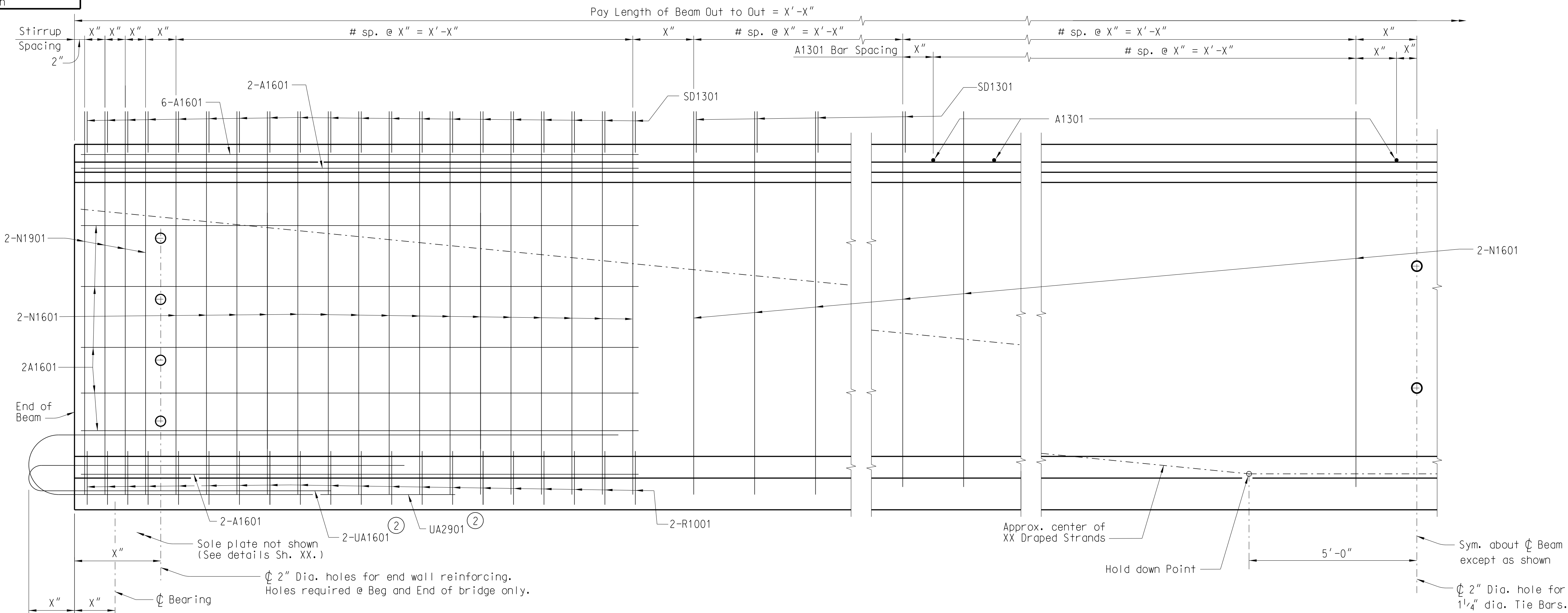
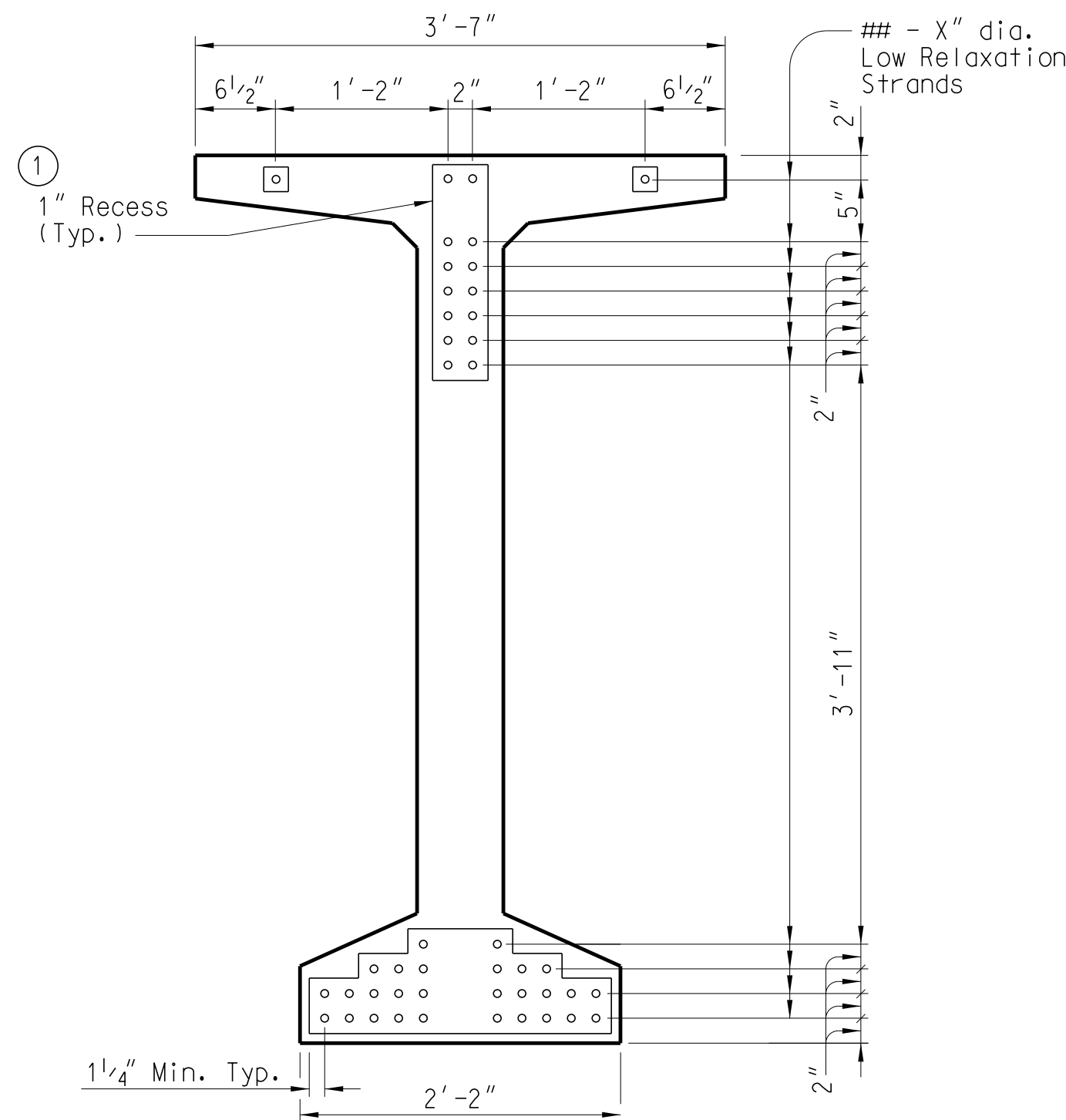


