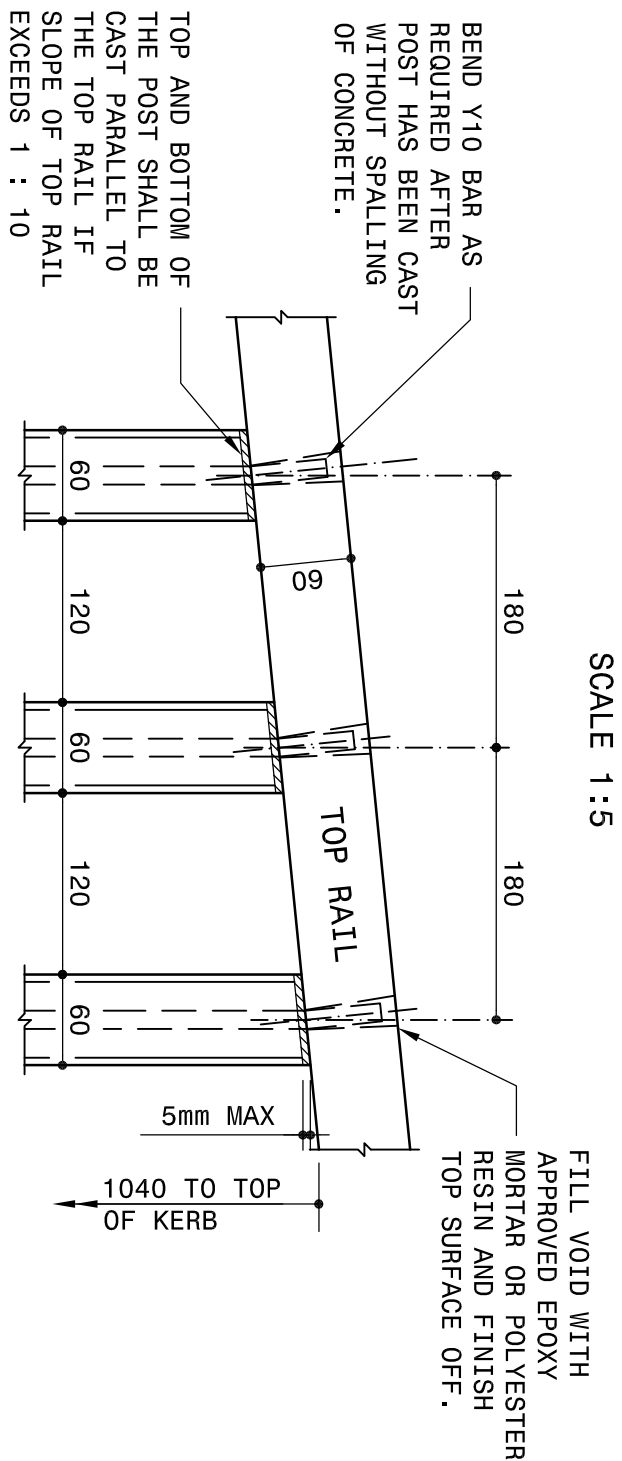
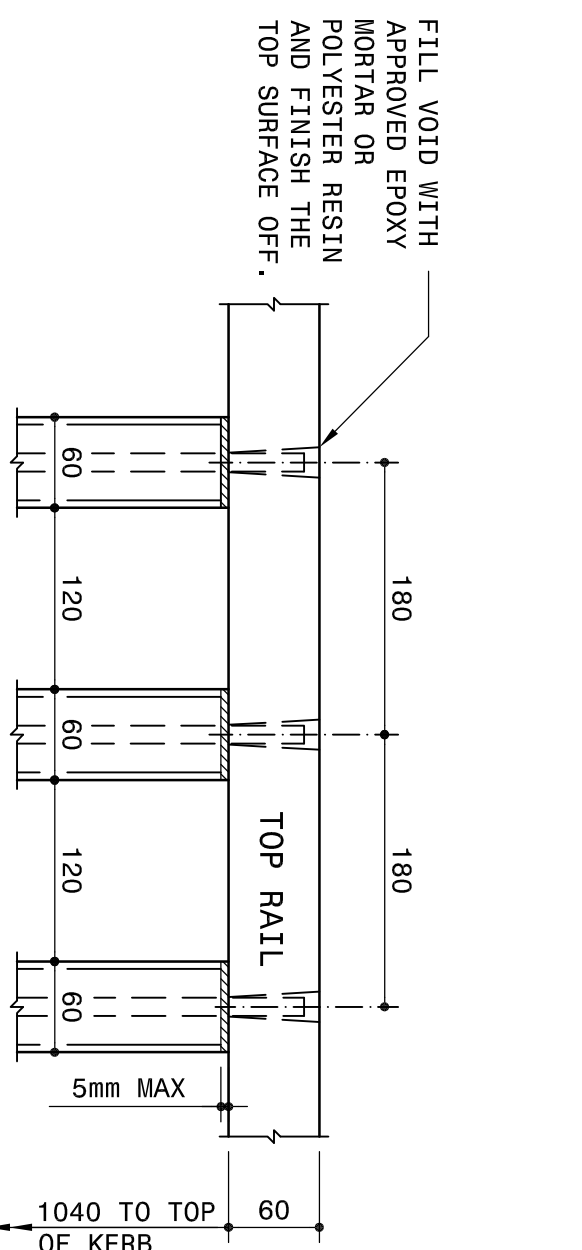
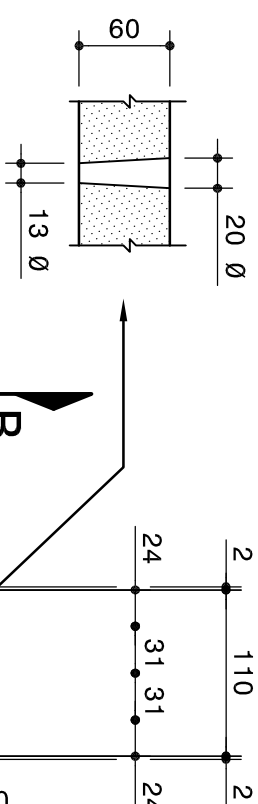


