

TYPICAL SECTION

DECK DRAINS NOT SHOWN.

NOTES:

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

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

USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.

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}.

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED 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.

WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS BETWEEN THE STRANDS AND 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.

NOTES CONTINUED:

WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.

ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.

TIE ROD ASSEMBLIES INCLUDE A 1 1/2" Ø ROD, TWO HEAVY HEX NUTS, TWO LOCK WASHERS, AND TWO 5" x 5" x 3/8" PLATE WASHERS. THREAD 8" ON EACH END OF THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPLICABLE. INSTALL TIE RODS FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE UNIT PRICE BID FOR THE BOX BEAMS.

PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

NOTES CONTINUED:

GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.

CONSTRUCT 7" WIDE BY 6" HIGH DRAIN BLOCK-OUTS IN THE BARRIER PARAPETS. CENTER BLOCK-OUTS IN BETWEEN VERTICAL BARRIER REINFORCING AND FIELD CUT LONGITUDINAL BARRIER REINFORCING AS NECESSARY TO PROVIDE 2" CLEARANCE TO BLOCK-OUTS.

IF THE CONTRACTOR ELECTS TO HAND FORM BARRIER PARAPET INSTEAD OF SLIP FORMING, CAST A UNIFORM 12" THICK BARRIER PARAPET. ENSURE THAT BOTH FACES OF PARAPET ARE CAST VERTICAL AND PARALLEL TO ONE ANOTHER. PERFORM THIS WORK AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ALSO, NOTE ON AS-BUILT PLANS IF HAND FORMED BARRIER WAS UTILIZED.

APPLY A BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS, TO THE TOP SURFACE OF THE BOX BEAMS AFTER SEALING THE JOINTS AND PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE.

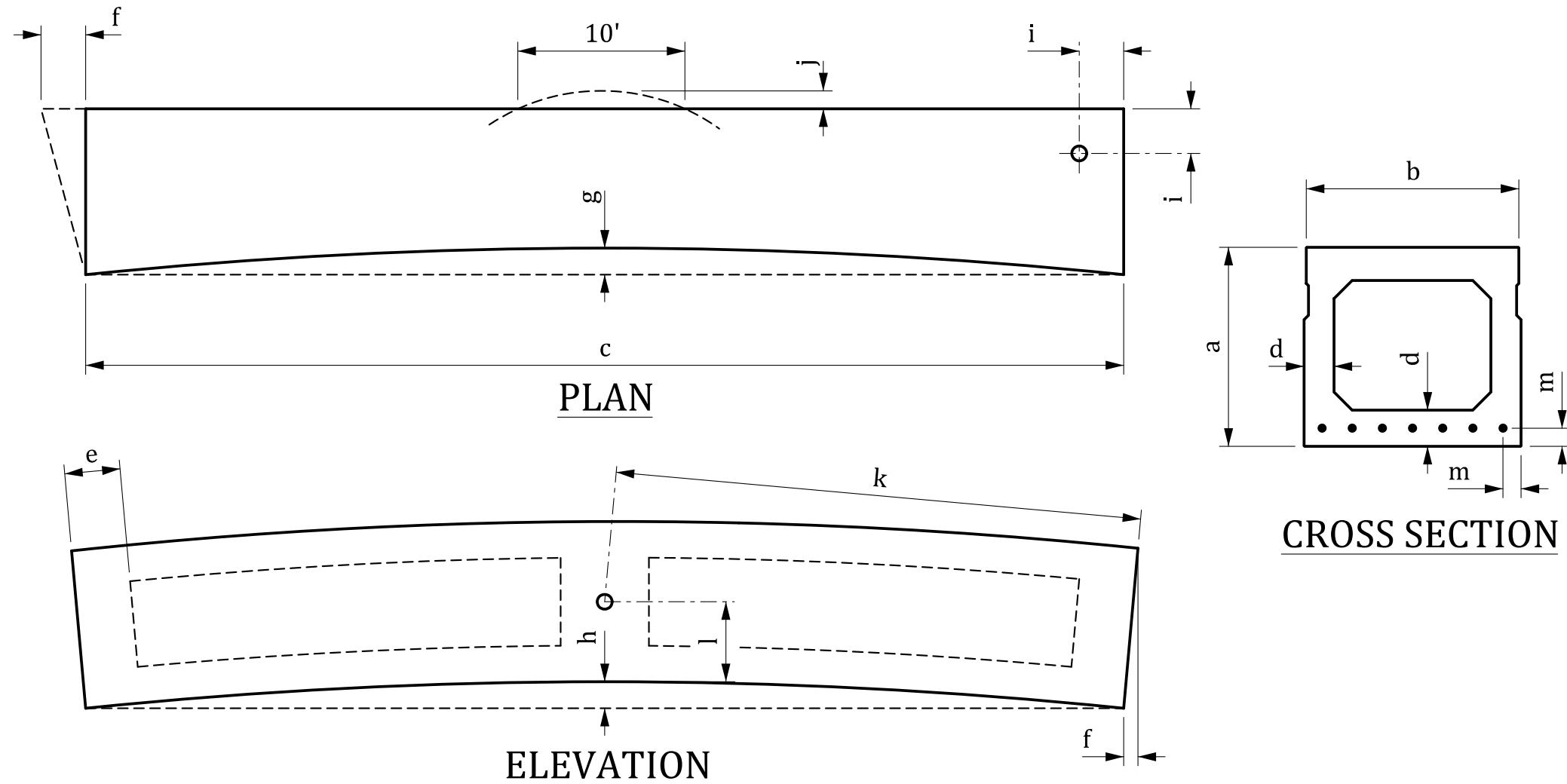
INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE BOX BEAMS IN THE UNIT PRICE BID FOR THE BOX BEAMS. ALSO, INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EPOXY PROTECTIVE COATING, JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE UNIT PRICE BID FOR THE BOX BEAMS.

FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 80' SPAN - PLAN" SHEET.

THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

TOLERANCES



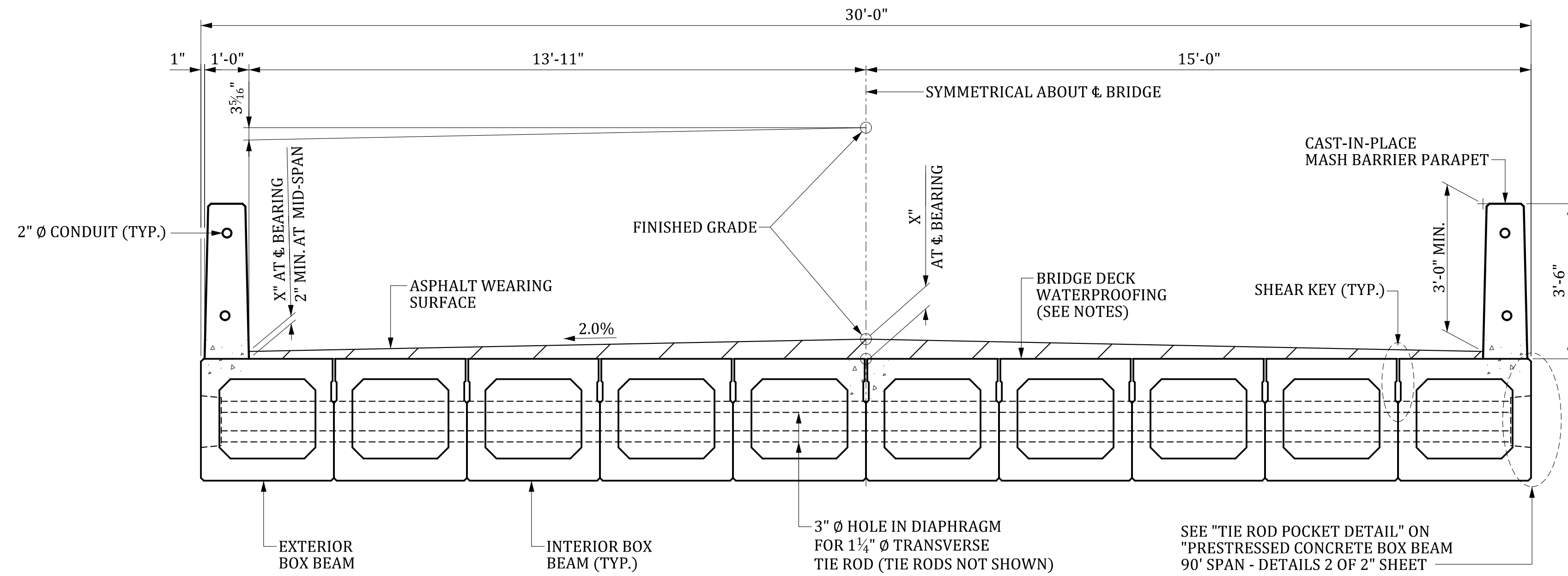
a	DEPTH	+ 1/4"
b	WIDTH	± 1/4"
c	LENGTH (LENGTH OF ADJACENT BOX BEAMS MUST BE WITHIN ± 1/4")	± 1"
d	POSITION OF VOID	± 3/8"
e	POSITION OF VOID ENDS: LONGITUDINAL	± 1"
f	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) OR DESIGNATED SKEW	± 1/8" PER 12" WIDTH, ± 1/2" MAX.
g	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALLEL TO THE CENTER LINE OF MEMBER	± 1/2"
h	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	1/4" IN 10', 3/4" MAX.
h	CAMBER: DIFFERENTIAL BETWEEN HIGH AND LOW MEMBERS OF THE SAME SPAN	3/4" MAX.
i	POSITION OF DOWEL HOLES: DEVIATION FROM PLAN POSITION	± 1/4"
	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	1/2"
	MAX. WIDTH - ANY ONE SPAN	PLAN WIDTH + 1/8" PER JOINT
	BEARING AREA: DEVIATION FROM PLANE SURFACE	± 1/16"
j	LOCAL SMOOTHNESS	1/4" IN 10'
k	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 1/2"
l	VERTICAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 3/8"
m	POSITION OF STRANDS	± 1/4"

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 BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 27'-10" ROADWAY (80' SPAN)	
COUNTY: ###	ROUTE: ###

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

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TYPICAL SECTION

DECK DRAINS NOT SHOWN.

NOTES:

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

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

USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.

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}.

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED 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.

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NOTES CONTINUED:

WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.

ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.