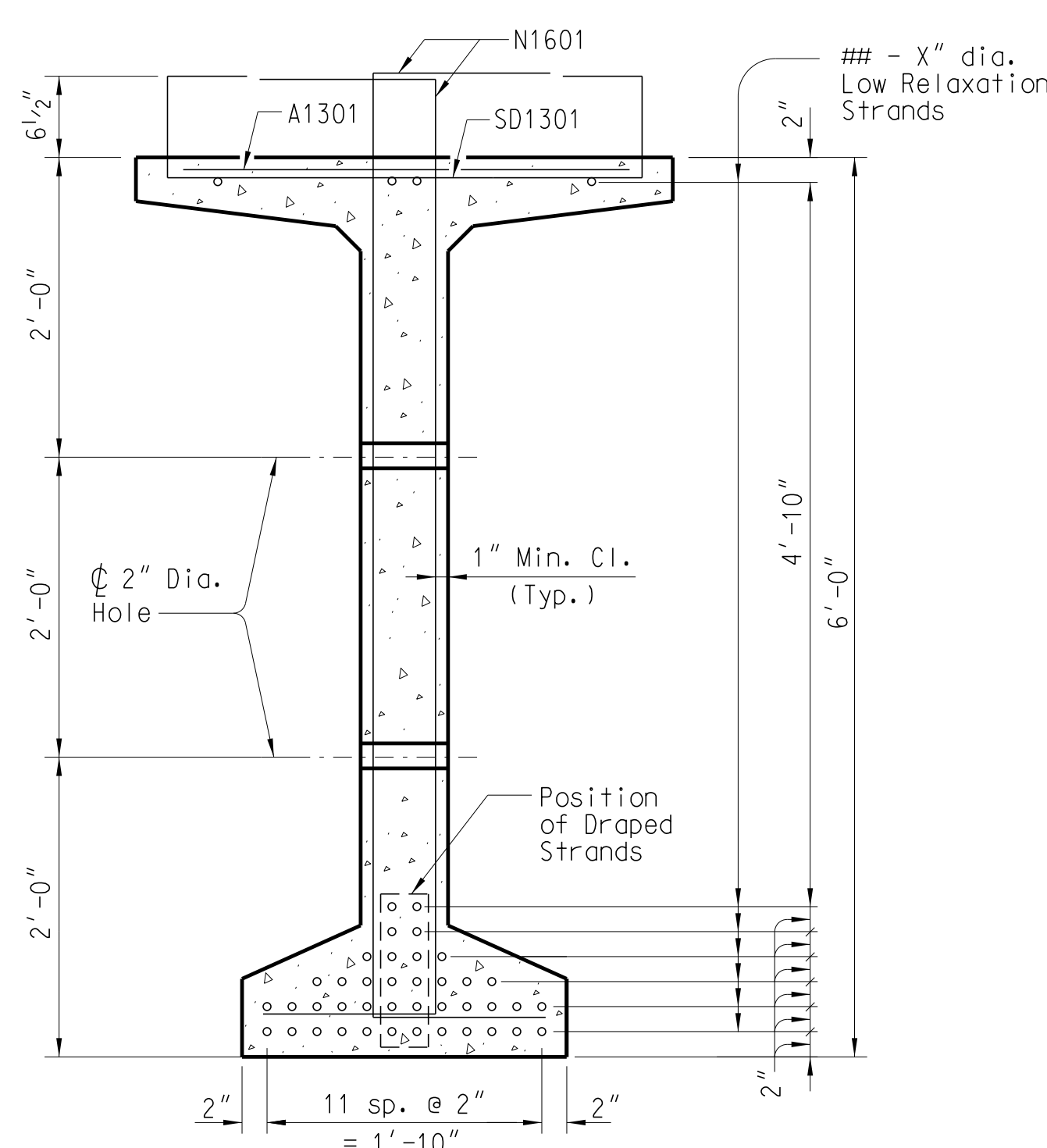
STRAND DATA				
DIAMETER	AREA, G^2	TENSIONING LOAD	DIAMETER AREA	TENSIONING LOAD
$1\frac{1}{2}$ "	0.153	31.0 kips	$9\frac{1}{16}$ "	0.192
$1\frac{1}{2}$ " Special	0.167	33.8 kips	0.6"	0.217



