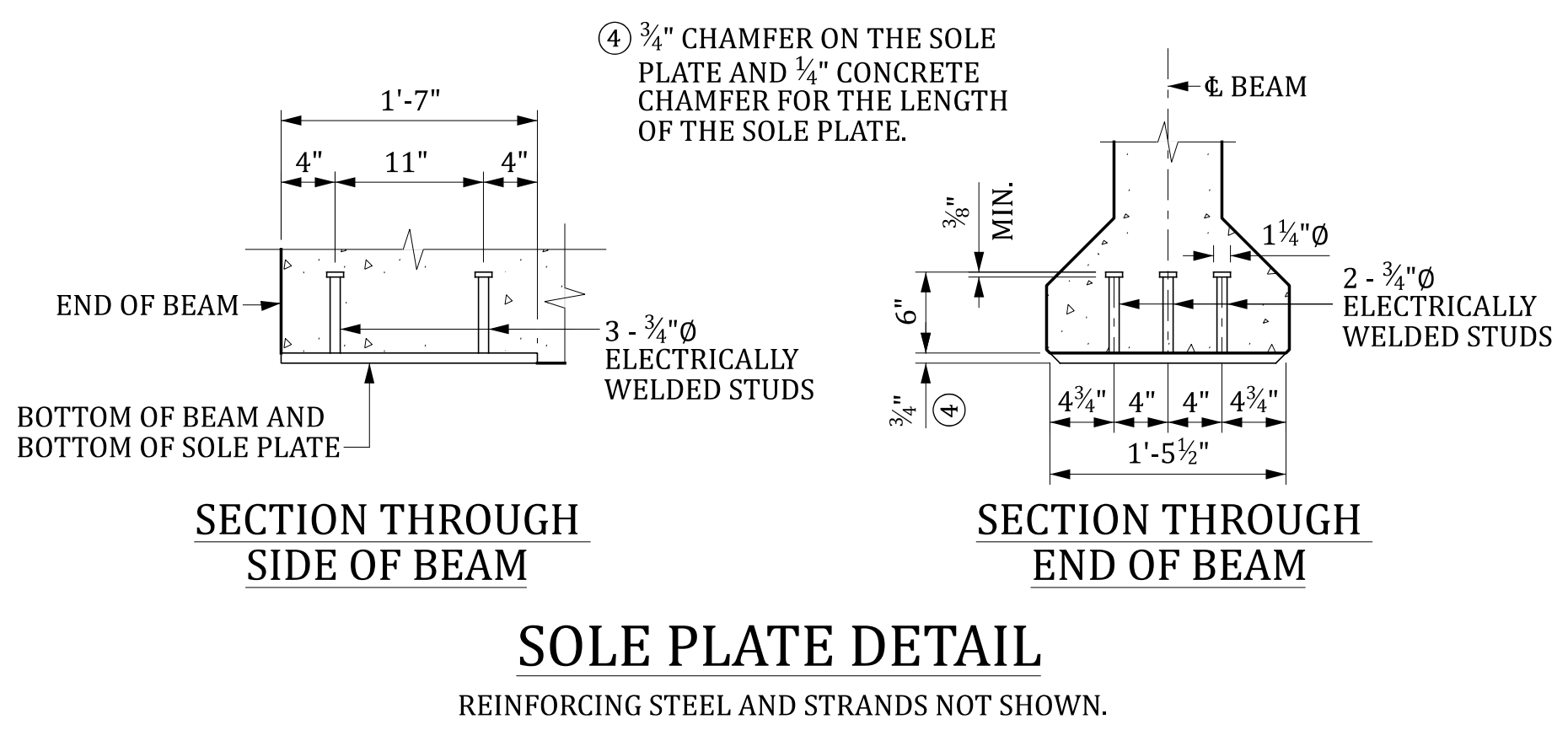
REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DMD	AEL	04-24	BY	CHK.	DATE

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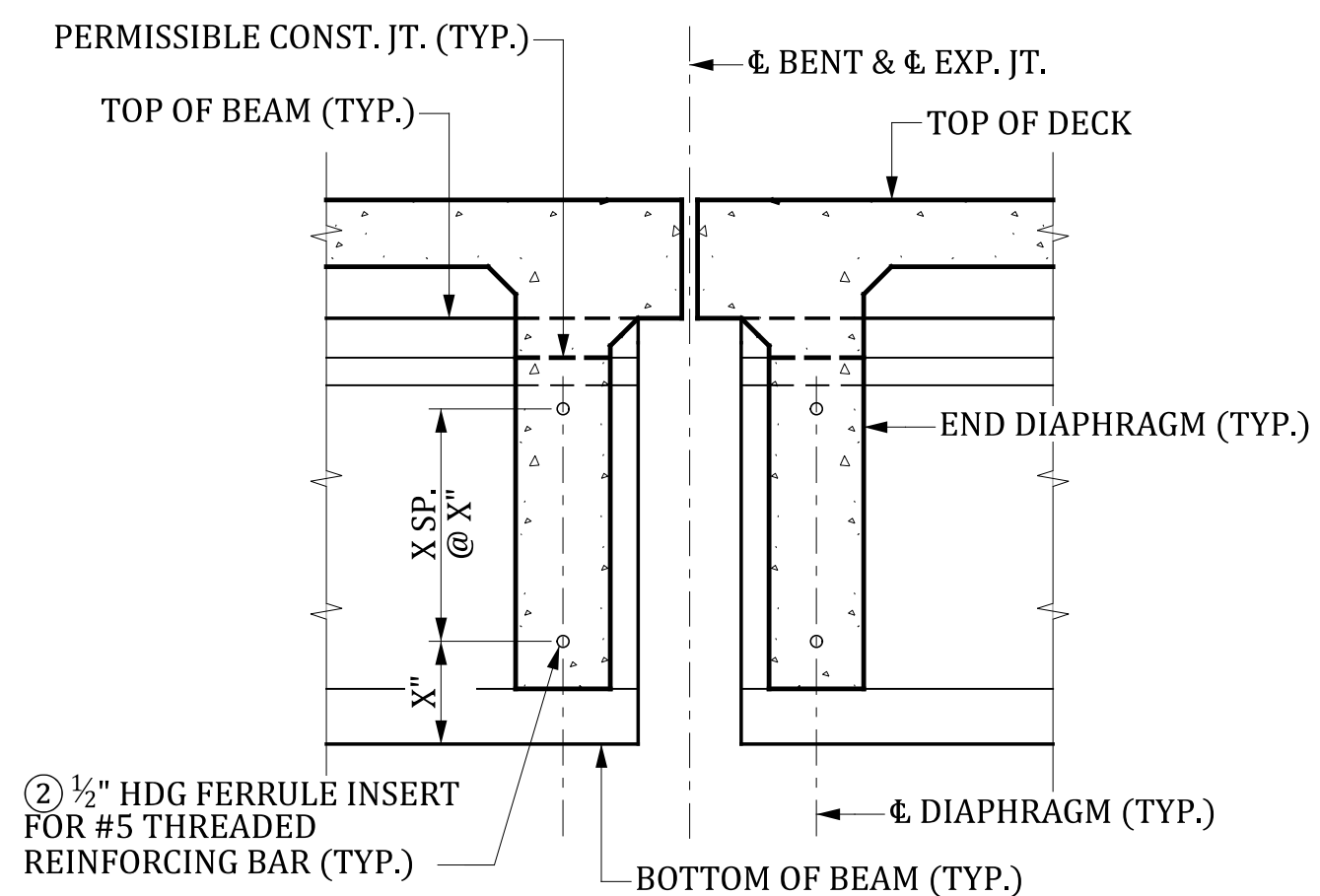
CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO BEAM DETAILS SPAN X - ALT 6	
COUNTY: ####	ROUTE: ####

a	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, ± 1 " MAX.
b	WIDTH (OVERALL)	$\pm \frac{3}{8}$ ", $-\frac{1}{4}$ "
b ₁	WEB WIDTH	$+\frac{3}{8}$ ", $-\frac{1}{4}$ "
c	DEPTH (OVERALL)	$+\frac{1}{2}$ ", $-\frac{1}{4}$ "
c ₁	FLANGE DEPTH	$\pm \frac{1}{4}$ "
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, ± 1 " MAX.
f	SWEEP	$\frac{1}{8}$ " 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 ± 1 " MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	$\frac{1}{4}$ " IN 10'
k	LOCATION OF STRAND (INDIVIDUAL)	$\pm \frac{1}{4}$ "
	LOCATION OF STRAND (BUNDLED)	$\pm \frac{1}{2}$ "
k ₁	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	± 20 "
k ₂	LOCATION OF POST-TENSIONING DUCT	$\pm \frac{1}{4}$ "
l ₁	LOCATION OF EMBEDMENT	± 1 "
l ₂	TIPPING AND FLUSHNESS OF EMBEDMENT	$\pm \frac{1}{4}$ "
m ₁	LOCATION OF BEARING ASSEMBLY	$\pm \frac{5}{8}$ "
m ₂	TIPPING AND FLUSHNESS OF BEARING ASSEMBLY	$\pm \frac{1}{8}$ "
p	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	$\pm \frac{1}{2}$ "
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	$+\frac{1}{4}$ ", $-\frac{1}{2}$ "
s ₄	PRESTRESSING STRAND PROJECTION FROM BEAM END	$\pm \frac{1}{2}$ "



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 1/2" BACK INTO RECESS AND FILL THE RECESS WITH AN EPOXY MORTAR ESPECIALLY FORMULATED FOR APPLICATIONS ON VERTICAL SURFACES.