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PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

NOTES CONTINUED:

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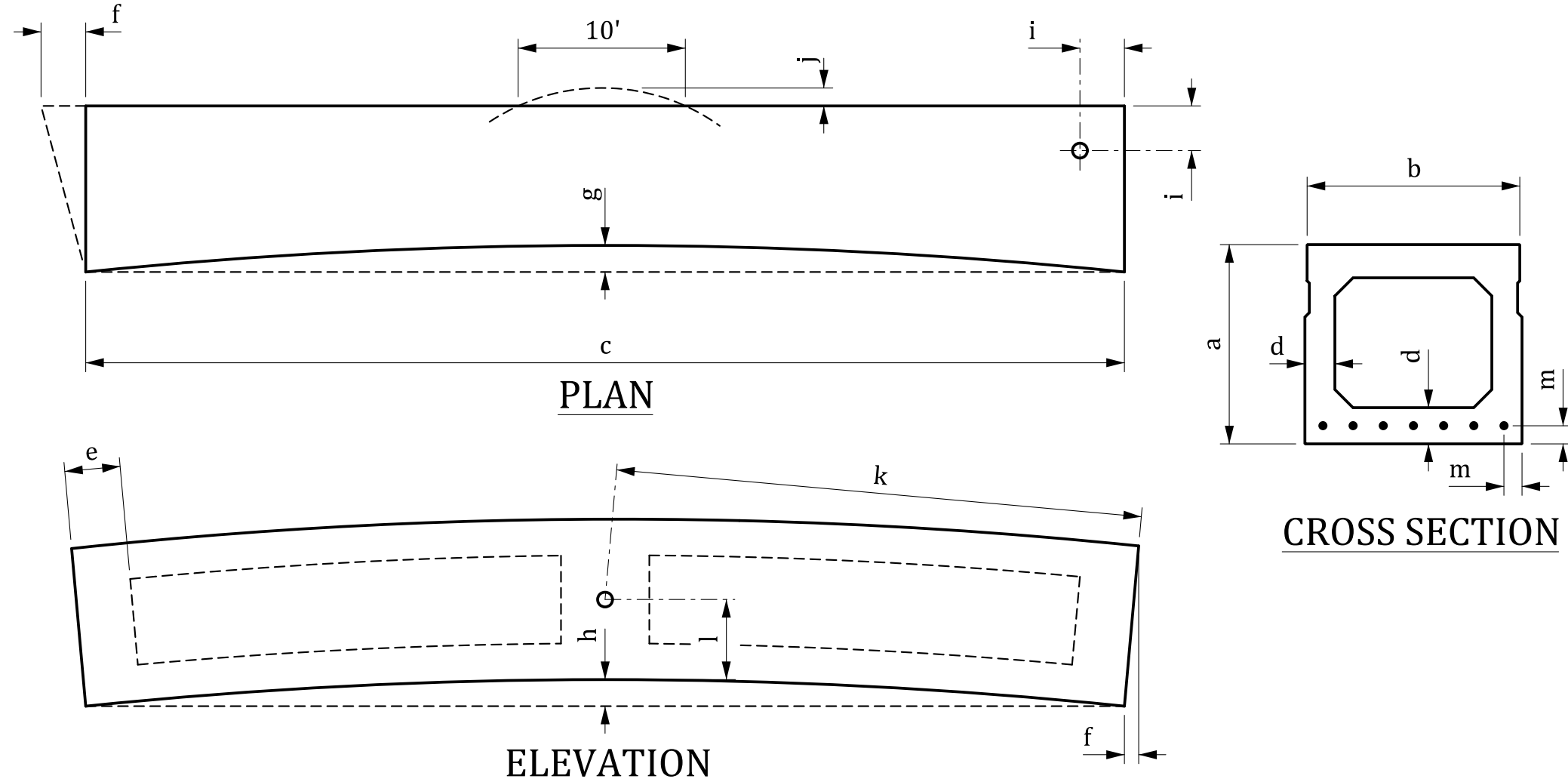
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FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 90' SPAN - PLAN" SHEET.

THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

TOLERANCES



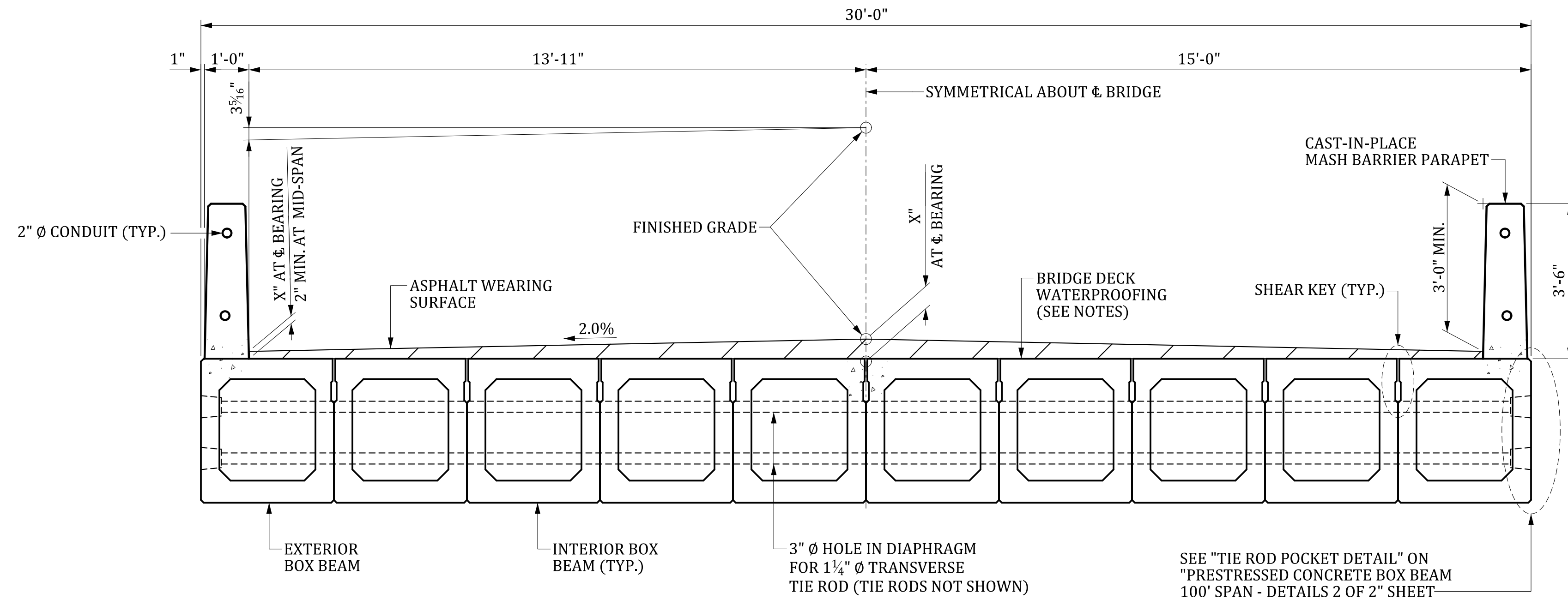
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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PRESTRESSED CONCRETE BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 27'-10" ROADWAY (90' SPAN)	
COUNTY: ###	ROUTE: ###

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

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TYPICAL SECTION
DECK DRAINS NOT SHOWN.

NOTES:

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PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

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GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.

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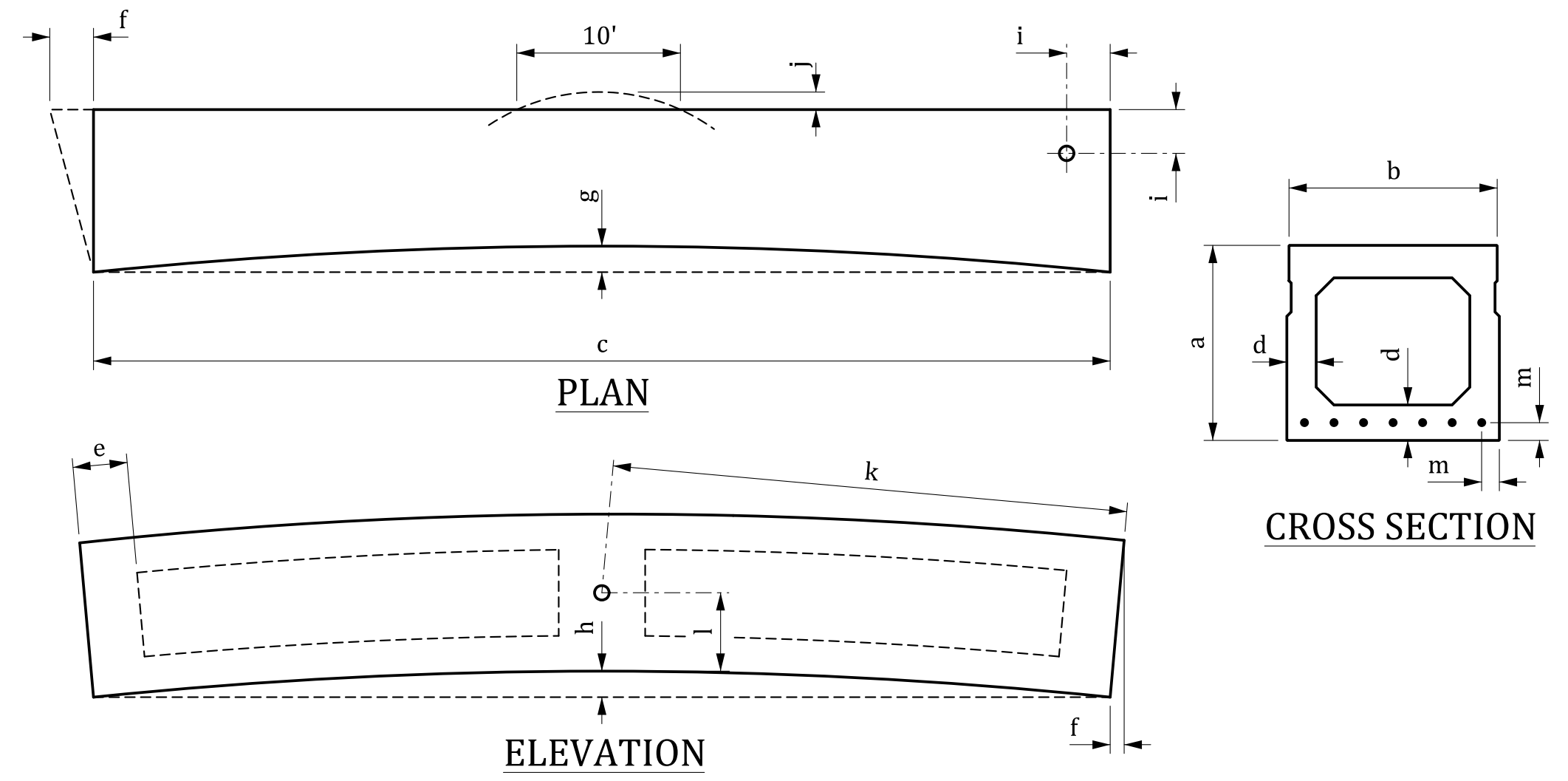
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FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 100' SPAN" SHEET.

THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

TOLERANCES



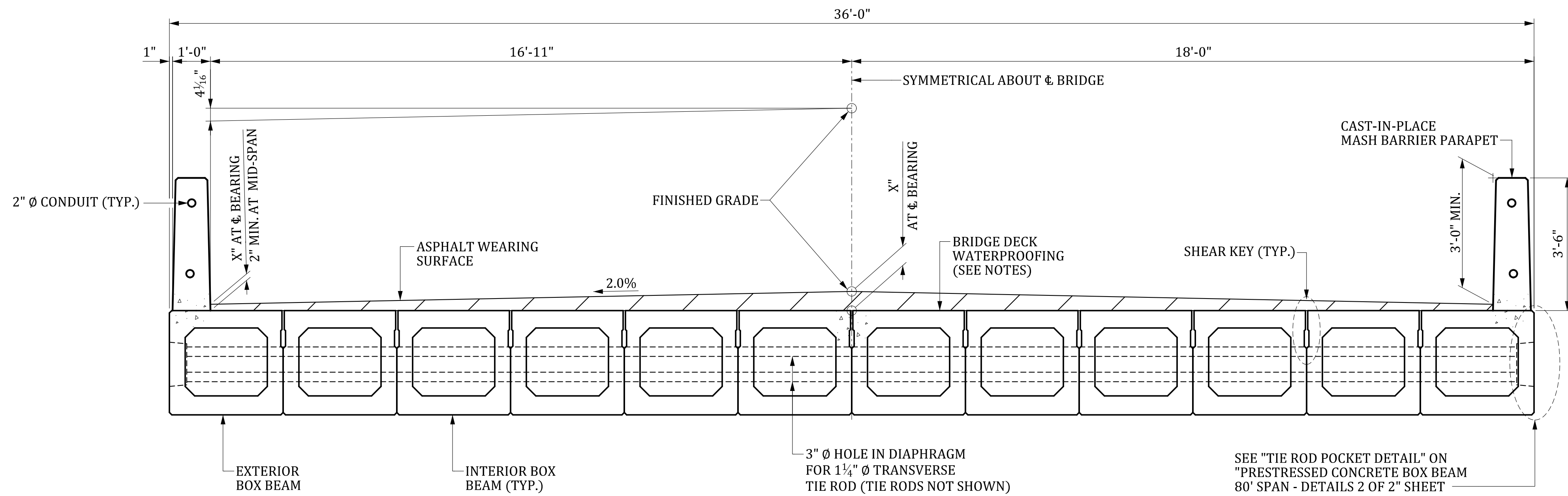
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COUNTY: ###	ROUTE: ###

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

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DECK DRAINS NOT SHOWN.

NOTES:

- SEE SECTION 704 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING PRESTRESSED CONCRETE BOX BEAMS. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO M 203 FOR GRADE 270 (LOW RELAXATION).
- USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.
- 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}.
- FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED 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.
- WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS BETWEEN THE STRANDS AND 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.

NOTES CONTINUED:

- WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.
- ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.
- TIE ROD ASSEMBLIES INCLUDE A 1 1/4" Ø ROD, TWO HEAVY HEX NUTS, TWO LOCK WASHERS, AND TWO 5" x 5" x 3/8" PLATE WASHERS. THREAD 8" ON EACH END OF THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPLICABLE. INSTALL TIE RODS FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE UNIT PRICE BID FOR THE BOX BEAMS.
- PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

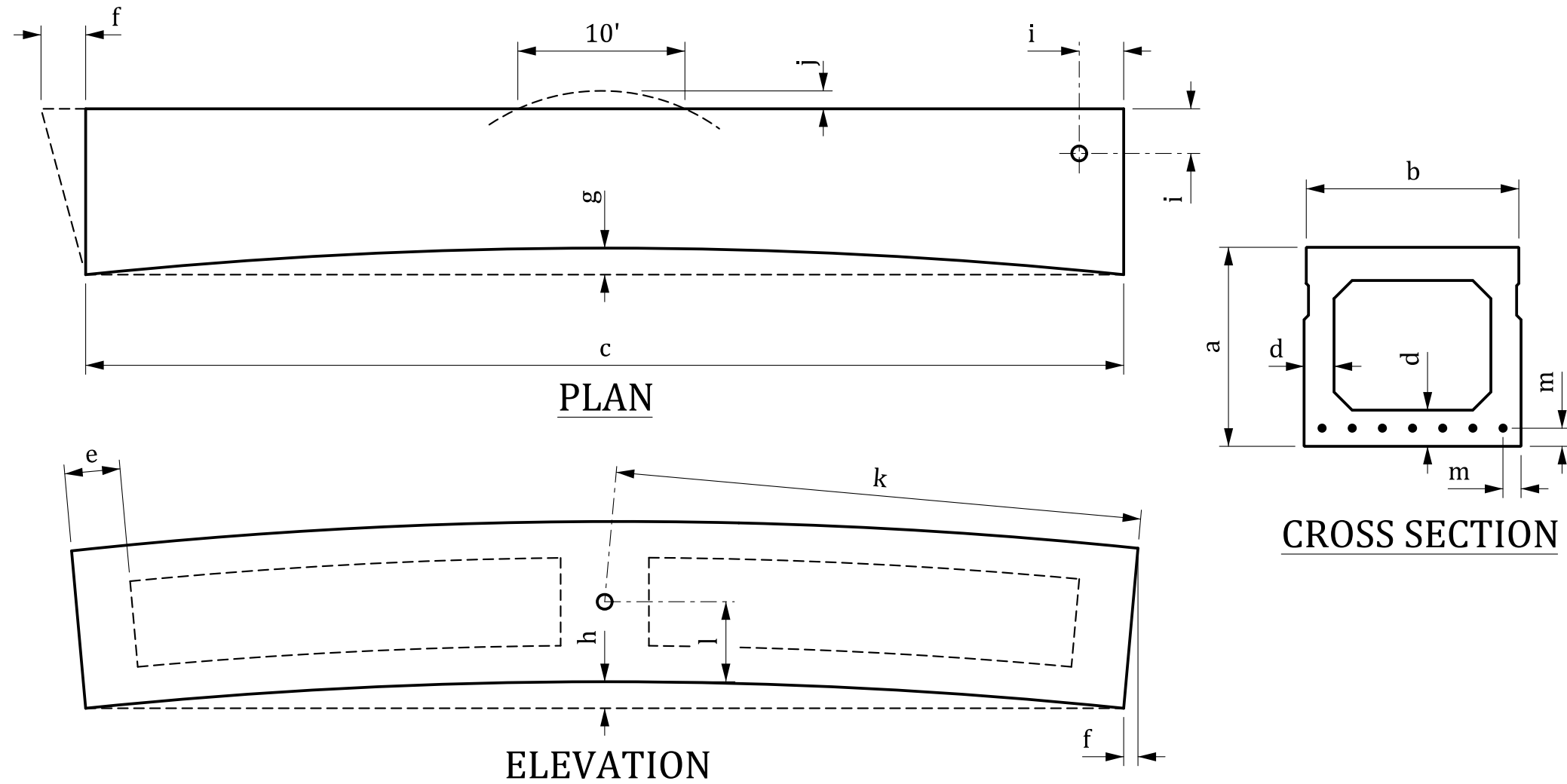
NOTES CONTINUED:

- GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.
- CONSTRUCT 7" WIDE BY 6" HIGH DRAIN BLOCK-OUTS IN THE BARRIER PARAPETS. CENTER BLOCK-OUTS IN BETWEEN VERTICAL BARRIER REINFORCING AND FIELD CUT LONGITUDINAL BARRIER REINFORCING AS NECESSARY TO PROVIDE 2" CLEARANCE TO BLOCK-OUTS.
- IF THE CONTRACTOR ELECTS TO HAND FORM BARRIER PARAPET INSTEAD OF SLIP FORMING, CAST A UNIFORM 12" THICK BARRIER PARAPET. ENSURE THAT BOTH FACES OF PARAPET ARE CAST VERTICAL AND PARALLEL TO ONE ANOTHER. PERFORM THIS WORK AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ALSO, NOTE ON AS-BUILT PLANS IF HAND FORMED BARRIER WAS UTILIZED.
- APPLY A BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS, TO THE TOP SURFACE OF THE BOX BEAMS AFTER SEALING THE JOINTS AND PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE.
- INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE BOX BEAMS IN THE UNIT PRICE BID FOR THE BOX BEAMS. ALSO, INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EPOXY PROTECTIVE COATING, JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE UNIT PRICE BID FOR THE BOX BEAMS.

REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	GCM	MWB	OP	BY	CHK.	DATE

TOLERANCES



a	DEPTH	+ 1/4"
b	WIDTH	± 1/4"
c	LENGTH (LENGTH OF ADJACENT BOX BEAMS MUST BE WITHIN ± 1/4")	± 1"
d	POSITION OF VOID	± 3/8"
e	POSITION OF VOID ENDS: LONGITUDINAL	± 1"
f	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) OR DESIGNATED SKEW	± 1/8" PER 12" WIDTH, ± 1/2" MAX.
g	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALLEL TO THE CENTER LINE OF MEMBER	± 1/2"
h	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	1/4" IN 10', 3/4" MAX.
h	CAMBER: DIFFERENTIAL BETWEEN HIGH AND LOW MEMBERS OF THE SAME SPAN	3/4" MAX.
i	POSITION OF DOWEL HOLES: DEVIATION FROM PLAN POSITION	± 1/4"
j	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	1/2"
	MAX. WIDTH - ANY ONE SPAN	PLAN WIDTH + 1/8" PER JOINT
	BEARING AREA: DEVIATION FROM PLANE SURFACE	± 1/16"
k	LOCAL SMOOTHNESS	1/4" IN 10'
l	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 1/2"
l	VERTICAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 3/8"
m	POSITION OF STRANDS	± 1/4"