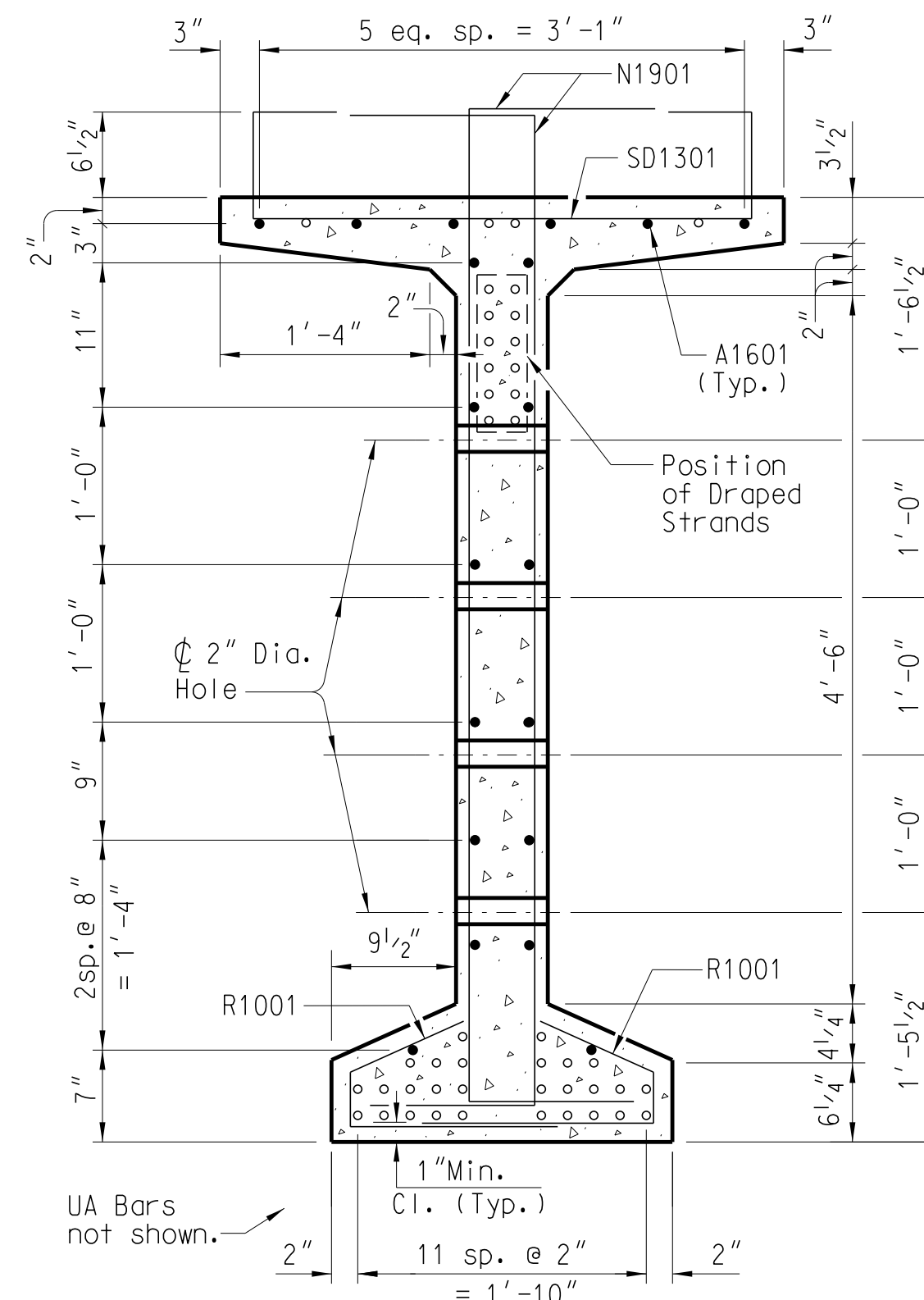
HALF SIDE ELEVATION



END ELEV.



AT CENTER
OF BEAM



AT END
OF BEAM

REINF. STEEL SCHED.						
MARK	NO. REQ'D	DIMENSION				LENGTH
		"a"	"b"	"c"	"d"	
A1301	X	3'-3"	—	—	—	3'-3"
A1601	40	9'-0"	—	—	—	9'-0"
N1601	X	10"	6'-4"	1'-0"	—	8'-2"
N1901	X	1'-0"	6'-4"	1'-0"	—	8'-4"
R1001	X	1'-6"	4"	1'-0"	11"	2'-10"
SD1301	X	3'-3"	8"	8"	—	5'-11"
UA1601	4	9'-6"	5"	8'-3"	—	17'-11"
UA2901	2	11'-9"	11 ³ / ₄ "	9'-0"	—	21'-2"
QUANTITIES						
ITEM		UNIT	ONE BEAM			
Concrete, Class XXXX		CY	XXXX			
Reinforcing Steel		LB	XXXX			
Prestressing Strands		LF	XXXX			
Structural Steel		LB	As Necessary			

DESIGN DATA

Low Relaxation Strands

Tensile Strength (f_{pu}) = 270 ksi
Initial Prestress ($0.75 f_{pu}$) = 202.5 ksi

Class XXXX Concrete

$f'_c = X$ ksi
 $f'_{ci} = X$ ksi

Note to Designer:

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.