SECTION AT END DIAPHRAGM

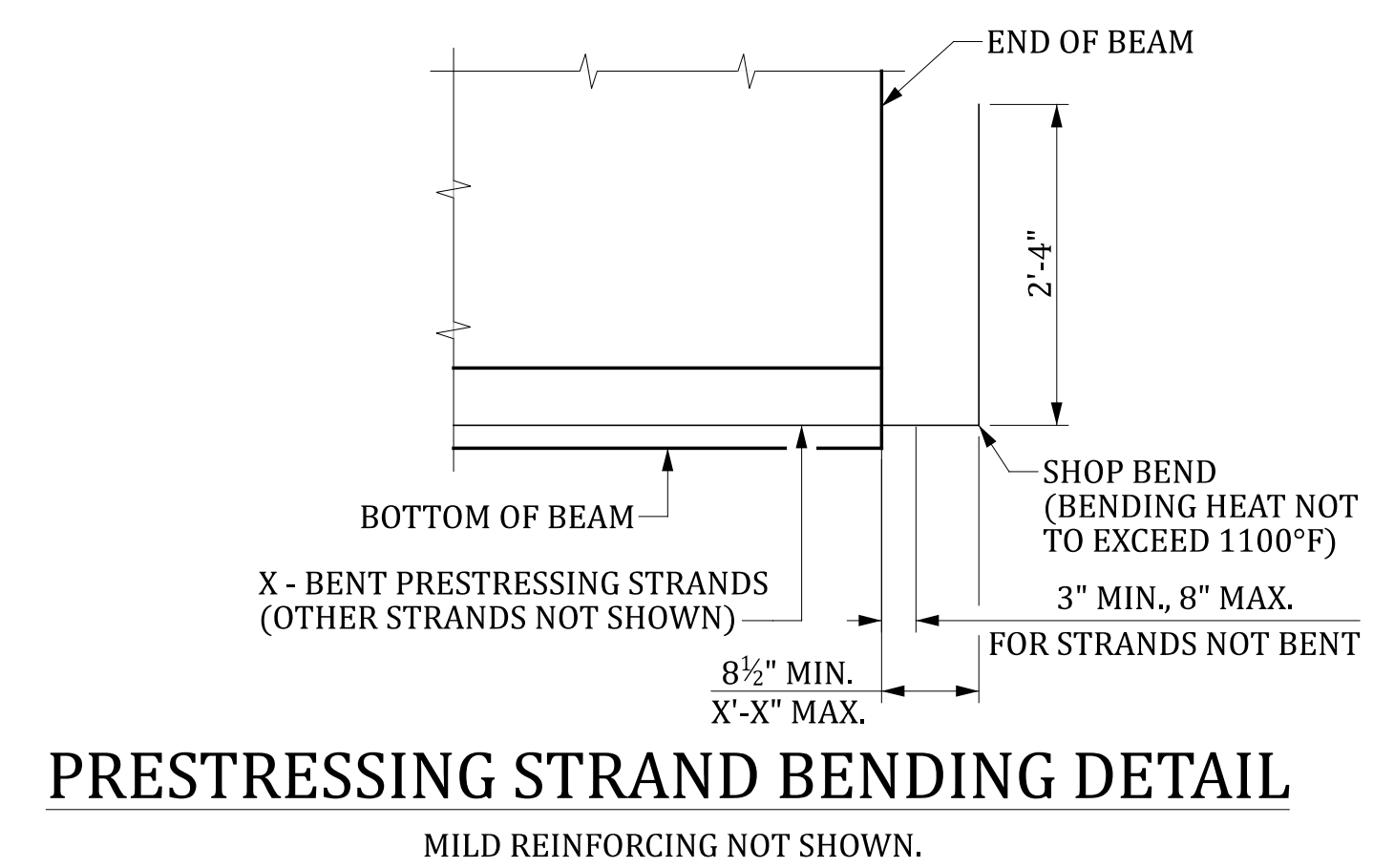
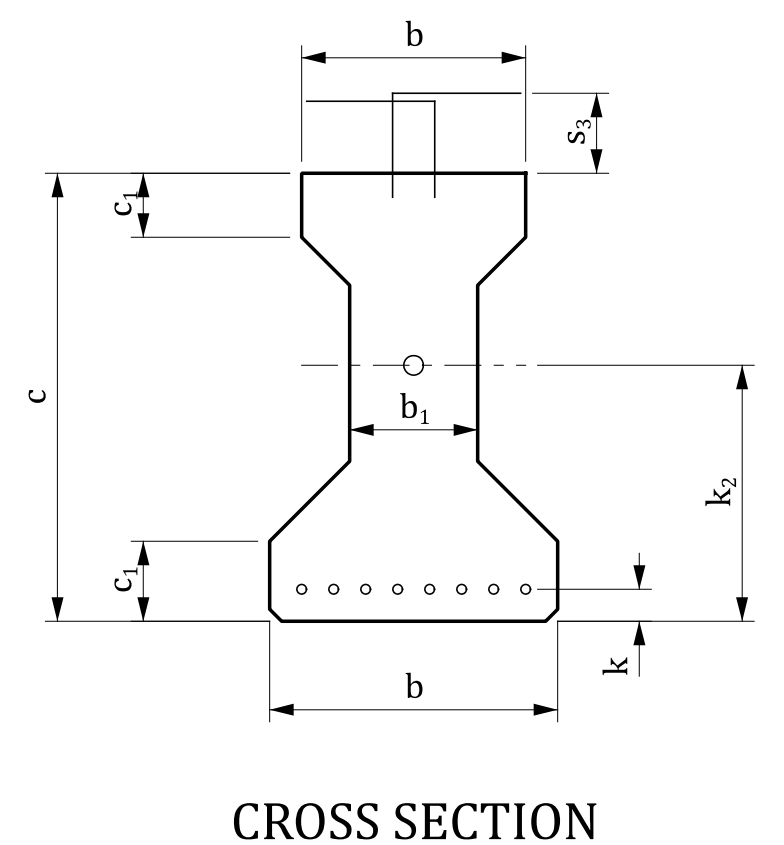
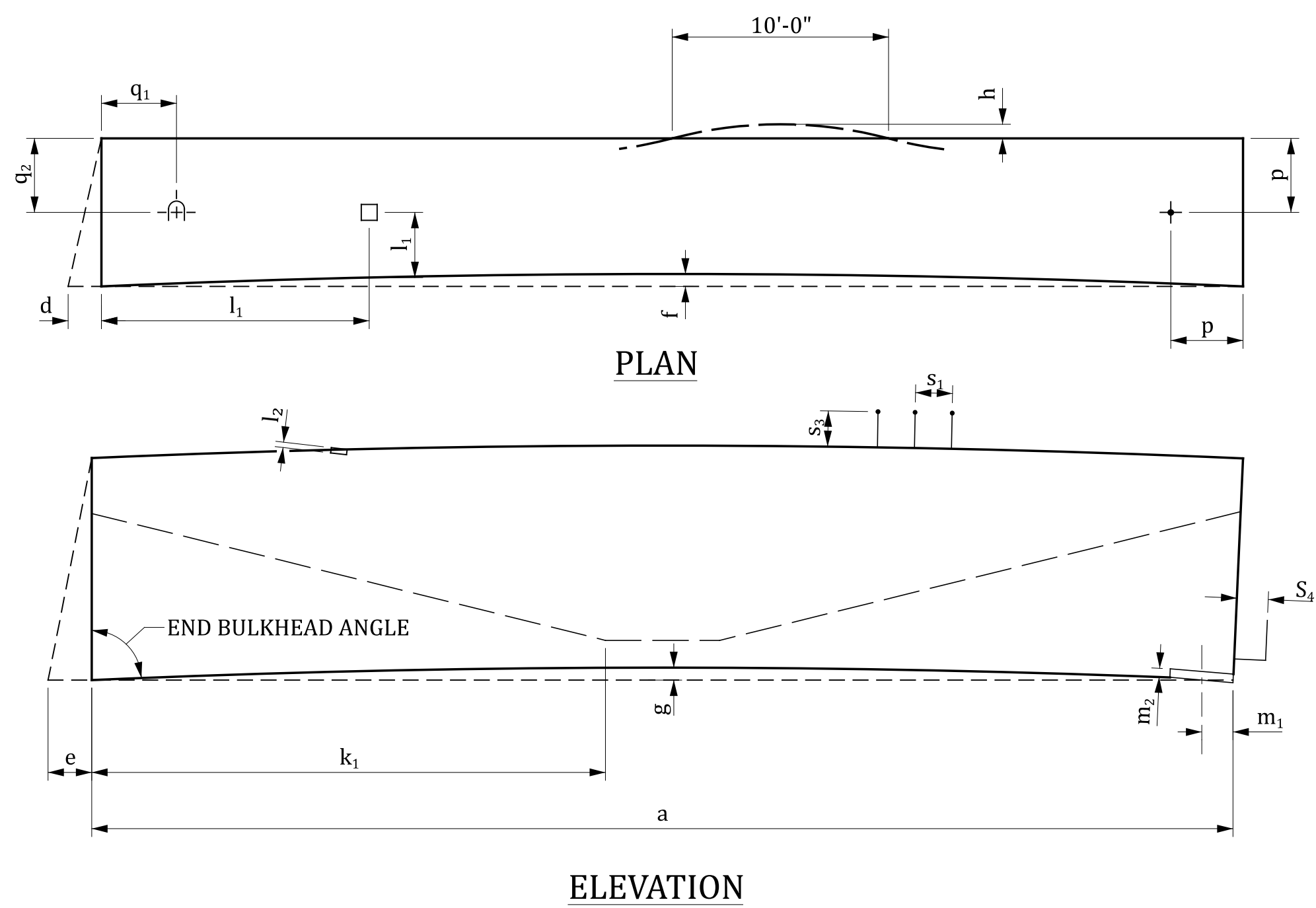
REINFORCEMENT AND EXPANSION JOINT DETAILS NOT SHOWN FOR CLARITY.

② USE APPROVED HOT-DIPPED GALVANIZED FERRULE INSERTS (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.

REVIEWED	QUAN.	DR.	DES.	BY	CHK.	DATE

Dylan Danks 6/20/2024 3:11:40 PM 704_AASHTO.dgn

TOLERANCES



PRESTRESSING STRAND BENDING DETAIL

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NOTES:

SEE SECTION 704 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING PRESTRESSED CONCRETE BEAMS. SHOP DRAWINGS MUST BE SUBMITTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

INCLUDE STRAND BENDING PROCEDURE IN SHOP PLANS.

GALVANIZE ALL OVERHANG BRACKETS IN THE TOP FLANGE OF EXTERIOR BEAMS IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPROPRIATE AND DETAIL ACCORDINGLY IN THE SHOP PLANS.

USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO M 203 FOR GRADE 270 (LOW RELAXATION).

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 f_{ci}.

ON THE TOP SURFACE OF BEAMS WHERE CAST-IN-PLACE CONCRETE WILL BE PLACED, PROVIDE A FINISH THAT IS CLEAN, FREE OF LAITANCE, AND INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 1/4". FINISH TOP OF BEAM LEVEL ACROSS WIDTH OF FLANGE.

ALWAYS MAINTAIN PRESTRESSED CONCRETE BEAMS IN AN UPRIGHT POSITION. WHEN PLACING OR STORING BEAMS, ENSURE BEAM SUPPORTS ARE LOCATED ONLY UNDER THE SOLE PLATES.

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.

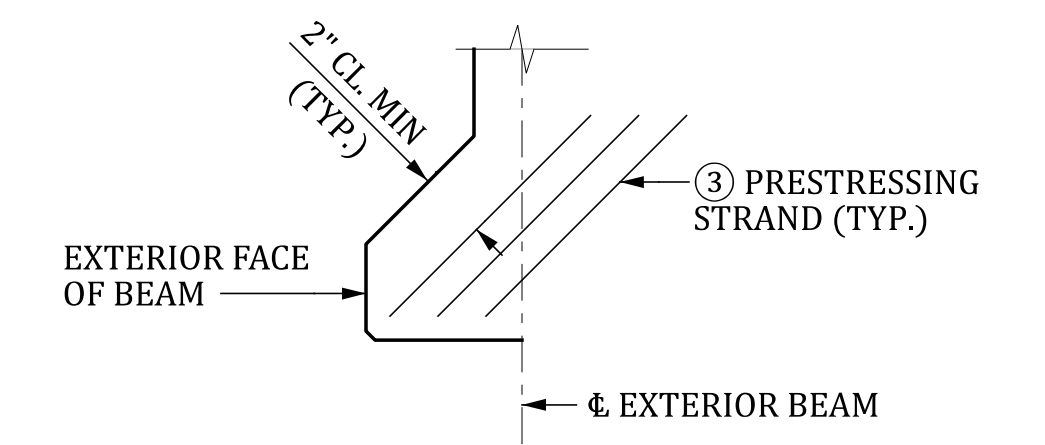
CONTRACTOR IS RESPONSIBLE FOR INVESTIGATING THE CAPACITY OF BEAM FLANGES TO ENSURE FLANGES ARE ADEQUATE TO SUPPORT ALL CONSTRUCTION LOADS.