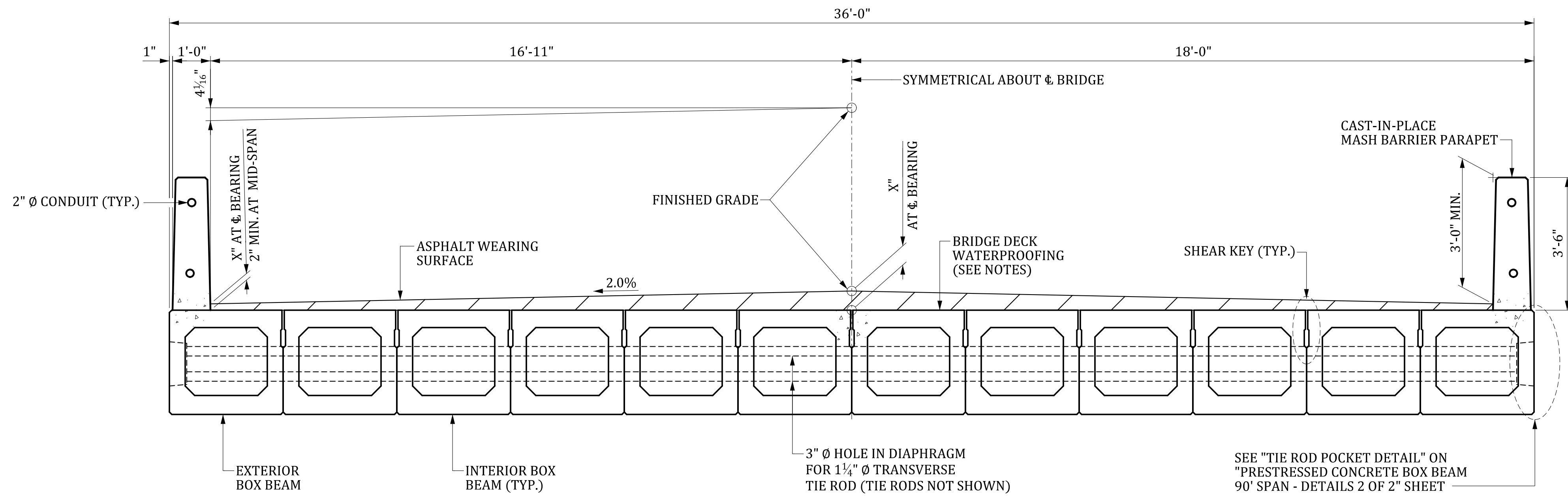
FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 80' SPAN - PLAN" SHEET.

THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PRESTRESSED CONCRETE BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 33'-10" ROADWAY (80' SPAN)	
COUNTY: ####	ROUTE: #####

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.



TYPICAL SECTION

DECK DRAINS NOT SHOWN.

NOTES:

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

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

USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.

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}.

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED 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.

WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS BETWEEN THE STRANDS AND 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.

NOTES CONTINUED:

WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.

ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.

TIE ROD ASSEMBLIES INCLUDE A 1 1/4" Ø ROD, TWO HEAVY HEX NUTS, TWO LOCK WASHERS, AND TWO 5" x 5" x 3/8" PLATE WASHERS. THREAD 8" ON EACH END OF THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPLICABLE. INSTALL TIE RODS FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE UNIT PRICE BID FOR THE BOX BEAMS.

PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

NOTES CONTINUED:

GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.

CONSTRUCT 7" WIDE BY 6" HIGH DRAIN BLOCK-OUTS IN THE BARRIER PARAPETS. CENTER BLOCK-OUTS IN BETWEEN VERTICAL BARRIER REINFORCING AND FIELD CUT LONGITUDINAL BARRIER REINFORCING AS NECESSARY TO PROVIDE 2" CLEARANCE TO BLOCK-OUTS.

IF THE CONTRACTOR ELECTS TO HAND FORM BARRIER PARAPET INSTEAD OF SLIP FORMING, CAST A UNIFORM 12" THICK BARRIER PARAPET. ENSURE THAT BOTH FACES OF PARAPET ARE CAST VERTICAL AND PARALLEL TO ONE ANOTHER. PERFORM THIS WORK AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ALSO, NOTE ON AS-BUILT PLANS IF HAND FORMED BARRIER WAS UTILIZED.

APPLY A BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS, TO THE TOP SURFACE OF THE BOX BEAMS AFTER SEALING THE JOINTS AND PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE.

INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE BOX BEAMS IN THE UNIT PRICE BID FOR THE BOX BEAMS. ALSO, INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EPOXY PROTECTIVE COATING, JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE UNIT PRICE BID FOR THE BOX BEAMS.

FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

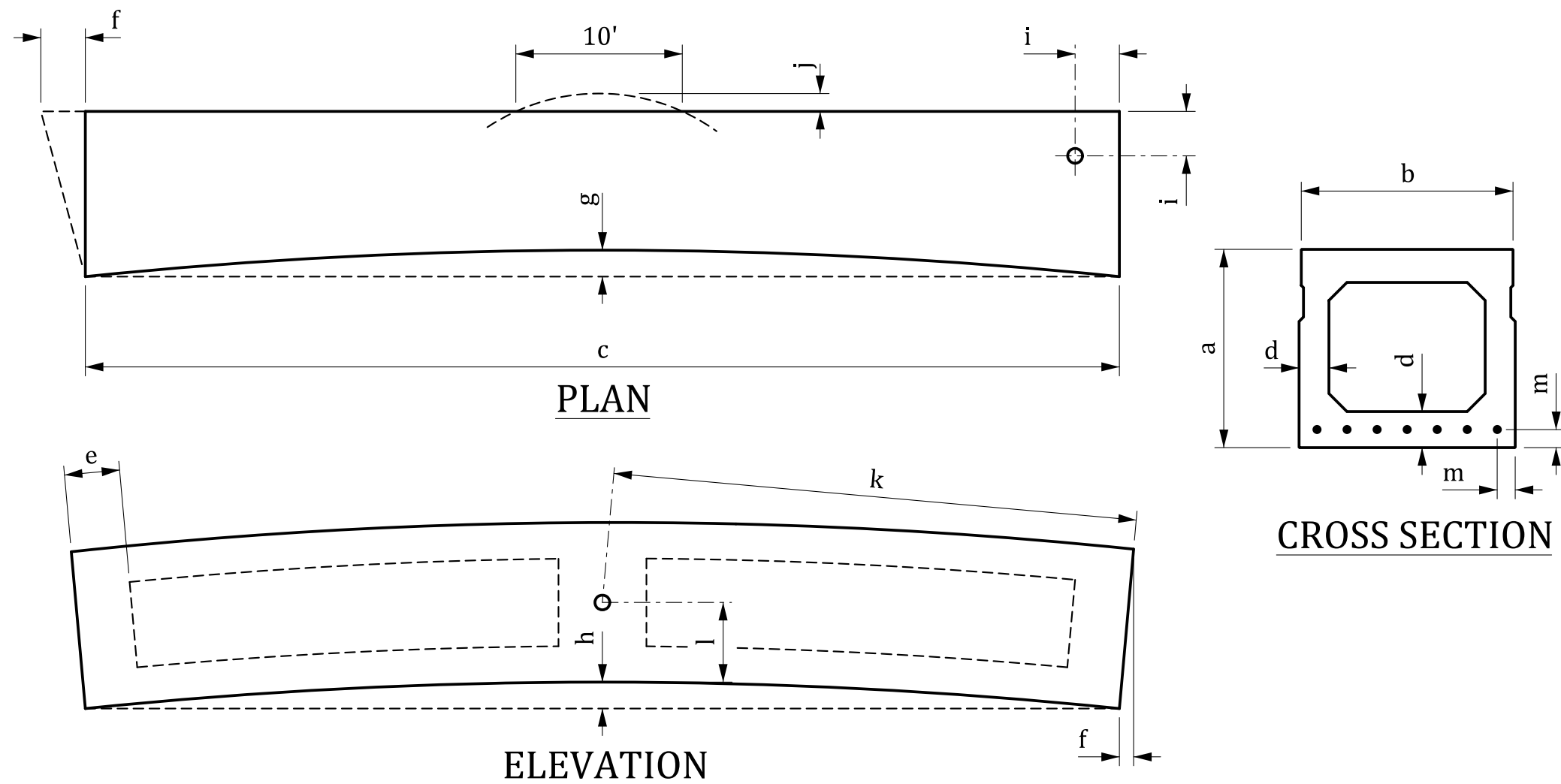
FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 90' SPAN - PLAN" SHEET.

THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	GCM	MWB	OP	BY	CHK.	DATE

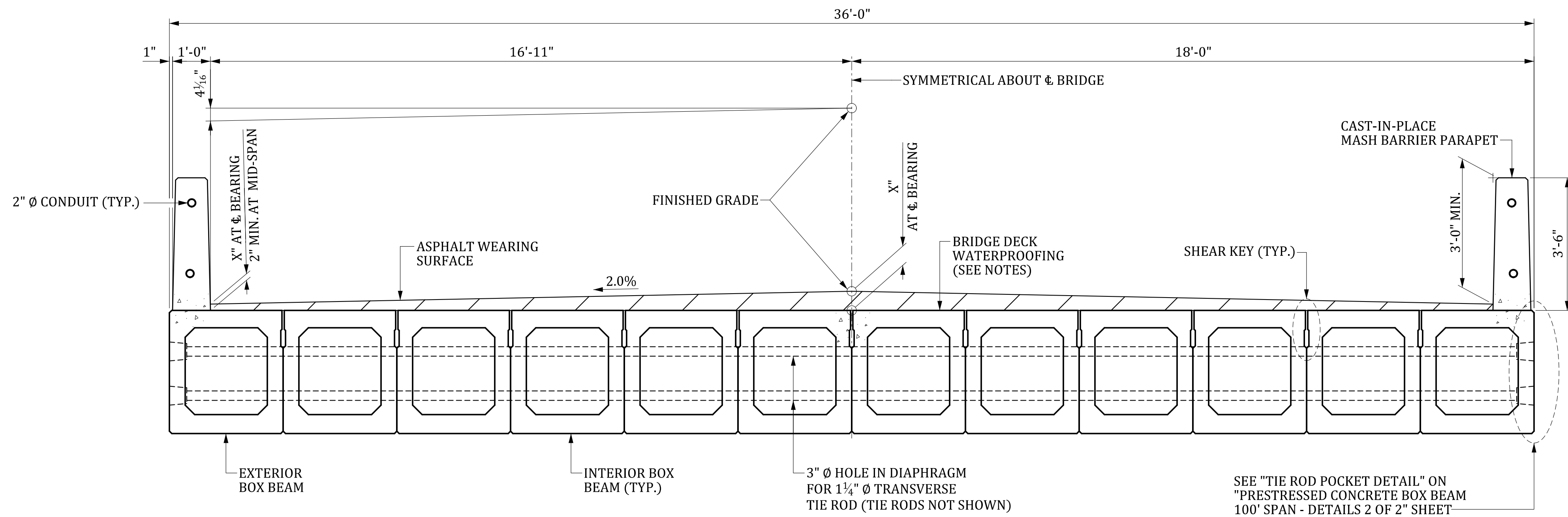
TOLERANCES



a	DEPTH	+ 1/4"
b	WIDTH	± 1/4"
c	LENGTH (LENGTH OF ADJACENT BOX BEAMS MUST BE WITHIN ± 1/4")	± 1"
d	POSITION OF VOID	± 3/8"
e	POSITION OF VOID ENDS: LONGITUDINAL	± 1"
f	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) OR DESIGNATED SKEW	± 1/8" PER 12" WIDTH, ± 1/2" MAX.
g	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALLEL TO THE CENTER LINE OF MEMBER	± 1/2"
h	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	1/4" IN 10', 3/4" MAX.
h	CAMBER: DIFFERENTIAL BETWEEN HIGH AND LOW MEMBERS OF THE SAME SPAN	3/4" MAX.
i	POSITION OF DOWEL HOLES: DEVIATION FROM PLAN POSITION	± 1/4"
	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	1/2"
	MAX. WIDTH - ANY ONE SPAN	PLAN WIDTH + 1/8" PER JOINT
	BEARING AREA: DEVIATION FROM PLANE SURFACE	± 1/16"
j	LOCAL SMOOTHNESS	1/4" IN 10'
k	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 1/2"
l	VERTICAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 3/8"
m	POSITION OF STRANDS	± 1/4"

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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PRESTRESSED CONCRETE BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 33'-10" ROADWAY (90 SPAN)	
COUNTY: ###	ROUTE: ###



TYPICAL SECTION
DECK DRAINS NOT SHOWN.