If plans are detailed with Steel Intermediate Diaphragms, revise beam details for consistency.

Notes:

Contractor is responsible for investigating the capacity of beam flanges to ensure flanges are adequate to support all construction loads. A minimum of #13 reinforcing bars placed transversely at 24" spacing is required in all bulb-tee top flanges.

- ① Provide a 1" recess in the end of the beam, only at beam ends that are adjacent to expansion joints. Cut all strands $1/2"$ back into recess and fill the recess with an epoxy mortar especially formulated for applications on vertical surfaces.
- ② Omit at locations adjacent to expansion joints and at integral end bents.

For additional notes and details see Sh. XX.

REV.				SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION PRESTR. CONC. BEAM DETAILS 72" MODIFIED BULB TEE (1 OF 2)
REV.	JXY	SAN	3-14 New Border	
REV.	JXY	BMH	10-13 Misc. Notes	
REVIEWED				
QU'AN.				
DR.	PNP	SAN	6-08	COUNTY XXXXXXXX ROUTE XXXXXX
DES.	BY	CHK.	DATE	

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.

All overhang brackets in the top flange of exterior beams shall be galvanized in accordance with AASHTO M 111, AASHTO M 232, or ASTM F 2329 as appropriate and shall be detailed 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 X" Dia. low relaxation strands is XX.X 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.

Always maintain prestressed concrete beams in an upright position. Use lifting devices provided at each end of the beam to lift or handle beams. Do not permit beams to be placed or stored on interior supports causing negative moments.

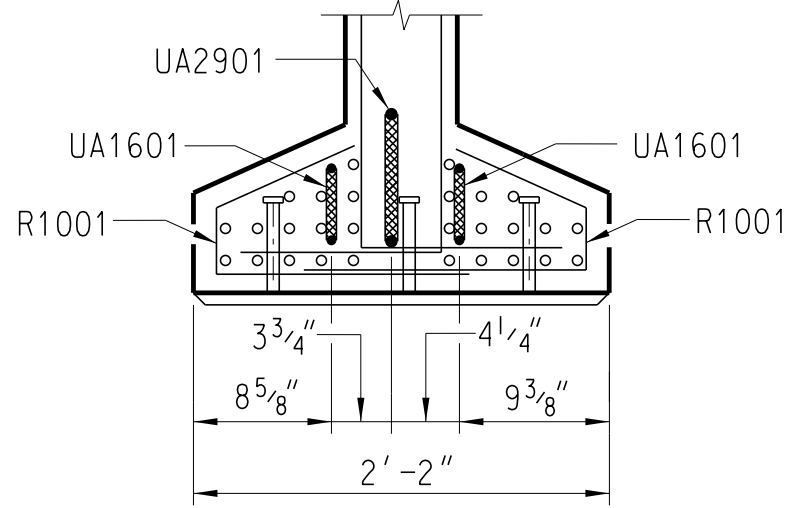
Locate holes for tie bars as shown on this drawing. Form holes with 2" inside dia. pipe and prevent movement during casting by securely fastening the pipe.

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.

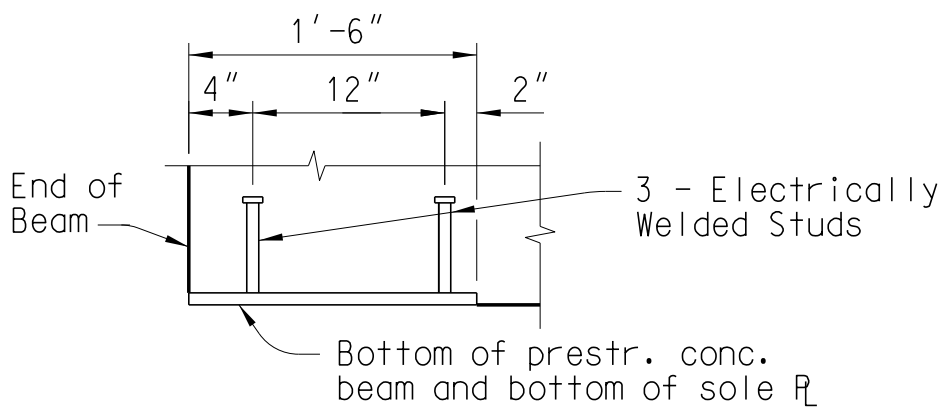
2) Release strands in accordance with Section 704 of the Standard Specifications.