DEBONDING:

1) 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 DENSITY POLYETHYLENE OR POLYPROPYLENE WITH A MINIMUM THICKNESS OF 0.025". USE CONDUIT WITH AN INSIDE DIAMETER THAT WILL PERMIT FREE MOVEMENT OF THE ENCASED STRAND, BUT NO LARGER THAN THE DIAMETER OF THE STRAND PLUS 1/8". PLACE CONDUIT ON THE STRAND AT THE LOCATION(S) SHOWN ON THE PLANS (±1") TO PREVENT BONDING OF THE CONCRETE. SECURE CONDUIT TO PREVENT ANY LONGITUDINAL MOVEMENT ALONG THE STRAND. PREVENT CONCRETE FROM ENTERING THE CONDUIT BY SEALING WITH TAPE. USE TAPE MANUFACTURED FROM A NON-CORROSIVE MATERIAL THAT IS COMPATIBLE WITH THE CONCRETE, CONDUIT, AND STEEL.

2) RELEASE STRANDS IN ACCORDANCE WITH SECTION 704 OF THE STANDARD SPECIFICATIONS.

3) WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS 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 IS WHITE IN COLOR.

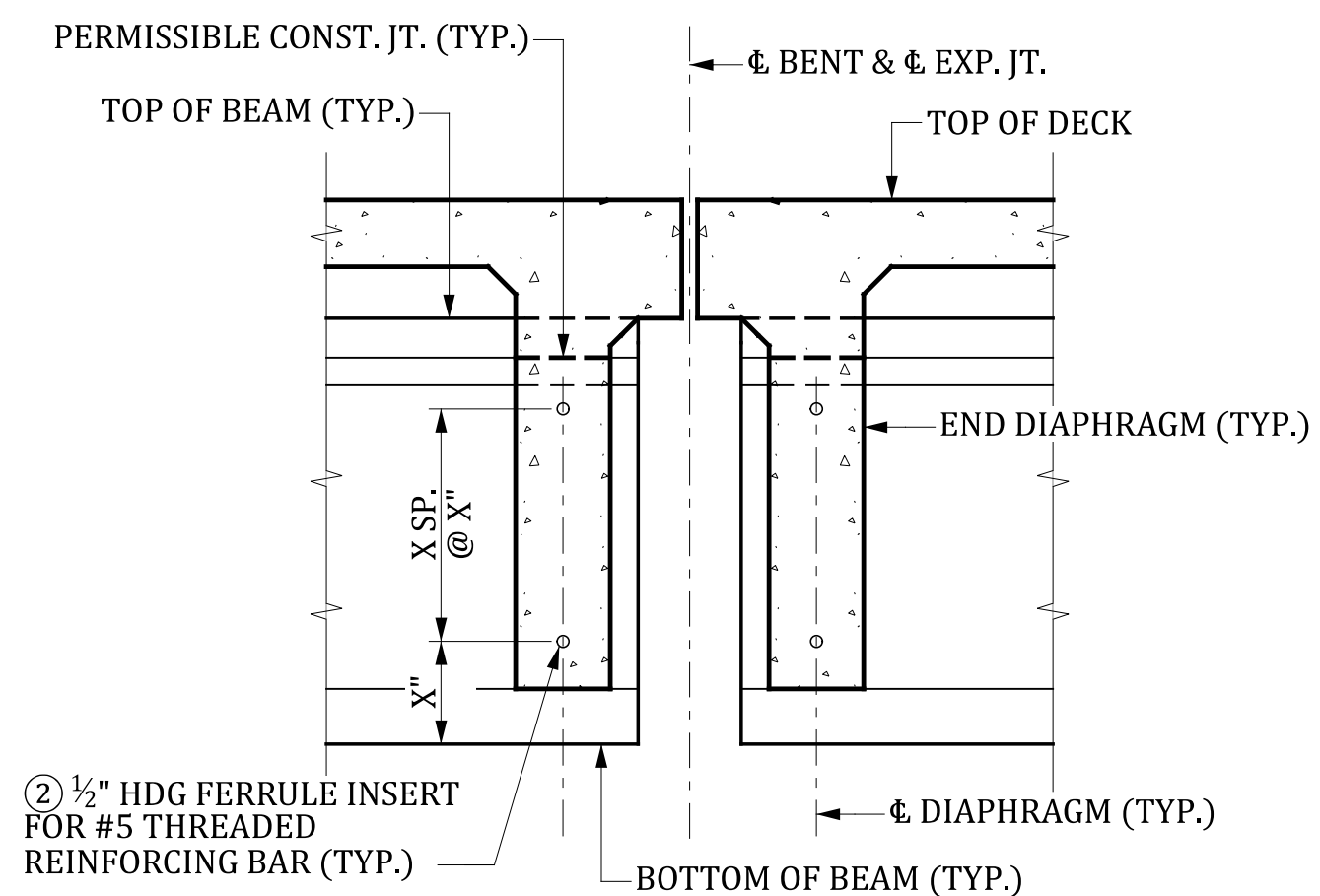
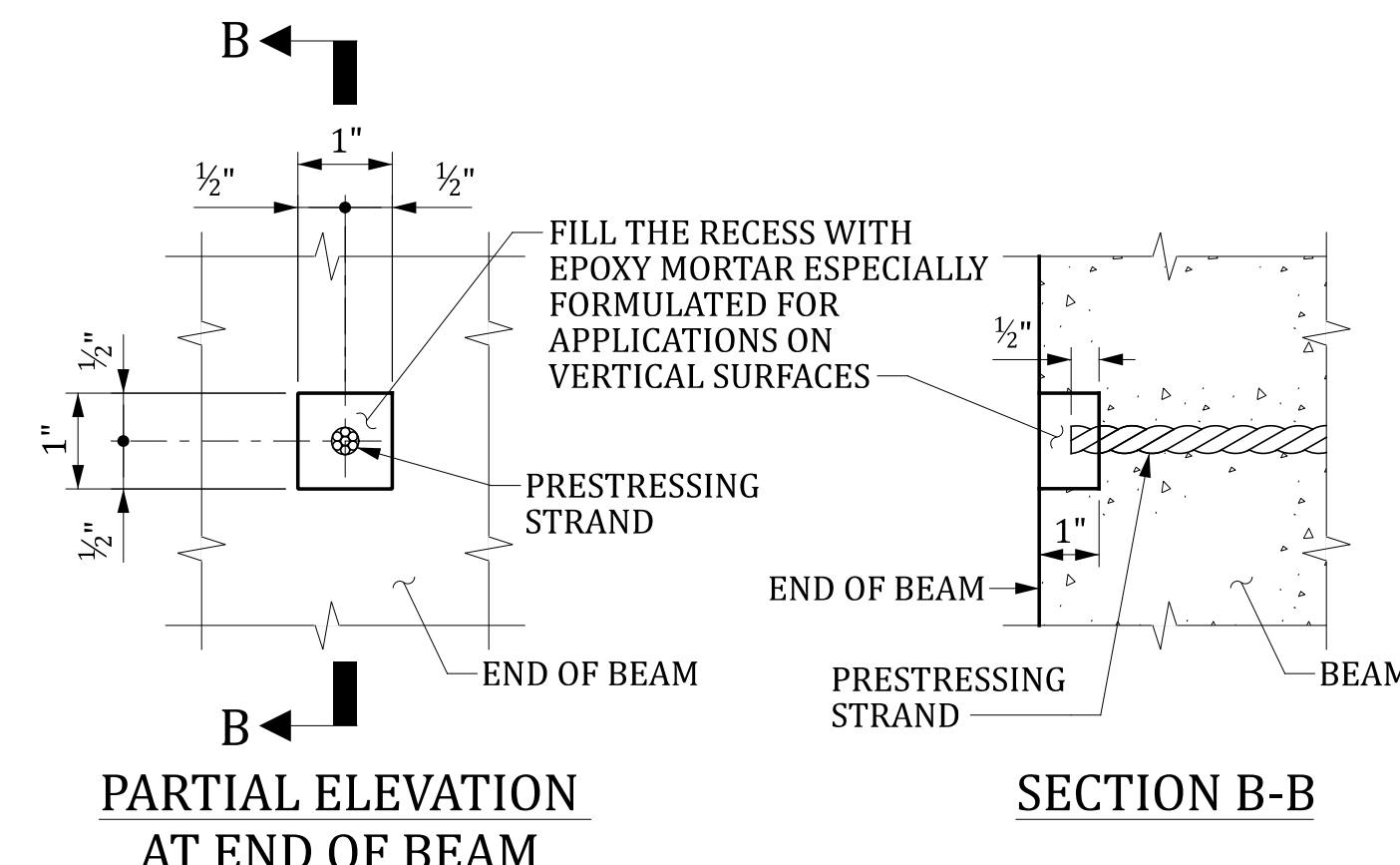
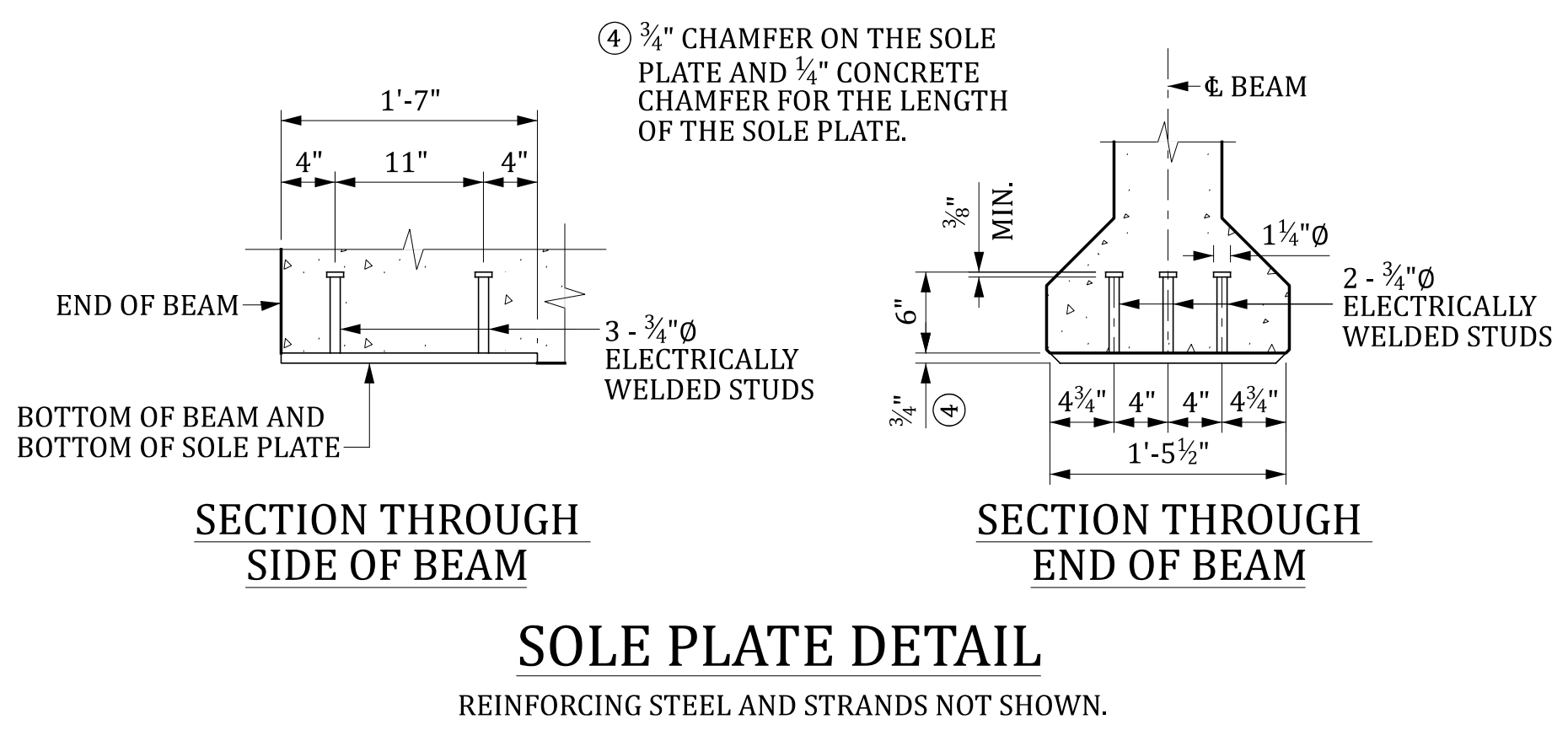