NOTES:

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

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

USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.

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}.

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED 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.

WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS BETWEEN THE STRANDS AND 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.

NOTES CONTINUED:

WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.

ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.

TIE ROD ASSEMBLIES INCLUDE A 1 1/4" Ø ROD, TWO HEAVY HEX NUTS, TWO LOCK WASHERS, AND TWO 5" x 5" x 3/8" PLATE WASHERS. THREAD 8" ON EACH END OF THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPLICABLE. INSTALL TIE RODS FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE UNIT PRICE BID FOR THE BOX BEAMS.

PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

NOTES CONTINUED:

GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.

CONSTRUCT 7" WIDE BY 6" HIGH DRAIN BLOCK-OUTS IN THE BARRIER PARAPETS. CENTER BLOCK-OUTS IN BETWEEN VERTICAL BARRIER REINFORCING AND FIELD CUT LONGITUDINAL BARRIER REINFORCING AS NECESSARY TO PROVIDE 2" CLEARANCE TO BLOCK-OUTS.

IF THE CONTRACTOR ELECTS TO HAND FORM BARRIER PARAPET INSTEAD OF SLIP FORMING, CAST A UNIFORM 12" THICK BARRIER PARAPET. ENSURE THAT BOTH FACES OF PARAPET ARE CAST VERTICAL AND PARALLEL TO ONE ANOTHER. PERFORM THIS WORK AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ALSO, NOTE ON AS-BUILT PLANS IF HAND FORMED BARRIER WAS UTILIZED.

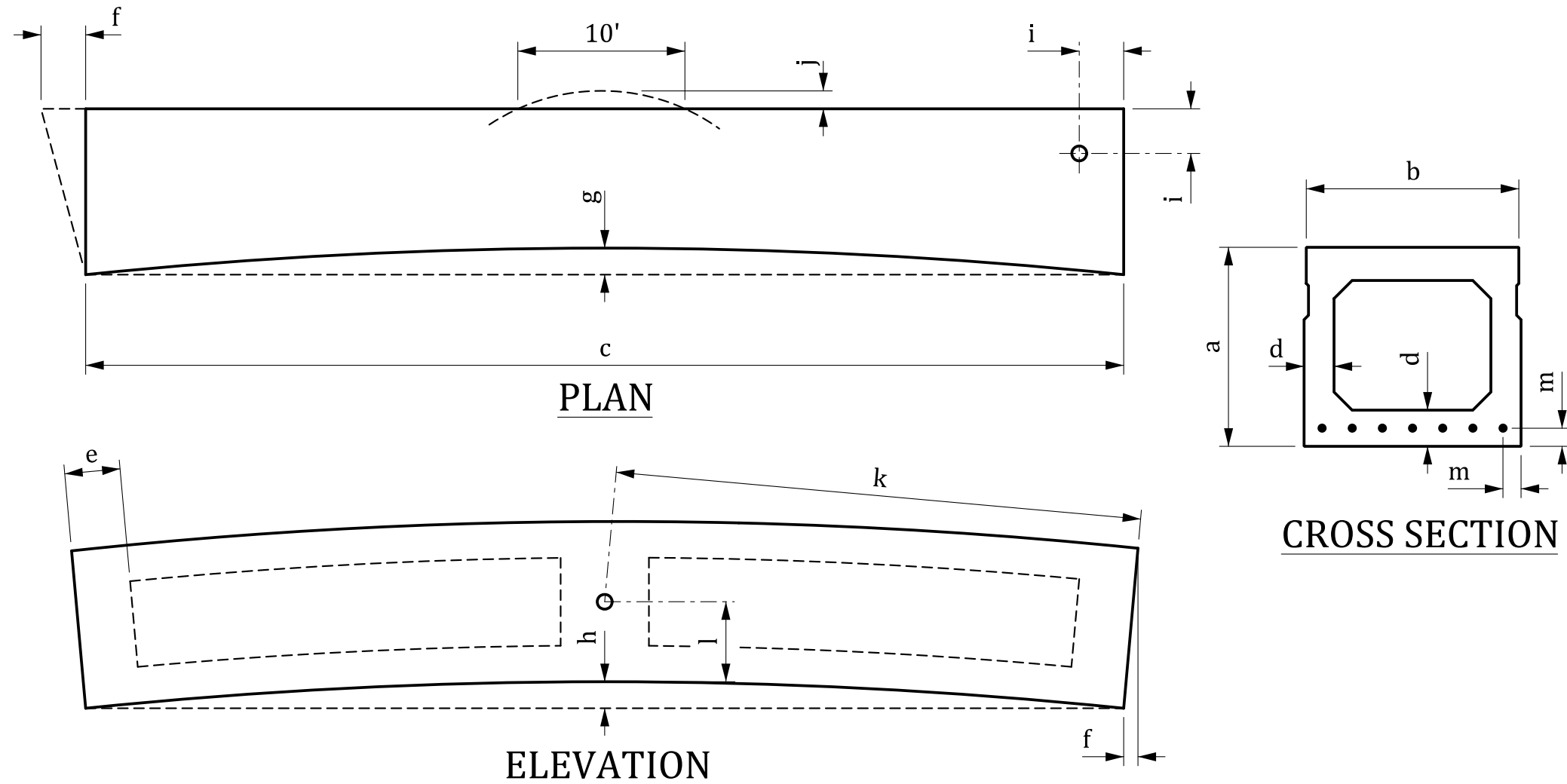
APPLY A BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS, TO THE TOP SURFACE OF THE BOX BEAMS AFTER SEALING THE JOINTS AND PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE.

INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE BOX BEAMS IN THE UNIT PRICE BID FOR THE BOX BEAMS. ALSO, INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EPOXY PROTECTIVE COATING, JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE UNIT PRICE BID FOR THE BOX BEAMS.

REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	GCM	MWB	OP	BY	CHK.	DATE

TOLERANCES



a	DEPTH	+ 1/4"
b	WIDTH	± 1/4"
c	LENGTH (LENGTH OF ADJACENT BOX BEAMS MUST BE WITHIN ± 1/4")	± 1"
d	POSITION OF VOID	± 3/8"
e	POSITION OF VOID ENDS: LONGITUDINAL	± 1"
f	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) OR DESIGNATED SKEW	± 1/8" PER 12" WIDTH, ± 1/2" MAX.
g	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALLEL TO THE CENTER LINE OF MEMBER	± 1/2"
h	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	1/4" IN 10', 3/4" MAX.
h	CAMBER: DIFFERENTIAL BETWEEN HIGH AND LOW MEMBERS OF THE SAME SPAN	3/4" MAX.
i	POSITION OF DOWEL HOLES: DEVIATION FROM PLAN POSITION	± 1/4"
j	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	1/2"
	MAX. WIDTH - ANY ONE SPAN	PLAN WIDTH + 1/8" PER JOINT
j	BEARING AREA: DEVIATION FROM PLANE SURFACE	± 1/16"
	LOCAL SMOOTHNESS	1/4" IN 10'
k	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 1/2"
l	VERTICAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 3/8"
m	POSITION OF STRANDS	± 1/4"

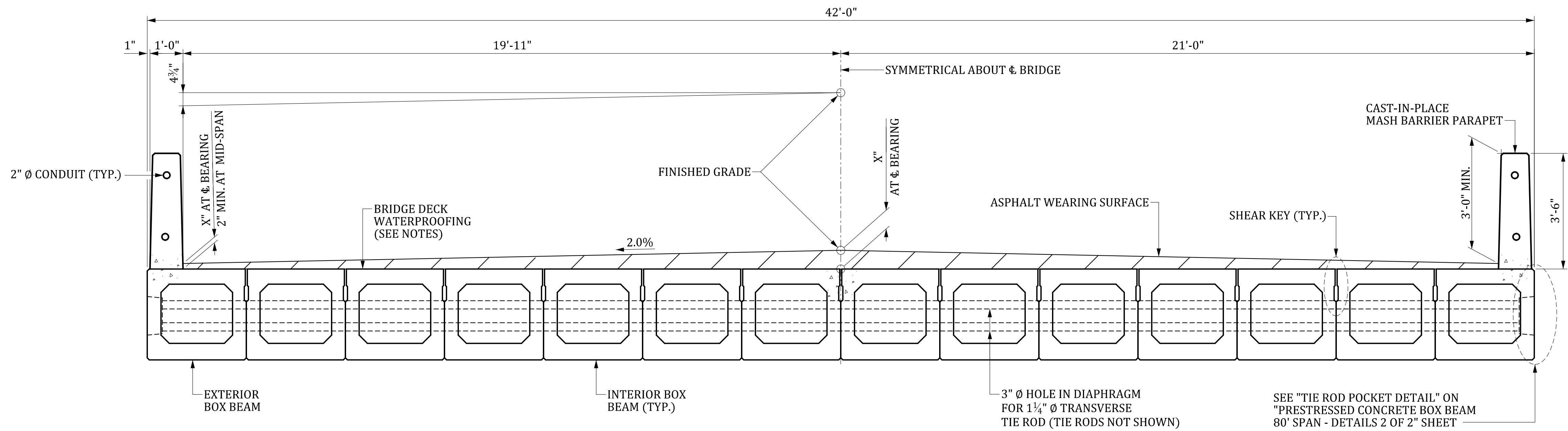
FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 100' SPAN" SHEET.

THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PRESTRESSED CONCRETE BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 33'-10" ROADWAY (100 SPAN)	
COUNTY: ###	ROUTE: ###

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TYPICAL SECTION

DECK DRAINS NOT SHOWN.