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.
For additional notes and details see Sh. XX.

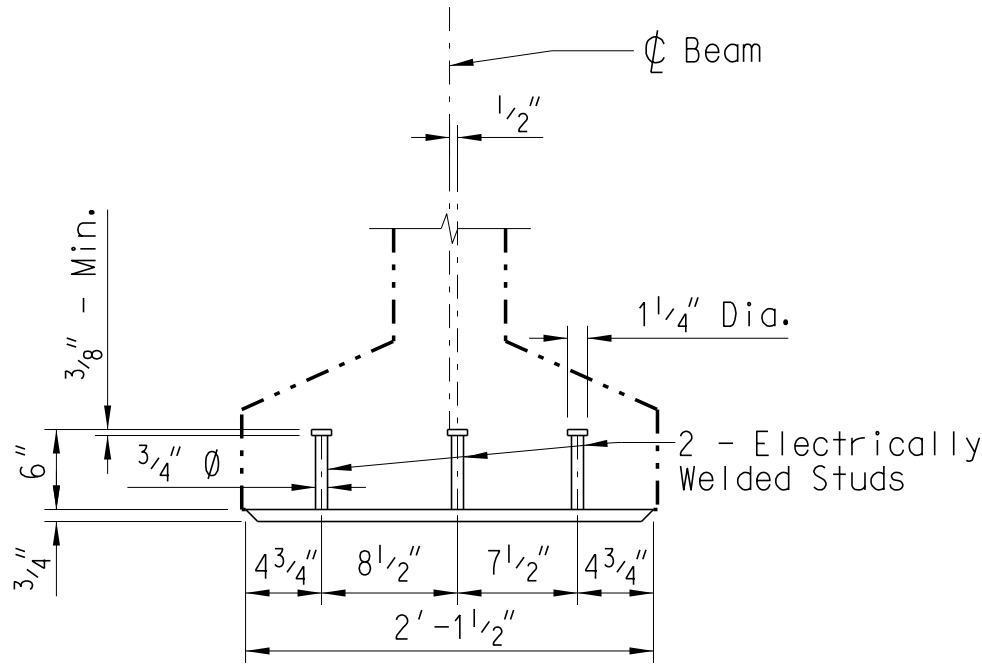


END VIEW

Showing UA1601
& UA2901 bars



ELEV. AT SIDE OF BEAM



ELEV. AT END OF BEAM

SOLE PLATE DETAIL

Note to Designer:
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.
If plans are detailed with Steel Intermediate Diaphragms, revise beam details for consistency.