HALF ELEVATION END OF BEAM AT INTERIOR BENT

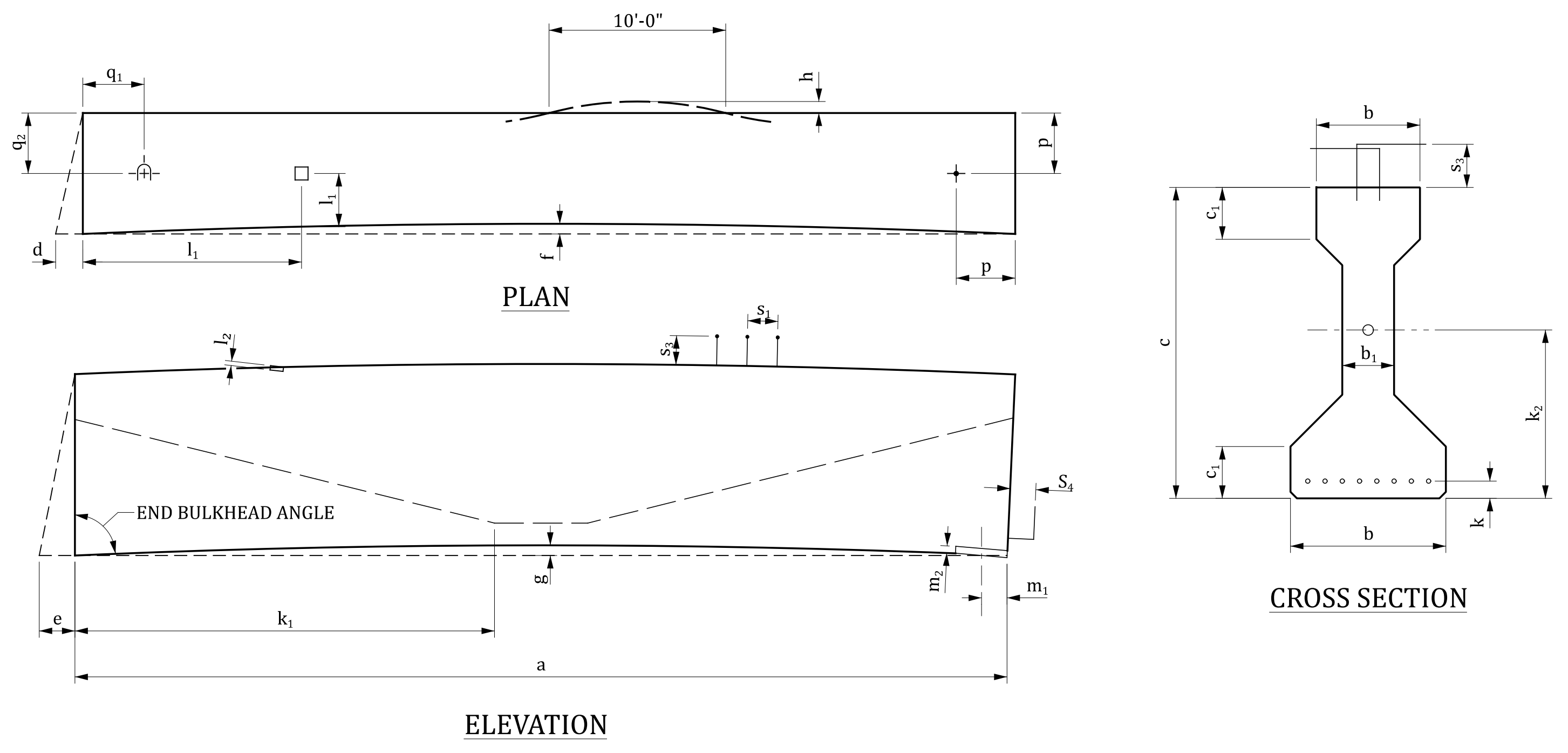
FIELD BEND STRANDS AS NECESSARY FOR OUTSIDE OF EXTERIOR BEAM ONLY.
③ NUMBER OF STRANDS SHOWN FOR ILLUSTRATION ONLY.

CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO TYPE I MODIFIED GENERAL DETAILS	
COUNTY: ####	ROUTE: ####

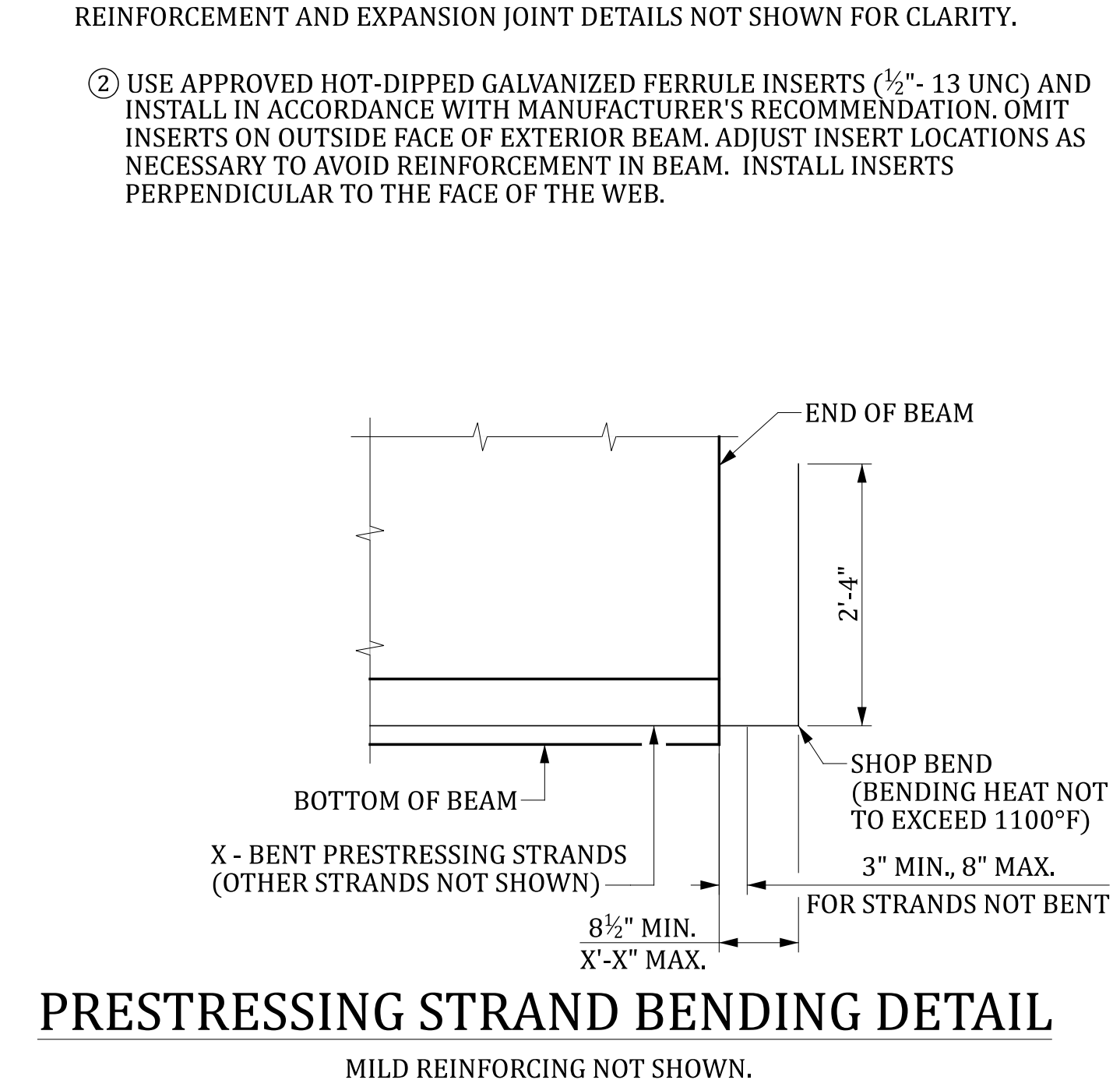
a	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, ± 1 " MAX.
b	WIDTH (OVERALL)	$\pm \frac{3}{8}$ ", $-\frac{1}{4}$ "
b ₁	WEB WIDTH	$+\frac{3}{8}$ ", $-\frac{1}{4}$ "
c	DEPTH (OVERALL)	$+\frac{1}{2}$ ", $-\frac{1}{4}$ "
c ₁	FLANGE DEPTH	$\pm \frac{1}{4}$ "
d	VARIATION FROM SPECIFIED PLAN END SQUARENESS OR 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, ± 1 " MAX.
f	SWEEP	$\frac{1}{8}$ " 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 ± 1 " MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	$\frac{1}{4}$ " IN 10'
k	LOCATION OF STRAND (INDIVIDUAL)	$\pm \frac{1}{4}$ "
	LOCATION OF STRAND (BUNDLED)	$\pm \frac{1}{2}$ "
k ₁	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	± 20 "
k ₂	LOCATION OF POST-TENSIONING DUCT	$\pm \frac{1}{4}$ "
l ₁	LOCATION OF EMBEDMENT	± 1 "
l ₂	TIPPING AND FLUSHNESS OF EMBEDMENT	$\pm \frac{1}{4}$ "
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p	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	$\pm \frac{1}{2}$ "
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	$+\frac{1}{4}$ ", $-\frac{1}{2}$ "
s ₄	PRESTRESSING STRAND PROJECTION FROM BEAM END	$\pm \frac{1}{2}$ "



TOLERANCES



PRESTRESSING STRAND BENDING DETAIL



NOTES:
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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.