NOTES:

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

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

USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.

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} .

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED STRAND, BUT NO LARGER THAN THE DIAMETER OF THE STRAND PLUS $\frac{1}{8}$ ". PLACE CONDUIT ON THE STRAND AT THE LOCATION(S) SHOWN ON THE PLANS ($\pm 1"$) 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.

WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS BETWEEN THE STRANDS AND 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.

NOTES CONTINUED:

WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.

ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.

TIE ROD ASSEMBLIES INCLUDE A $1\frac{1}{2}$ " Ø ROD, TWO HEAVY HEX NUTS, TWO LOCK WASHERS, AND TWO 5" x 5" x $\frac{5}{8}$ " PLATE WASHERS. THREAD 8" ON EACH END OF THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPLICABLE. INSTALL TIE RODS FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE UNIT PRICE BID FOR THE BOX BEAMS.

PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED $1\frac{7}{8}$ ".

NOTES CONTINUED:

GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO $1\frac{1}{2}$ " ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.

CONSTRUCT 7" WIDE BY 6" HIGH DRAIN BLOCK-OUTS IN THE BARRIER PARAPETS. CENTER BLOCK-OUTS IN BETWEEN VERTICAL BARRIER REINFORCING AND FIELD CUT LONGITUDINAL BARRIER REINFORCING AS NECESSARY TO PROVIDE 2" CLEARANCE TO BLOCK-OUTS.

IF THE CONTRACTOR ELECTS TO HAND FORM BARRIER PARAPET INSTEAD OF SLIP FORMING, CAST A UNIFORM 12" THICK BARRIER PARAPET. ENSURE THAT BOTH FACES OF PARAPET ARE CAST VERTICAL AND PARALLEL TO ONE ANOTHER. PERFORM THIS WORK AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ALSO, NOTE ON AS-BUILT PLANS IF HAND FORMED BARRIER WAS UTILIZED.

APPLY A BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS, TO THE TOP SURFACE OF THE BOX BEAMS AFTER SEALING THE JOINTS AND PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE.

INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE BOX BEAMS IN THE UNIT PRICE BID FOR THE BOX BEAMS. ALSO, INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EPOXY PROTECTIVE COATING, JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE UNIT PRICE BID FOR THE BOX BEAMS.

FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 80' SPAN - PLAN" SHEET.

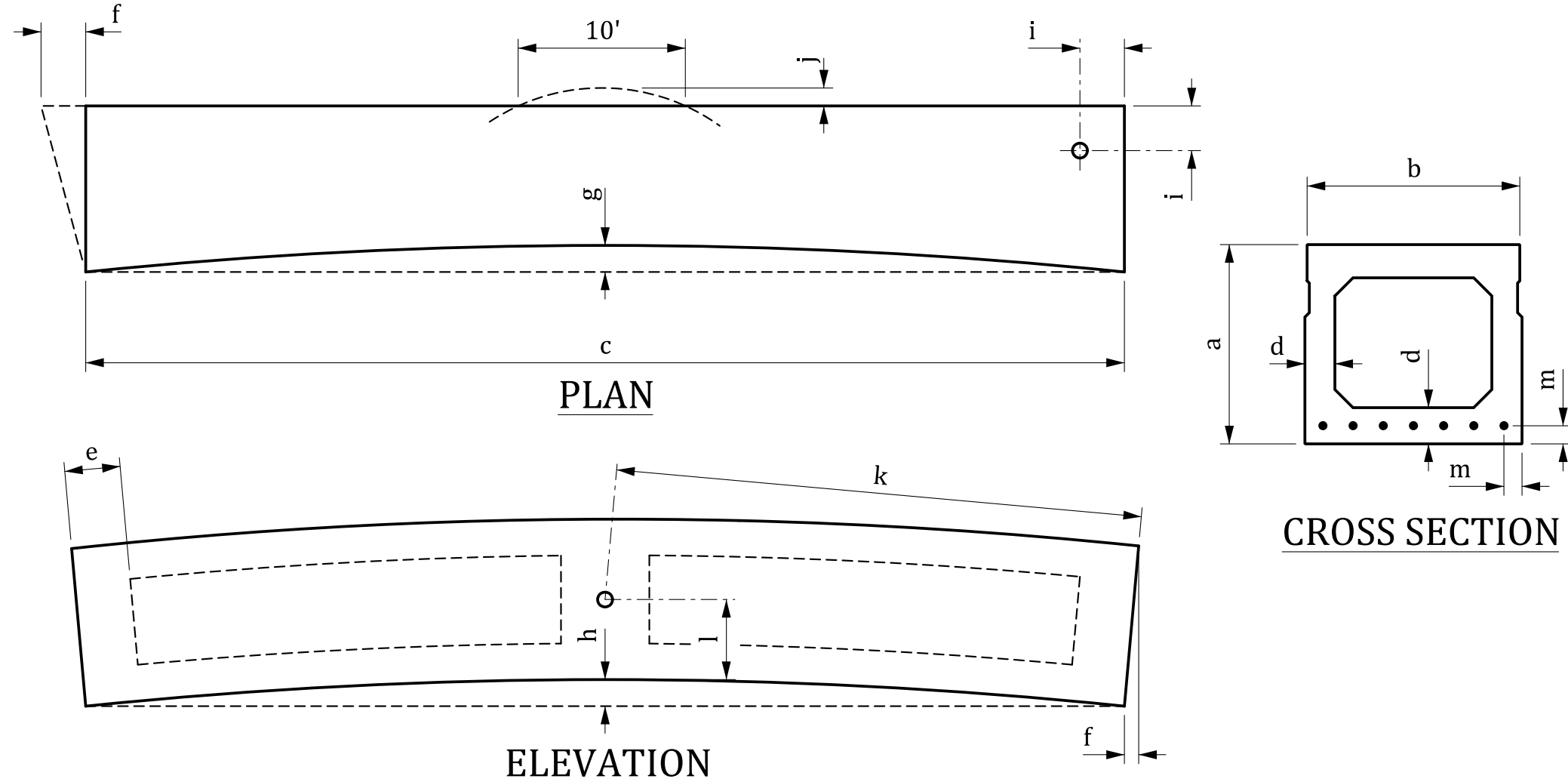
THE $2\frac{1}{2}$ " Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

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REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

REVIEWED	QUAN.	DR.	DES.	GCM	OP	BY	CHK.	DATE

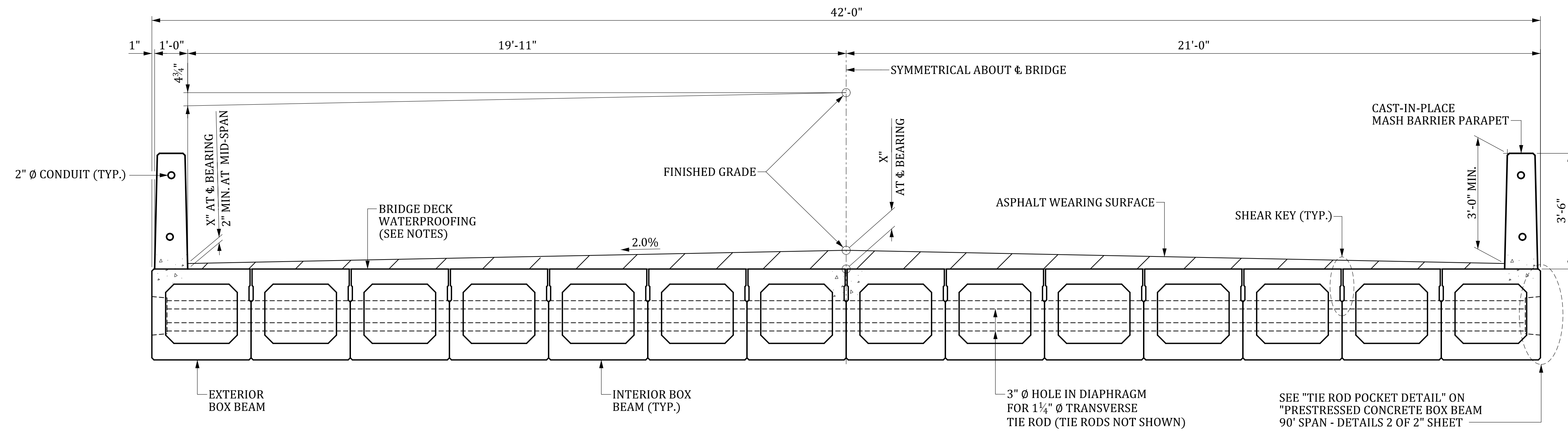
TOLERANCES



a	DEPTH	+ $\frac{1}{4}$ "
b	WIDTH	$\pm \frac{1}{4}$ "
c	LENGTH (LENGTH OF ADJACENT BOX BEAMS MUST BE WITHIN $\pm \frac{1}{4}$ ".)	$\pm 1"$
d	POSITION OF VOID	$\pm \frac{3}{8}$ "
e	POSITION OF VOID ENDS: LONGITUDINAL	$\pm 1"$
f	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) OR DESIGNATED SKEW	$\pm \frac{1}{8}$ " PER 12" WIDTH, $\pm \frac{1}{2}$ " MAX.
g	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALLEL TO THE CENTER LINE OF MEMBER	$\pm \frac{1}{2}"$
h	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	$\frac{1}{4}"$ IN 10', $\frac{3}{4}"$ MAX.
h	CAMBER: DIFFERENTIAL BETWEEN HIGH AND LOW MEMBERS OF THE SAME SPAN	$\frac{3}{4}"$ MAX.
i	POSITION OF DOWEL HOLES: DEVIATION FROM PLAN POSITION	$\pm \frac{1}{4}"$
	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	$\frac{1}{2}"$
	MAX. WIDTH - ANY ONE SPAN	PLAN WIDTH + $\frac{1}{8}"$ PER JOINT
	BEARING AREA: DEVIATION FROM PLANE SURFACE	$\pm \frac{1}{16}"$
j	LOCAL SMOOTHNESS	$\frac{1}{4}"$ IN 10'
k	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	$\pm \frac{1}{2}"$
l	VERTICAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	$\pm \frac{3}{8}"$
m	POSITION OF STRANDS	$\pm \frac{1}{4}"$

CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PRESTRESSED CONCRETE BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 39'-10" ROADWAY (80' SPAN)	
COUNTY: ####	ROUTE: ####

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.



TYPICAL SECTION
DECK DRAINS NOT SHOWN.

NOTES:

- SEE SECTION 704 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND INFORMATION REGARDING PRESTRESSED CONCRETE BOX BEAMS. SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- USE PRESTRESSING STRANDS THAT CONFORM TO THE LATEST AASHTO M 203 FOR GRADE 270 (LOW RELAXATION).
- USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.
- 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}.
- FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED 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.
- WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS BETWEEN THE STRANDS AND 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.