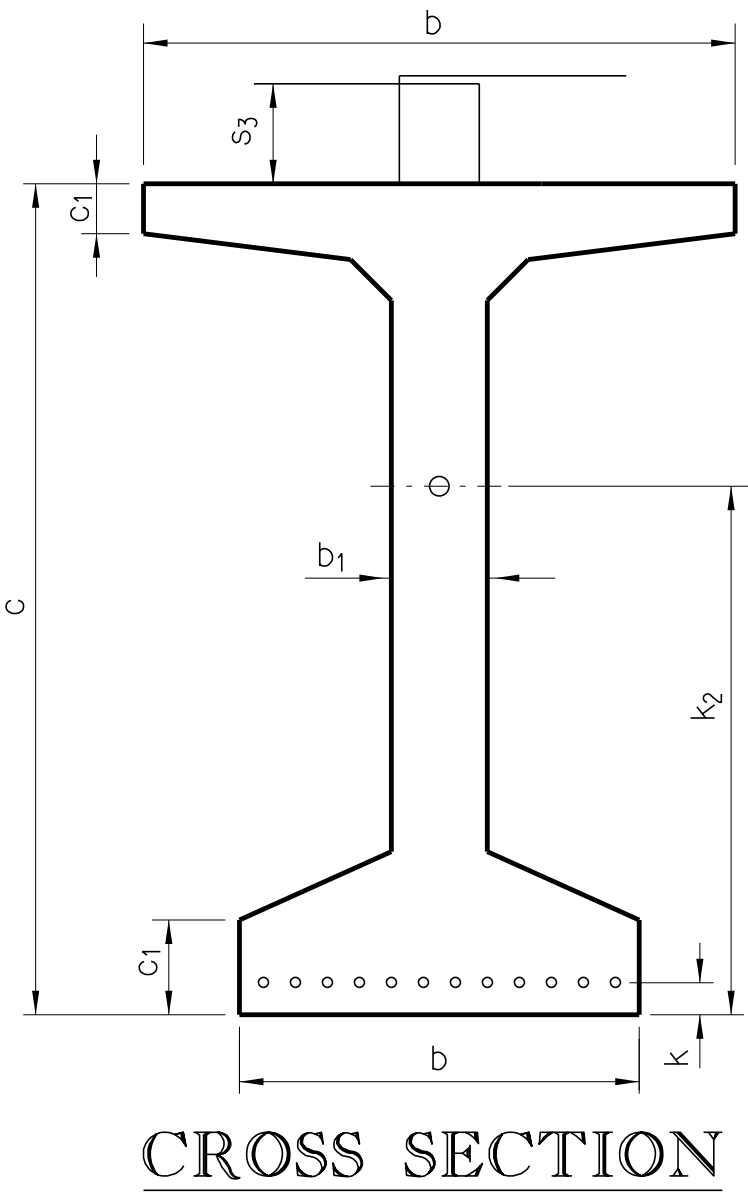
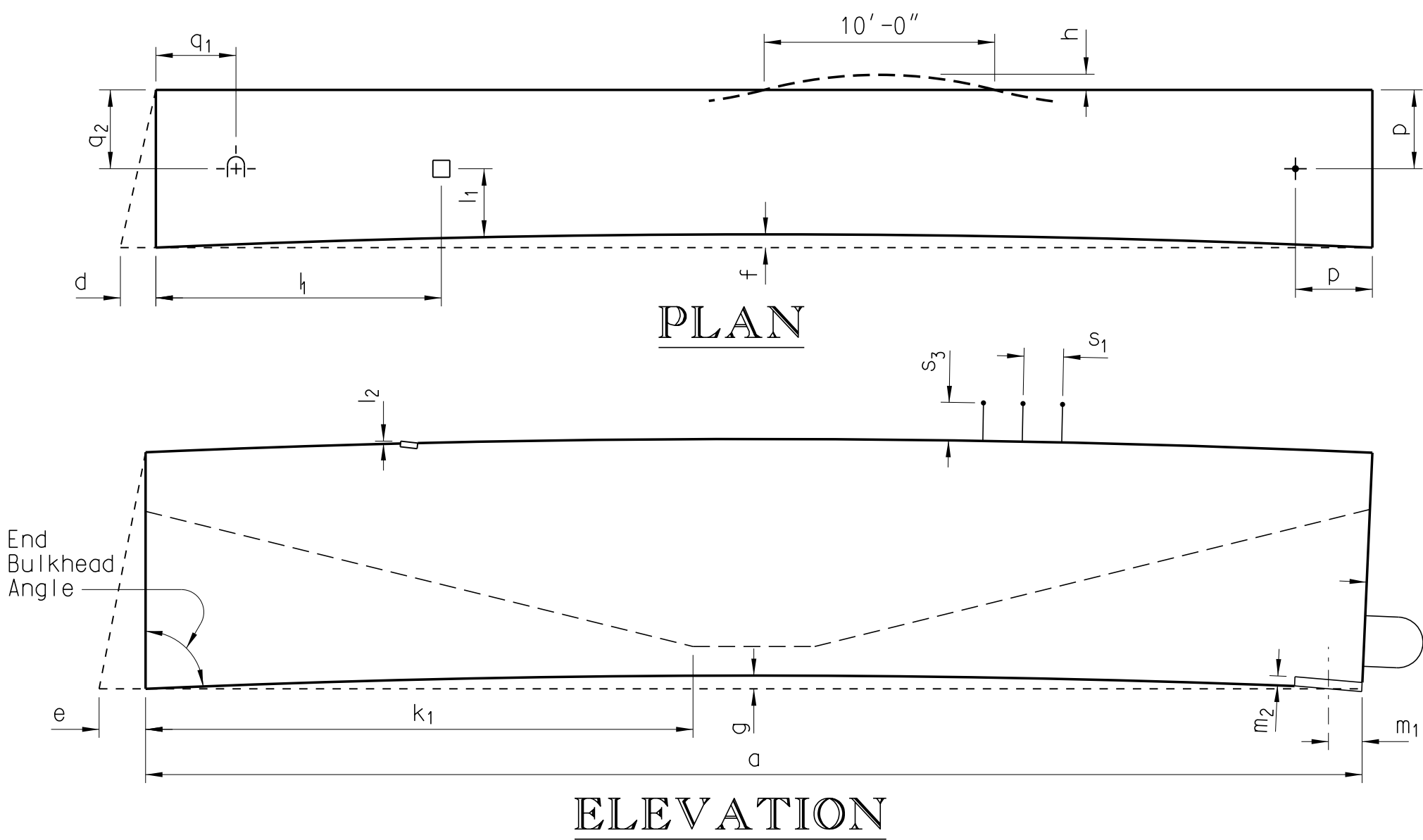
BEAM CAMBER AND DEFLECTION					
BEAM CAMBER		DEFLECTION DUE TO			
AT RELEASE	* AT ERECTION	INTERIOR DIAPHRAGM	STAY-IN-PLACE FORMS**	SLAB	BARRIER PARAPET
X"	X"	X"	X"	X"	X"