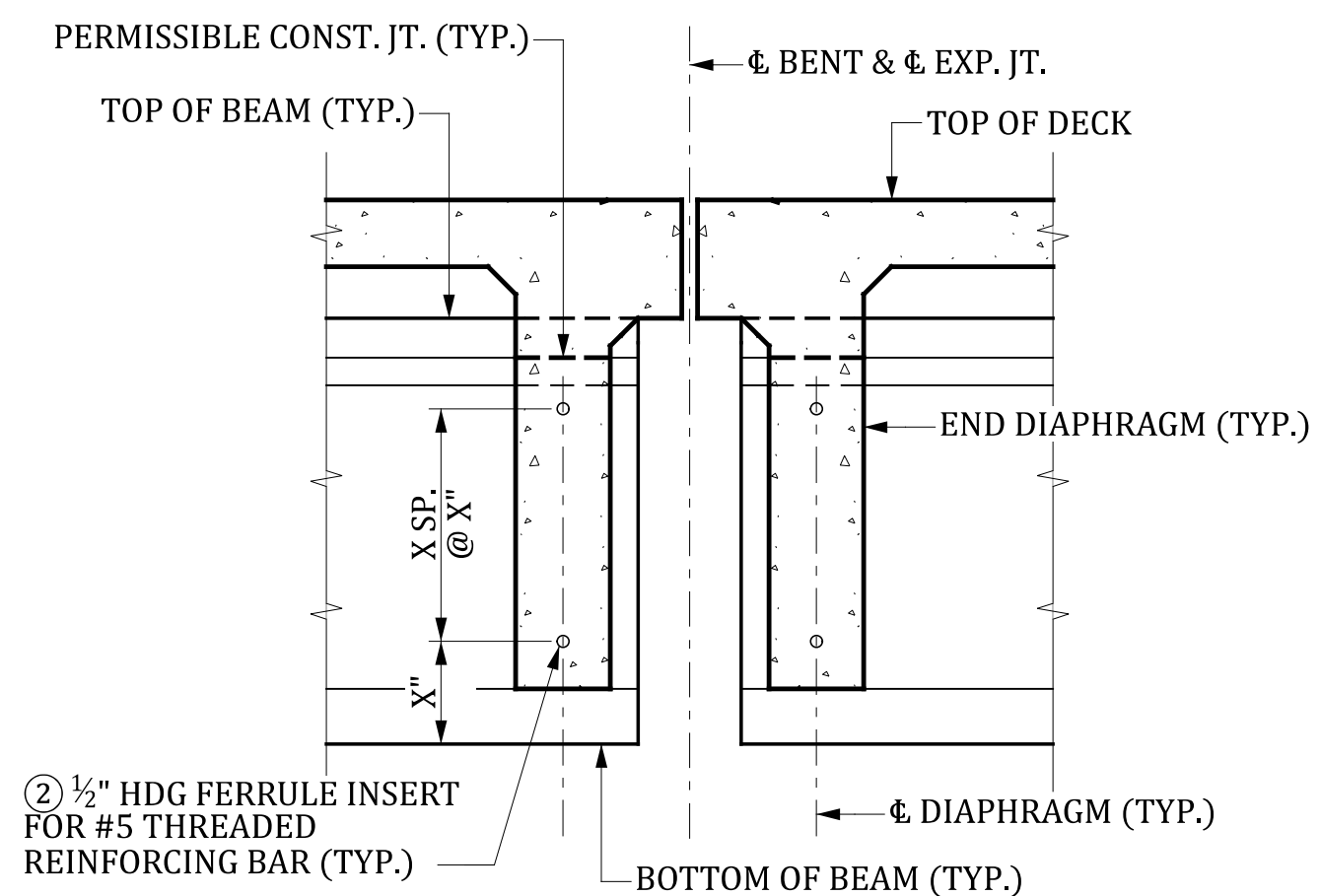
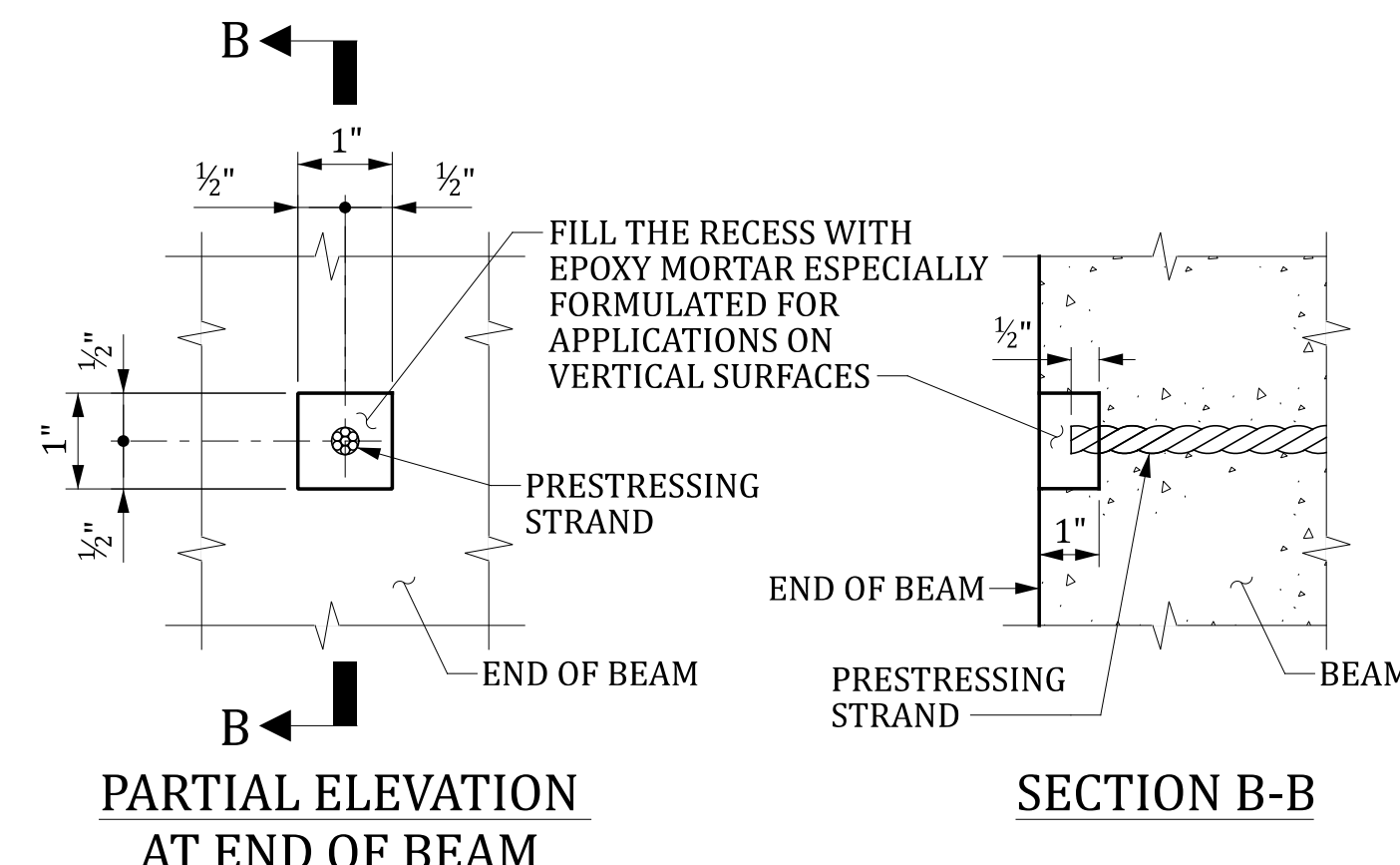
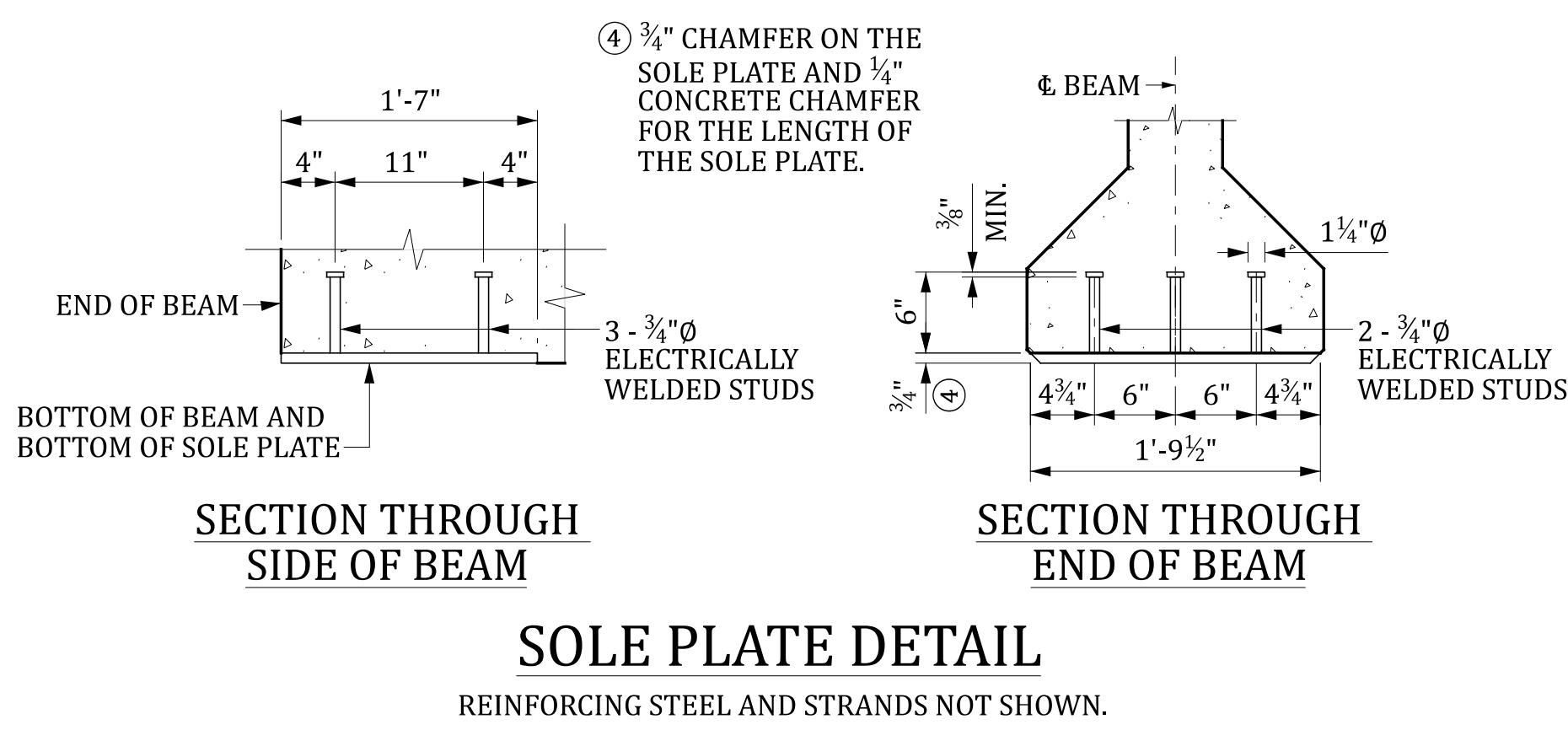
CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO TYPE II GENERAL DETAILS	