NOTES CONTINUED:

- WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.
- ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.
- TIE ROD ASSEMBLIES INCLUDE A 1 1/4" Ø ROD, TWO HEAVY HEX NUTS, TWO LOCK WASHERS, AND TWO 5" x 5" x 3/8" PLATE WASHERS. THREAD 8" ON EACH END OF THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPLICABLE. INSTALL TIE RODS FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE UNIT PRICE BID FOR THE BOX BEAMS.
- PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

NOTES CONTINUED:

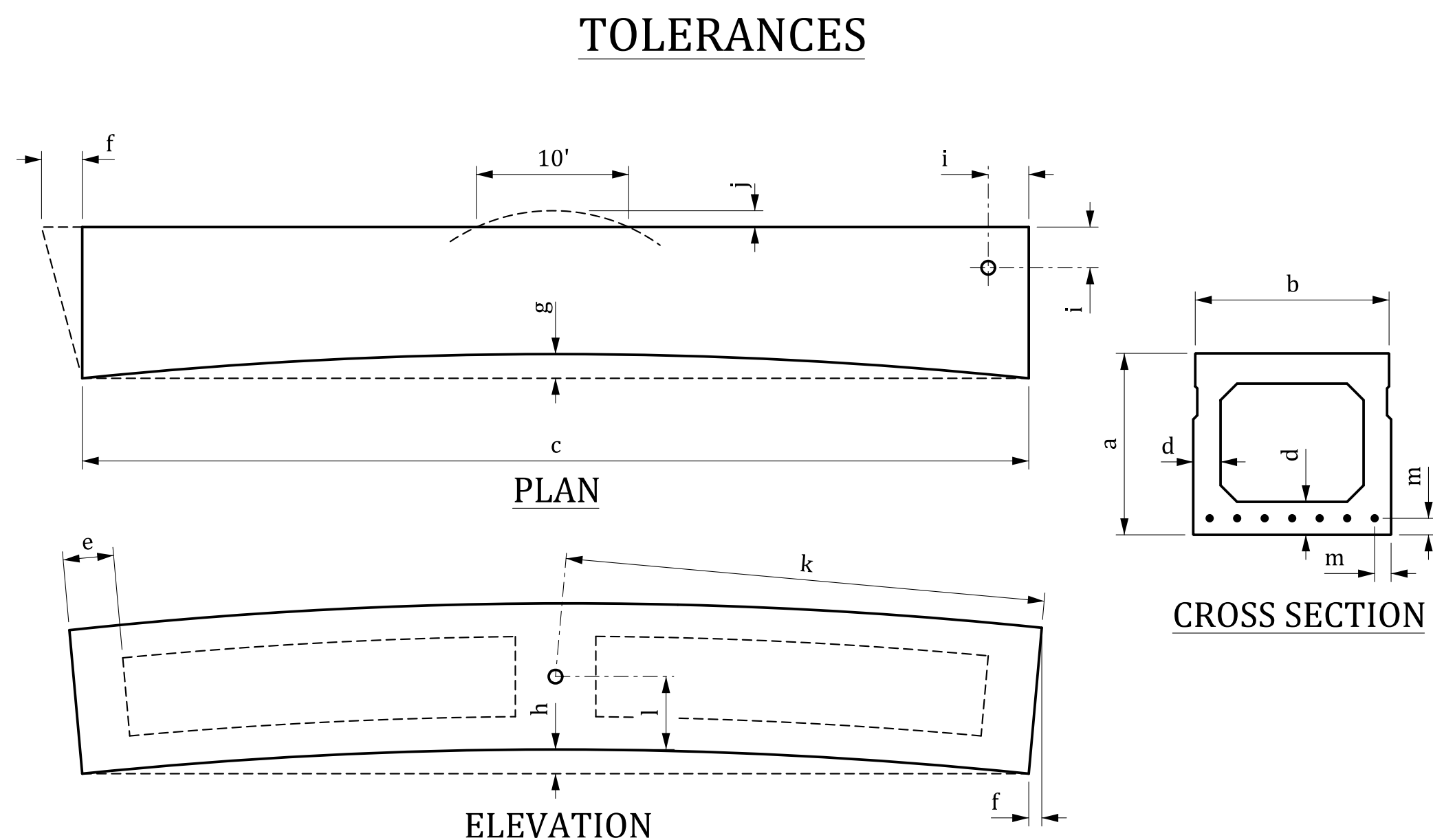
- GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.
- CONSTRUCT 7" WIDE BY 6" HIGH DRAIN BLOCK-OUTS IN THE BARRIER PARAPETS. CENTER BLOCK-OUTS IN BETWEEN VERTICAL BARRIER REINFORCING AND FIELD CUT LONGITUDINAL BARRIER REINFORCING AS NECESSARY TO PROVIDE 2" CLEARANCE TO BLOCK-OUTS.
- IF THE CONTRACTOR ELECTS TO HAND FORM BARRIER PARAPET INSTEAD OF SLIP FORMING, CAST A UNIFORM 12" THICK BARRIER PARAPET. ENSURE THAT BOTH FACES OF PARAPET ARE CAST VERTICAL AND PARALLEL TO ONE ANOTHER. PERFORM THIS WORK AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ALSO, NOTE ON AS-BUILT PLANS IF HAND FORMED BARRIER WAS UTILIZED.
- APPLY A BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS, TO THE TOP SURFACE OF THE BOX BEAMS AFTER SEALING THE JOINTS AND PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE.
- INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE BOX BEAMS IN THE UNIT PRICE BID FOR THE BOX BEAMS. ALSO, INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EPOXY PROTECTIVE COATING, JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE UNIT PRICE BID FOR THE BOX BEAMS.

FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.
 FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 90' SPAN - PLAN" SHEET.
 THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

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REV.	BY	CHK.	DATE	DESCRIPTION OF REVISION

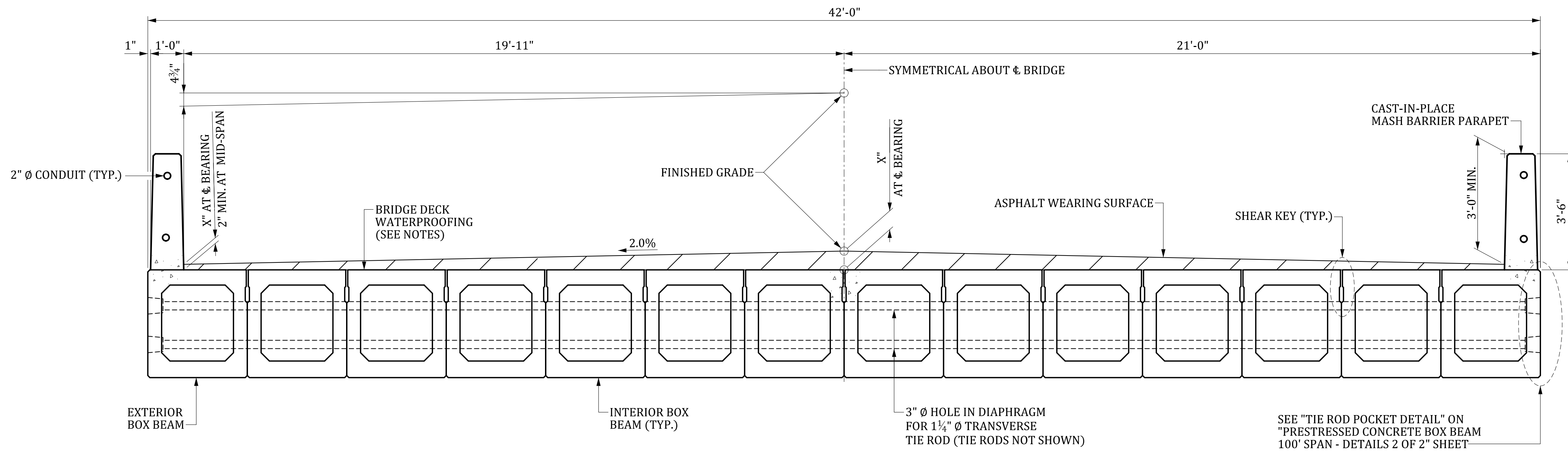
REVIEWED	QUAN.	DR.	DES.	GCM	OP	BY	CHK.	DATE



a	DEPTH	+ 1/4"
b	WIDTH	± 1/4"
c	LENGTH (LENGTH OF ADJACENT BOX BEAMS MUST BE WITHIN ± 1/4")	± 1"
d	POSITION OF VOID	± 3/8"
e	POSITION OF VOID ENDS: LONGITUDINAL	± 1"
f	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) OR DESIGNATED SKEW	± 1/8" PER 12" WIDTH, ± 1/2" MAX.
g	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALLEL TO THE CENTER LINE OF MEMBER	± 1/2"
h	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	1/4" IN 10', 3/4" MAX.
h	CAMBER: DIFFERENTIAL BETWEEN HIGH AND LOW MEMBERS OF THE SAME SPAN	3/4" MAX.
i	POSITION OF DOWEL HOLES: DEVIATION FROM PLAN POSITION	± 1/4"
	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	1/2"
	MAX. WIDTH - ANY ONE SPAN	PLAN WIDTH + 1/8" PER JOINT
	BEARING AREA: DEVIATION FROM PLANE SURFACE	± 1/16"
j	LOCAL SMOOTHNESS	1/4" IN 10'
k	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 1/2"
l	VERTICAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 3/8"
m	POSITION OF STRANDS	± 1/4"

CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PRESTRESSED CONCRETE BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 39'-10" ROADWAY (90' SPAN)	
COUNTY: ###	ROUTE: ###

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.



TYPICAL SECTION
DECK DRAINS NOT SHOWN.

NOTES:

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

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

USE REINFORCING STEEL THAT CONFORMS TO AASHTO M 31, TYPE W GRADE 60.

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} .

FOR ALL DEBONDING MATERIAL, USE TUBULAR CONDUIT CAPABLE OF RESISTING THE PRESSURE EXERTED BY THE CONCRETE. WHEN USING SLIT CONDUIT, USE TWO CONDUITS WITH 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 ENCLOSED 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.

WITHIN 48 HOURS OF DETENSIONING, SEAL THE OPENINGS BETWEEN THE STRANDS AND 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.

NOTES CONTINUED:

WHEN CASTING THE BOX BEAMS, USE A POSITIVE HOLD-DOWN SYSTEM TO PREVENT THE VOIDS FROM RISING OR MOVING SIDEWAYS. USE A NON-CORROSIVE HOLD-DOWN SYSTEM THAT IS DESIGNED TO REMAIN IN PLACE UNTIL THE CONCRETE ATTAINS THE SPECIFIED RELEASE STRENGTH. INCLUDE DETAILS OF THE HOLD-DOWN SYSTEM IN THE SHOP PLAN SUBMITTAL.