* Based on a beam age of 60 days at the time of erection

** Deflection due to the weight of the metal forms and the weight of the concrete in the valleys of the forms.

"+" indicates upward movement
"-" indicates downward movement

TOLERANCES



a	Length	± 1/4" per 25' length, ± 1" max.
b	Width (overall)	+ 3/8", - 1/4"
b1	Web Width	+ 3/8", - 1/4"
c	Depth (overall)	+ 1/2", - 1/4"
c1	Flange Depth	± 1/4"
d	Variation from Specified Plan End Squareness or Skew	± 1/8" per 12" width, ± 1/2" max.
e	Variation from Specified Elevation End Squareness or Skew	± 3/16" per 12" depth, ± 1" max.
f	Sweep	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)	± 1/8" per 10' ± 1/2" max. up to 80' length ± 1" max. for length greater than 80'
h	Local Smoothness of Any Surface	1/4" in 10'
k	Location of Strand (Individual)	± 1/4"
k	Location of Strand (Bundled)	± 1/2"
k1	Location of Harp Points for Harped Strands from Design Location	± 20"
k2	Location of Post-Tensioning Duct	± 1/4"
l1	Location of Embedment	± 1"
l2	Tipping and Flushness of Embedment	± 1/4"
m1	Location of Bearing Assembly	± 5/8"
m2	Tipping and Flushness of Bearing Assembly	± 1/8"
p	Location of Inserts, Sleeves, or Holes for Structural Connections	± 1/2"
q1	Location of Handling Device Parallel to Length of Member	± 6"
q2	Location of Handling Device Transverse to Length of Member	± 1"
s1	Longitudinal Spacing of Stirrups	± 2"
s2	Longitudinal Spacing of Stirrups within Distance "c" from Member Ends	± 1"
s3	Stirrup Projection from Beam Surface	+ 1/4", - 1/2"
s4	Reinforcing Bar Projection from Beam End	± 1/2"

REV.				SOUTH CAROLINA				
				DEPARTMENT OF TRANSPORTATION				
REV.	PCW	HL	3-19	PRESTR. CONC. BEAM DETAILS 72" MODIFIED BULB TEE (2 OF 2)				
	Debonding Note							
REV.	PCW	HL	3-19					
	Sole PL Detail							
REVIEWED								
QUAN.								
DR.	PNP	SAN	6-08					
DES.								
	BY	CHK.	DATE	COUNTY XXXXXXXX			ROUTE XXXXXX	