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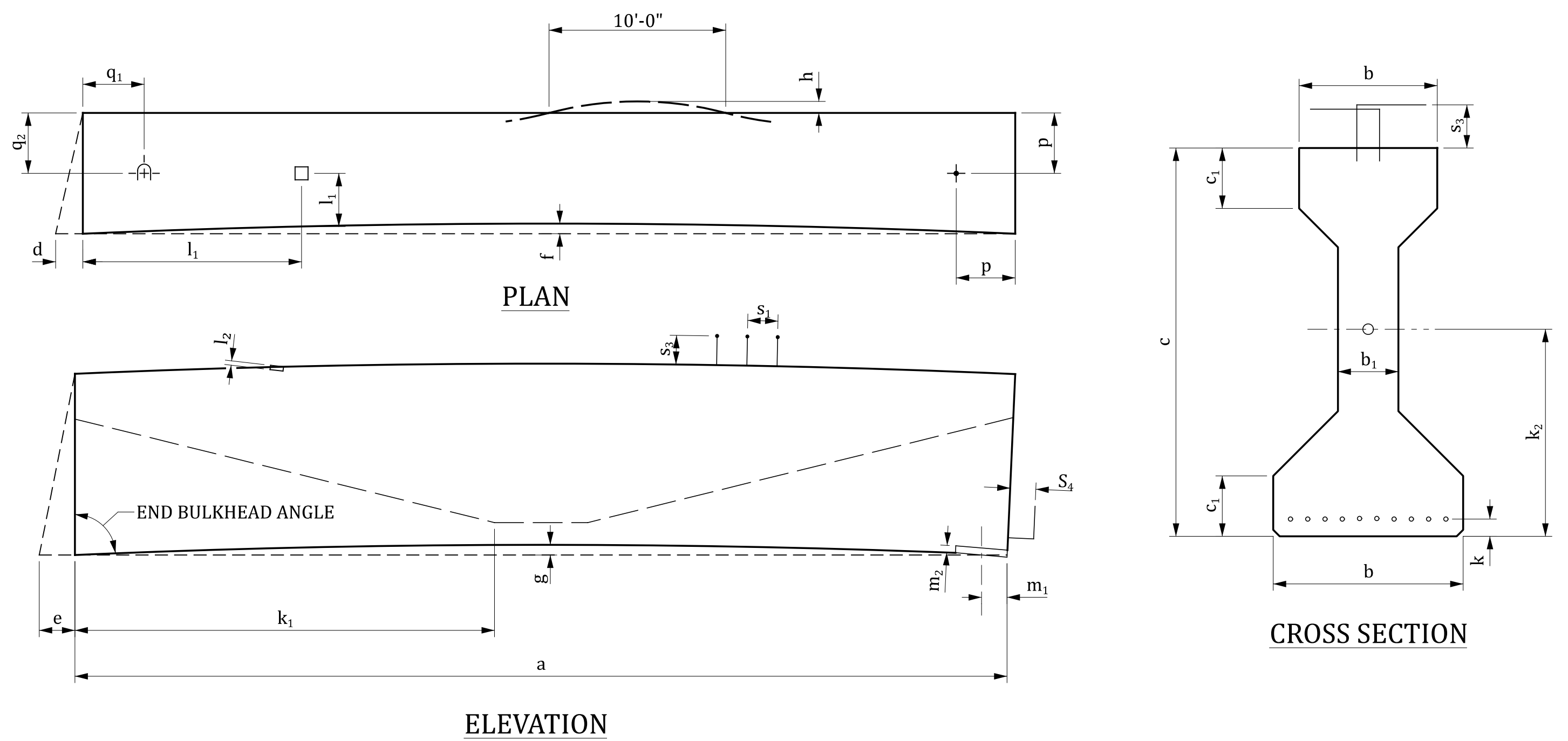
REVIEWED	QUAN.	DR.	DMD	AEL	04-24
DES.					
BY	CHK.	DATE	DESCRIPTION OF REVISION		

Dylan Danks 6/20/2024 3:11:41 PM 704_AASHTO.dgn

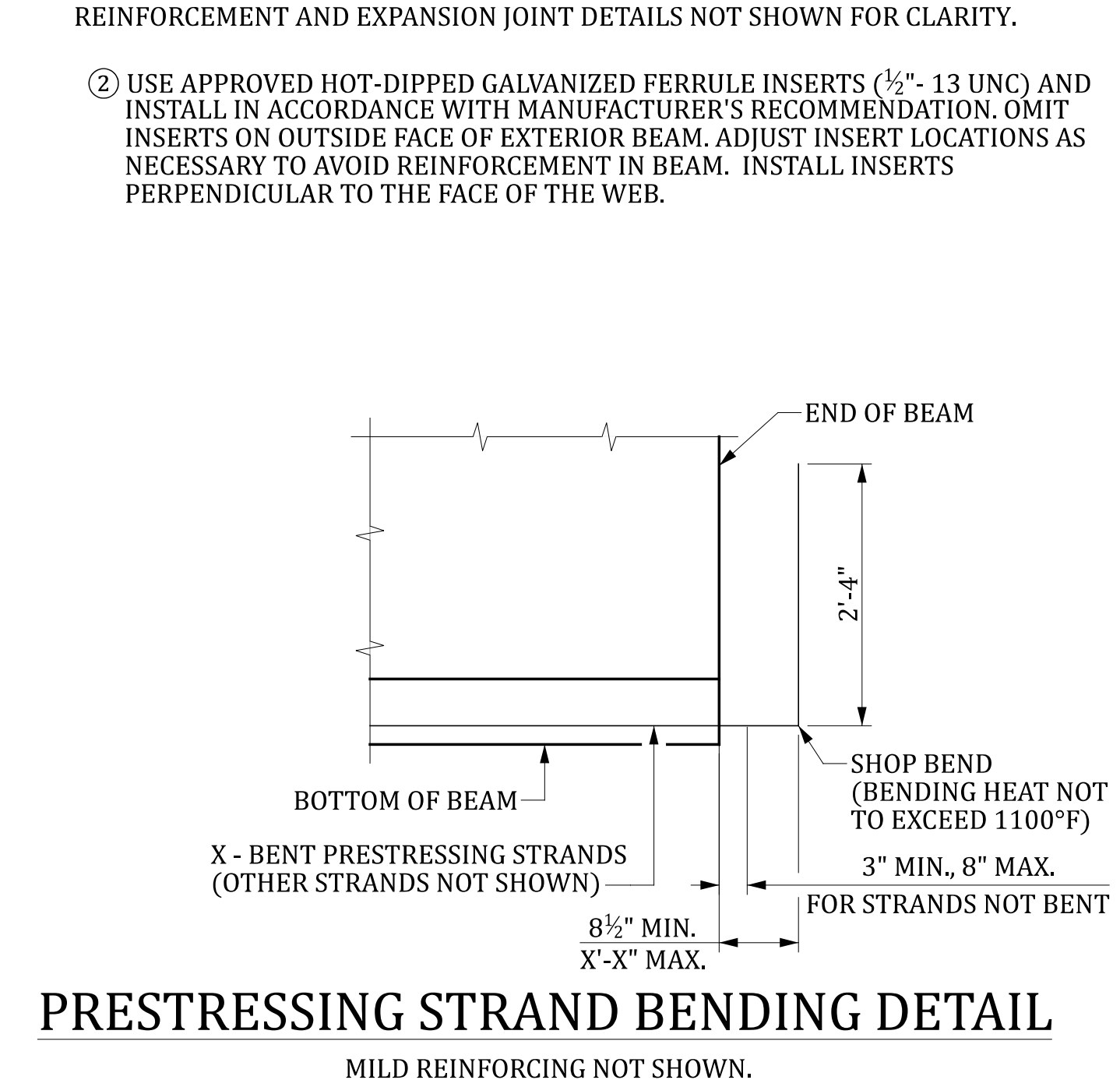
a	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, ± 1 " MAX.
b	WIDTH (OVERALL)	$\pm \frac{3}{8}$ ", $-\frac{1}{4}$ "
b ₁	WEB WIDTH	$+\frac{3}{8}$ ", $-\frac{1}{4}$ "
c	DEPTH (OVERALL)	$+\frac{1}{2}$ ", $-\frac{1}{4}$ "
c ₁	FLANGE DEPTH	$\pm \frac{1}{4}$ "
d	VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW	$\pm \frac{1}{8}$ " PER 12" WIDTH, $\pm \frac{1}{2}$ " MAX.
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f	SWEEP	$\frac{1}{8}$ " 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 ± 1 " MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	$\frac{1}{4}$ " IN 10'
k	LOCATION OF STRAND (INDIVIDUAL)	$\pm \frac{1}{4}$ "
	LOCATION OF STRAND (BUNDLED)	$\pm \frac{1}{2}$ "
k ₁	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	± 20 "
k ₂	LOCATION OF POST-TENSIONING DUCT	$\pm \frac{1}{4}$ "
l ₁	LOCATION OF EMBEDMENT	± 1 "
l ₂	TIPPING AND FLUSHNESS OF EMBEDMENT	$\pm \frac{1}{4}$ "
m ₁	LOCATION OF BEARING ASSEMBLY	$\pm \frac{5}{8}$ "
m ₂	TIPPING AND FLUSHNESS OF BEARING ASSEMBLY	$\pm \frac{1}{8}$ "
p	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	$\pm \frac{1}{2}$ "
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	$+\frac{1}{4}$ ", $-\frac{1}{2}$ "
s ₄	PRESTRESSING STRAND PROJECTION FROM BEAM END	$\pm \frac{1}{2}$ "



TOLERANCES



PRESTRESSING STRAND BENDING DETAIL



NOTES:
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INCLUDE STRAND BENDING PROCEDURE IN SHOP PLANS.
GALVANIZE ALL OVERHANG BRACKETS IN THE TOP FLANGE OF EXTERIOR BEAMS IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPROPRIATE AND DETAIL ACCORDINGLY IN THE SHOP PLANS.
USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO M 203 FOR GRADE 270 (LOW RELAXATION).
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 f_{ci}.
ON THE TOP SURFACE OF BEAMS WHERE CAST-IN-PLACE CONCRETE WILL BE PLACED, PROVIDE A FINISH THAT IS CLEAN, FREE OF LAITANCE, AND INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF APPROXIMATELY 1/4". FINISH TOP OF BEAM LEVEL ACROSS WIDTH OF FLANGE.
ALWAYS MAINTAIN PRESTRESSED CONCRETE BEAMS IN AN UPRIGHT POSITION. WHEN PLACING OR STORING BEAMS, ENSURE BEAM SUPPORTS ARE LOCATED ONLY UNDER THE SOLE PLATES.
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 CONSTRUCTION LOADS.
DEBONDING:
1) 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 DENSITY POLYETHYLENE OR POLYPROPYLENE WITH A MINIMUM THICKNESS OF 0.025". USE CONDUIT WITH AN INSIDE DIAMETER THAT WILL PERMIT FREE MOVEMENT OF THE ENCASED STRAND, BUT NO LARGER THAN THE DIAMETER OF THE STRAND PLUS 1/8". PLACE CONDUIT ON THE STRAND AT THE LOCATION(S) SHOWN ON THE PLANS (± 1 " TO PREVENT BONDING OF THE CONCRETE. SECURE CONDUIT TO PREVENT ANY LONGITUDINAL MOVEMENT ALONG THE STRAND. PREVENT CONCRETE FROM ENTERING THE CONDUIT BY SEALING WITH TAPE. USE TAPE MANUFACTURED FROM A NON-CORROSIVE MATERIAL THAT IS COMPATIBLE WITH THE CONCRETE, CONDUIT, AND STEEL.
2) RELEASE STRANDS IN ACCORDANCE WITH SECTION 704 OF THE STANDARD SPECIFICATIONS.
3) WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS 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 IS WHITE IN COLOR.