ALWAYS MAINTAIN BOX BEAMS IN AN UPRIGHT POSITION. USE LIFTING DEVICES LOCATED WITHIN 2'-0" OF THE ENDS TO LIFT OR HANDLE THE BOX BEAMS. PROVIDE A 1" DEEP RECESS AT THE LIFTING DEVICES. GROUT THE RECESSES PRIOR TO WATERPROOFING THE TOP SURFACE OF THE BOX BEAMS. DO NOT PERMIT THE BOX BEAMS TO BE PLACED OR STORED ON INTERIOR SUPPORTS CAUSING NEGATIVE MOMENTS.

TIE ROD ASSEMBLIES INCLUDE A 1 1/2" Ø ROD, TWO HEAVY HEX NUTS, TWO LOCK WASHERS, AND TWO 5" x 5" x 3/8" PLATE WASHERS. THREAD 8" ON EACH END OF THE TIE RODS. PROVIDE TIE RODS AND PLATE WASHERS MEETING THE REQUIREMENTS OF AASHTO M 270, GRADE 36. PROVIDE NUTS MEETING THE REQUIREMENTS OF ASTM A 563, GRADE A. GALVANIZE TIE RODS AND ALL HARDWARE IN ACCORDANCE WITH AASHTO M 111, AASHTO M 232, OR ASTM F 2329 AS APPLICABLE. INSTALL TIE RODS FOR TEST FIT DURING FIT UP OF SPAN IN CASTING YARD. INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING TIE ROD ASSEMBLIES IN THE UNIT PRICE BID FOR THE BOX BEAMS.

PLACE BOX BEAM SO THAT THE MAXIMUM TRANSVERSE JOINT WIDTH AT ANY LOCATION ALONG THE BENT DOES NOT EXCEED 1 7/8".

NOTES CONTINUED:

GROUT ALL SHEAR KEYS, DOWEL HOLES, AND RECESSES FOR TRANSVERSE TIE RODS AFTER TIGHTENING THE TRANSVERSE TIE RODS. AT EXPANSION ENDS OF BEAMS, FILL THE DOWEL HOLES WITH COLD APPLIED ELASTIC FILLER TO 1 1/2" ABOVE THE TOP OF DOWELS AND FILL THE REMAINING PORTION WITH GROUT. AFTER THE GROUT HAS CURED FOR A MINIMUM OF THREE DAYS, AND HAS ATTAINED THE REQUIRED STRENGTH, PLACE THE BARRIER PARAPET.

CONSTRUCT 7" WIDE BY 6" HIGH DRAIN BLOCK-OUTS IN THE BARRIER PARAPETS. CENTER BLOCK-OUTS IN BETWEEN VERTICAL BARRIER REINFORCING AND FIELD CUT LONGITUDINAL BARRIER REINFORCING AS NECESSARY TO PROVIDE 2" CLEARANCE TO BLOCK-OUTS.

IF THE CONTRACTOR ELECTS TO HAND FORM BARRIER PARAPET INSTEAD OF SLIP FORMING, CAST A UNIFORM 12" THICK BARRIER PARAPET. ENSURE THAT BOTH FACES OF PARAPET ARE CAST VERTICAL AND PARALLEL TO ONE ANOTHER. PERFORM THIS WORK AT NO ADDITIONAL EXPENSE TO THE DEPARTMENT. ALSO, NOTE ON AS-BUILT PLANS IF HAND FORMED BARRIER WAS UTILIZED.

APPLY A BRIDGE DECK WATERPROOFING SYSTEM, THAT COMPLIES WITH THE REQUIREMENTS OF THE SPECIAL PROVISIONS, TO THE TOP SURFACE OF THE BOX BEAMS AFTER SEALING THE JOINTS AND PRIOR TO PLACEMENT OF THE ASPHALT WEARING SURFACE.

INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING, FABRICATING, AND PLACING CONCRETE, PRESTRESSING STRANDS, AND REINFORCING STEEL CAST INTO THE BOX BEAMS IN THE UNIT PRICE BID FOR THE BOX BEAMS. ALSO, INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EPOXY PROTECTIVE COATING, JOINT, SHEAR KEY, RECESS, AND DOWEL HOLE FILLER MATERIALS INCLUDING GROUT, BACKER ROD, AND COLD APPLIED ELASTIC FILLER IN THE UNIT PRICE BID FOR THE BOX BEAMS.

FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE "BRIDGE PLAN & PROFILE" SHEET.

FOR LOCATIONS OF DECK DRAINS, SEE "PRESTRESSED CONCRETE BOX BEAM 100' SPAN" SHEET.

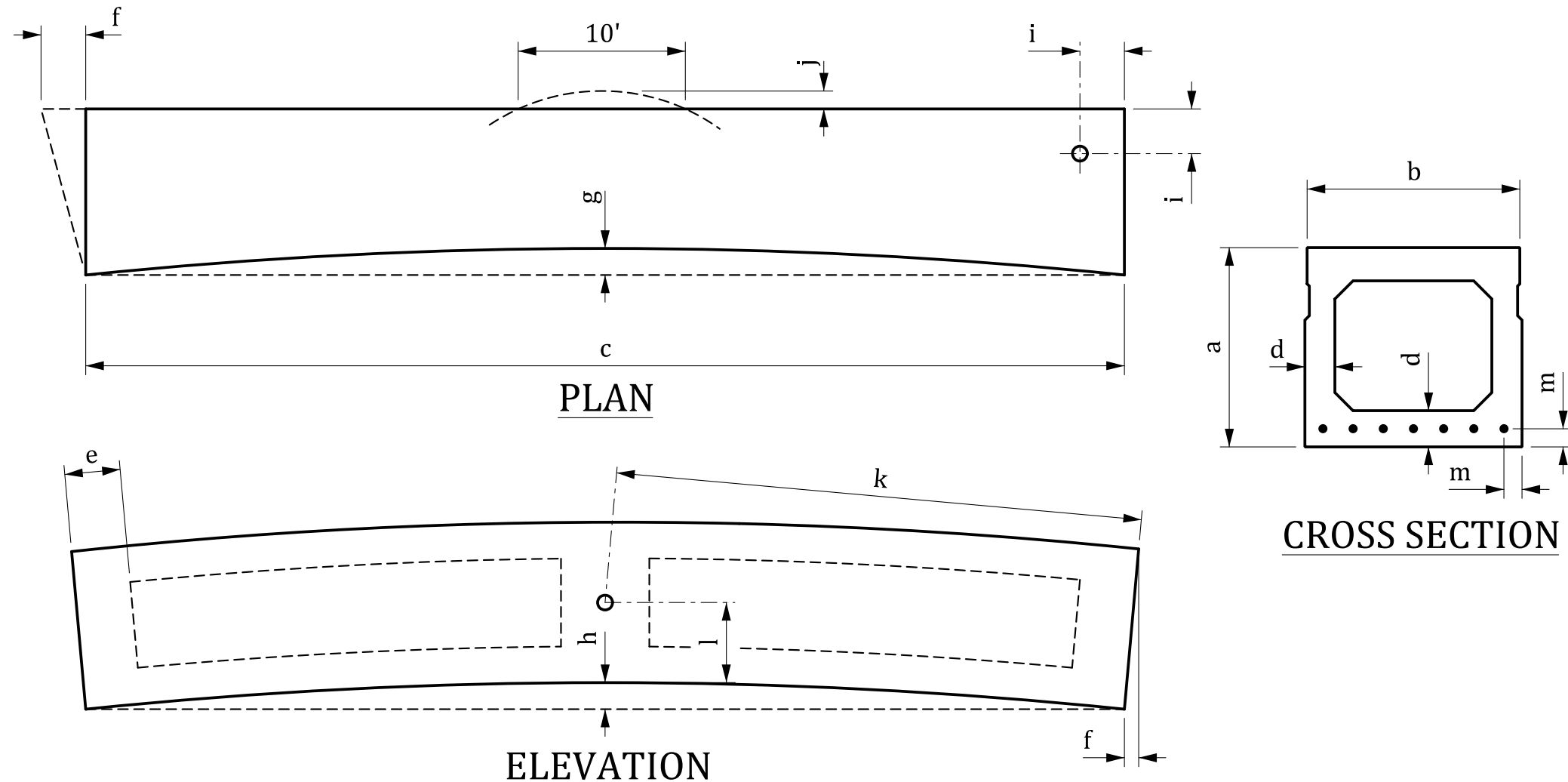
THE 2 1/2" Ø DOWEL HOLES MAY BE FORMED USING PLASTIC CORRUGATED DUCT THAT IS LEFT IN PLACE.

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

REVIEWED	GCM	MWB	10-23
QUAN.	GCM	MWB	10-23
DR.	OP	WSA	09-23
DES.	BY	CHK.	DATE

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TOLERANCES



a	DEPTH	+ 1/4"
b	WIDTH	± 1/4"
c	LENGTH (LENGTH OF ADJACENT BOX BEAMS MUST BE WITHIN ± 1/4")	± 1"
d	POSITION OF VOID	± 3/8"
e	POSITION OF VOID ENDS: LONGITUDINAL	± 1"
f	SQUARE ENDS: DEVIATION FROM SQUARE (HORIZONTAL OR VERTICAL) OR DESIGNATED SKEW	± 1/8" PER 12" WIDTH, ± 1/2" MAX.
g	HORIZONTAL ALIGNMENT: DEVIATION FROM A STRAIGHT LINE PARALLEL TO THE CENTER LINE OF MEMBER	± 1/2"
h	CAMBER: DIFFERENTIAL BETWEEN ADJACENT UNITS	1/4" IN 10', 3/4" MAX.
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i	POSITION OF DOWEL HOLES: DEVIATION FROM PLAN POSITION	± 1/4"
	WIDTH: DIFFERENTIAL OF ADJACENT SPANS IN THE SAME STRUCTURE	1/2"
	MAX. WIDTH - ANY ONE SPAN	PLAN WIDTH + 1/8" PER JOINT
	BEARING AREA: DEVIATION FROM PLANE SURFACE	± 1/16"
j	LOCAL SMOOTHNESS	1/4" IN 10'
k	HORIZONTAL POSITION OF HOLES FOR TRANSVERSE TIE RODS	± 1/2"
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m	POSITION OF STRANDS	± 1/4"

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CONSULTANT NAME/LOGO	
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PRESTRESSED CONCRETE BOX BEAM TYPICAL SUPERSTRUCTURE SECTION 39'-10" ROADWAY (100' SPAN)	
COUNTY: ###	ROUTE: ###