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.

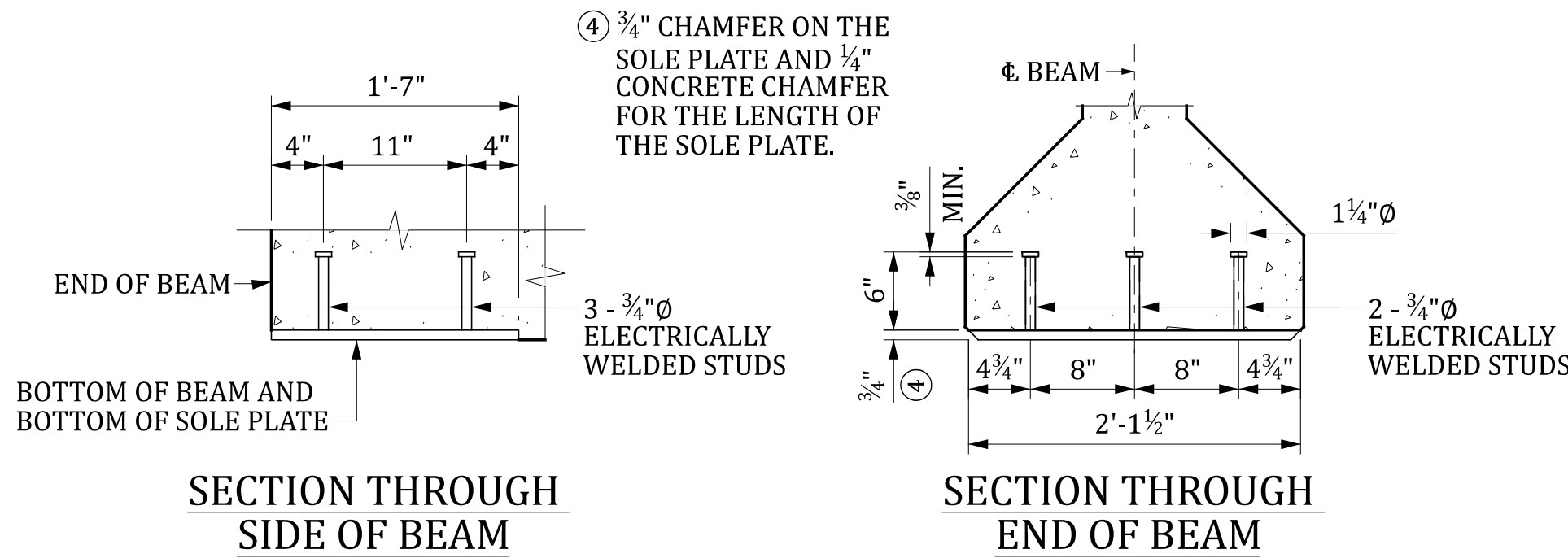
CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO TYPE III GENERAL DETAILS	

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.

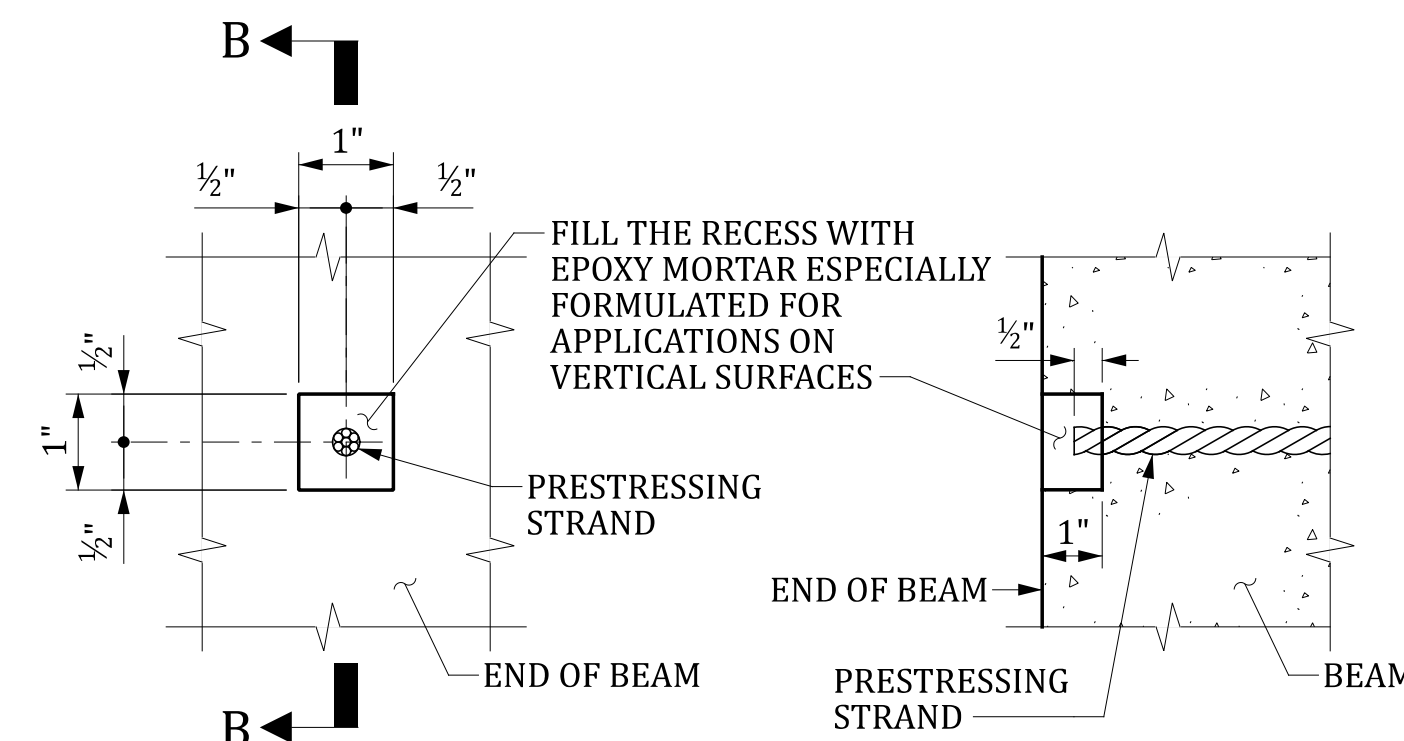
REVIEWED	QUAN.	DR.	DES.	BY	CHK.	DATE
REV.						
REV.						
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a	LENGTH	$\pm \frac{1}{4}$ " PER 25' LENGTH, ± 1 " MAX.
b	WIDTH (OVERALL)	$\pm \frac{3}{8}$ ", $-\frac{1}{4}$ "
b ₁	WEB WIDTH	$+\frac{3}{8}$ ", $-\frac{1}{4}$ "
c	DEPTH (OVERALL)	$+\frac{1}{2}$ ", $-\frac{1}{4}$ "
c ₁	FLANGE DEPTH	$\pm \frac{1}{4}$ "
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, ± 1 " MAX.
f	SWEEP	$\frac{1}{8}$ " 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 ± 1 " MAX. FOR LENGTH GREATER THAN 80'
h	LOCAL SMOOTHNESS OF ANY SURFACE	$\frac{1}{4}$ " IN 10'
k	LOCATION OF STRAND (INDIVIDUAL)	$\pm \frac{1}{4}$ "
	LOCATION OF STRAND (BUNDLED)	$\pm \frac{1}{2}$ "
k ₁	LOCATION OF HARP POINTS FOR HARPED STRANDS FROM DESIGN LOCATION	± 20 "
k ₂	LOCATION OF POST-TENSIONING DUCT	$\pm \frac{1}{4}$ "
l ₁	LOCATION OF EMBEDMENT	± 1 "
l ₂	TIPPING AND FLUSHNESS OF EMBEDMENT	$\pm \frac{1}{4}$ "
m ₁	LOCATION OF BEARING ASSEMBLY	$\pm \frac{5}{8}$ "
m ₂	TIPPING AND FLUSHNESS OF BEARING ASSEMBLY	$\pm \frac{1}{8}$ "
p	LOCATION OF INSERTS, SLEEVES, OR HOLES FOR STRUCTURAL CONNECTIONS	$\pm \frac{1}{2}$ "
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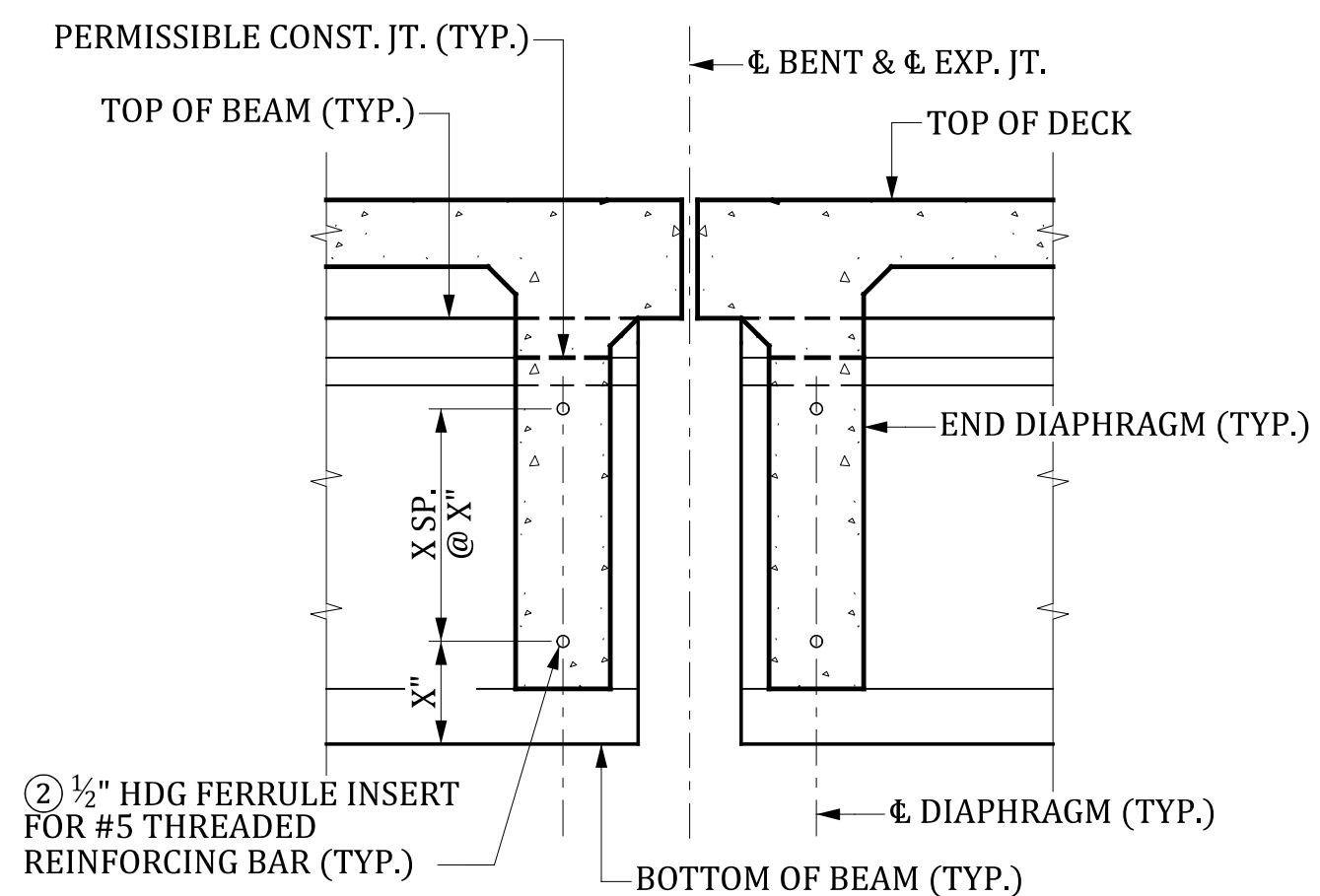


SOLE PLATE DETAIL
REINFORCING STEEL AND STRANDS NOT SHOWN.



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 $\frac{1}{2}$ " BACK INTO RECESS AND FILL THE RECESS WITH AN EPOXY MORTAR ESPECIALLY FORMULATED FOR APPLICATIONS ON VERTICAL SURFACES.



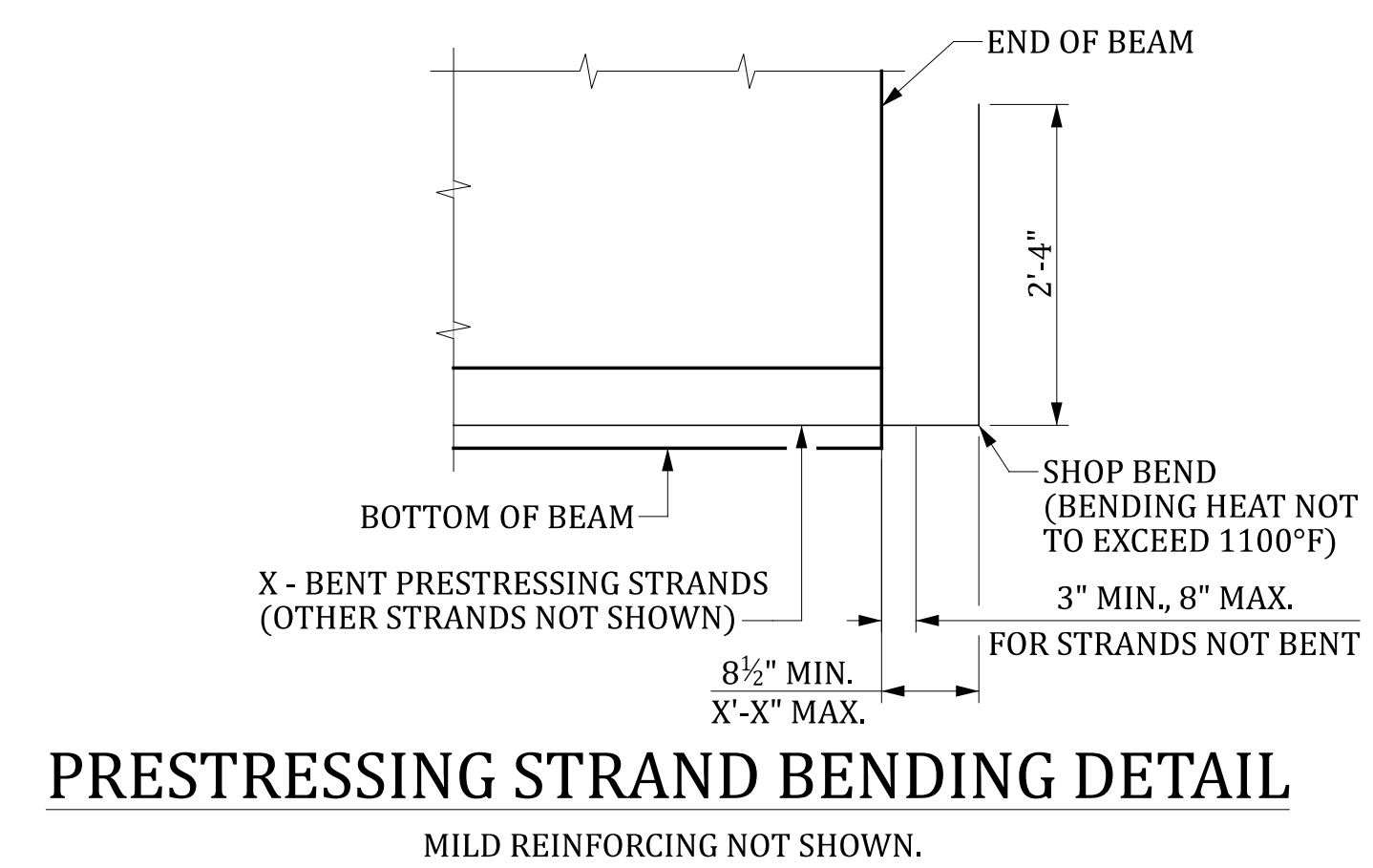
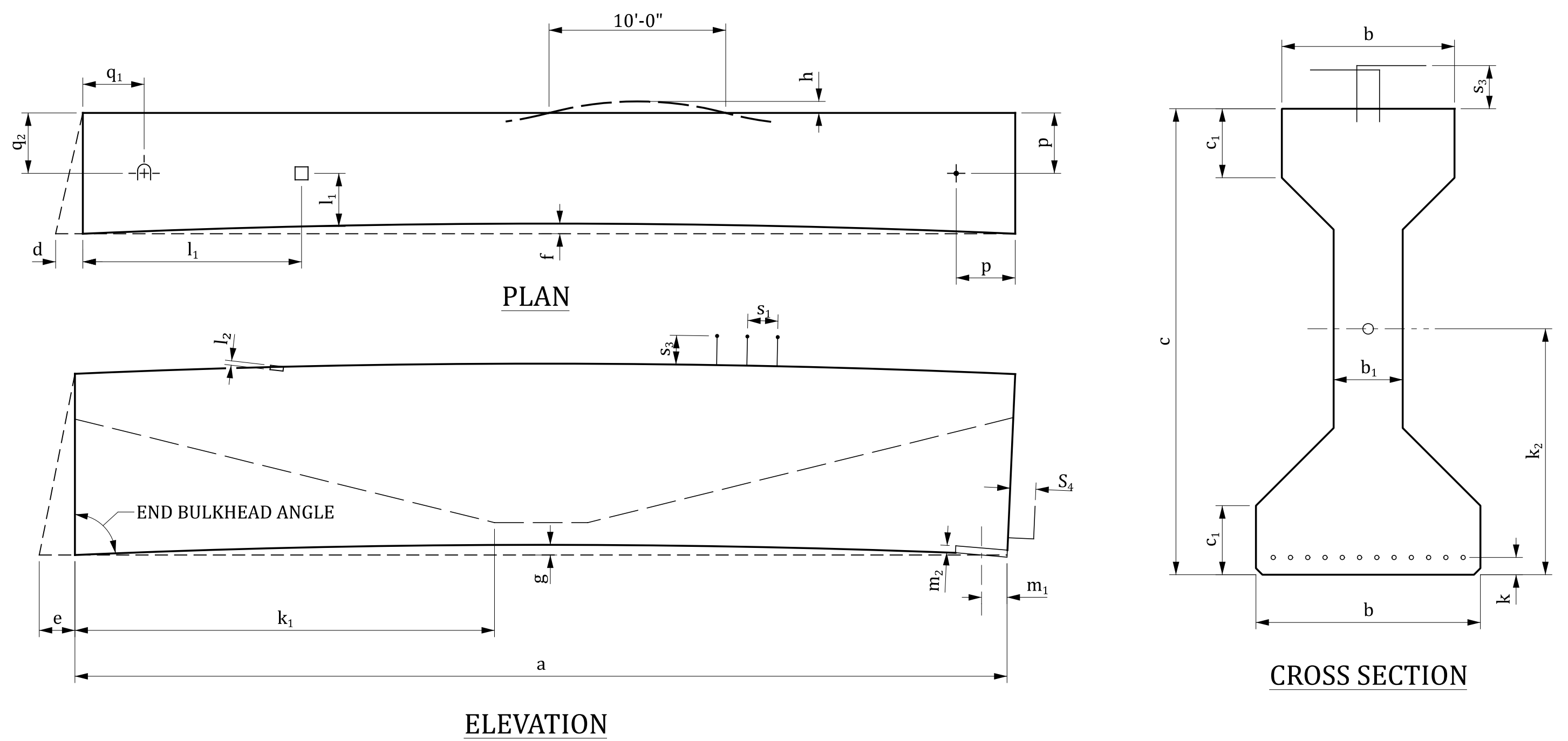
SECTION AT END DIAPHRAGM
REINFORCEMENT AND EXPANSION JOINT DETAILS NOT SHOWN FOR CLARITY.

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.

REVISED	QUAN.	DR.	DES.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	BY	CHK.	DATE

TOLERANCES



PRESTRESSING STRAND BENDING DETAIL
MILD REINFORCING NOT SHOWN.

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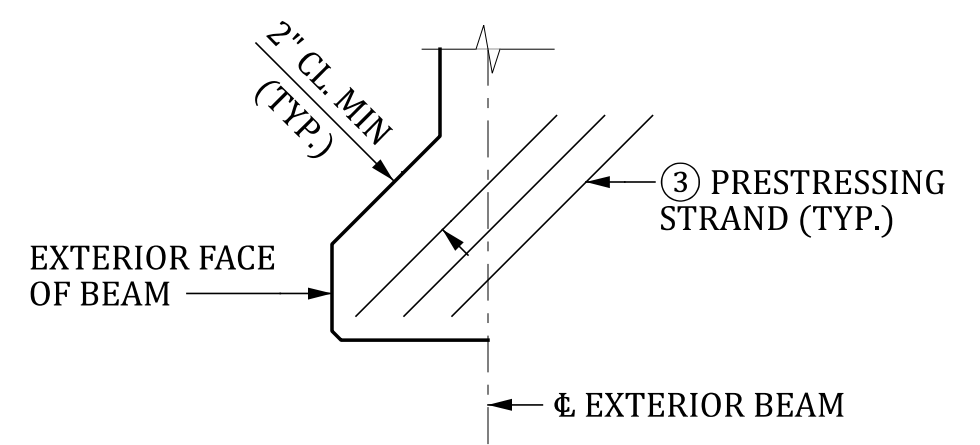
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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
AASHTO TYPE IV GENERAL DETAILS	
COUNTY: ####	ROUTE: ####

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