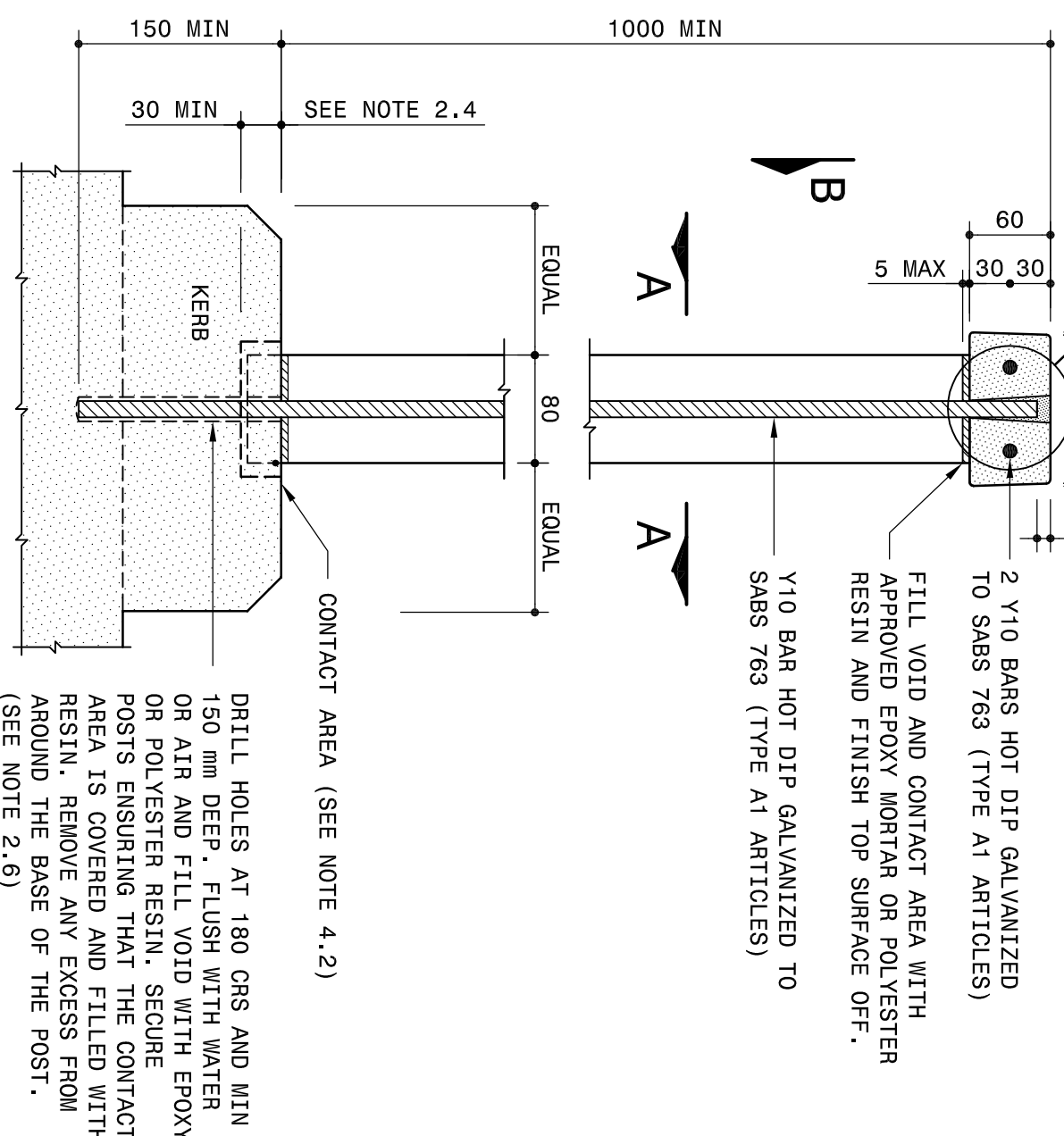


INSIDE ELEVATION B-B OF HANDRAIL

SCALE 1:5

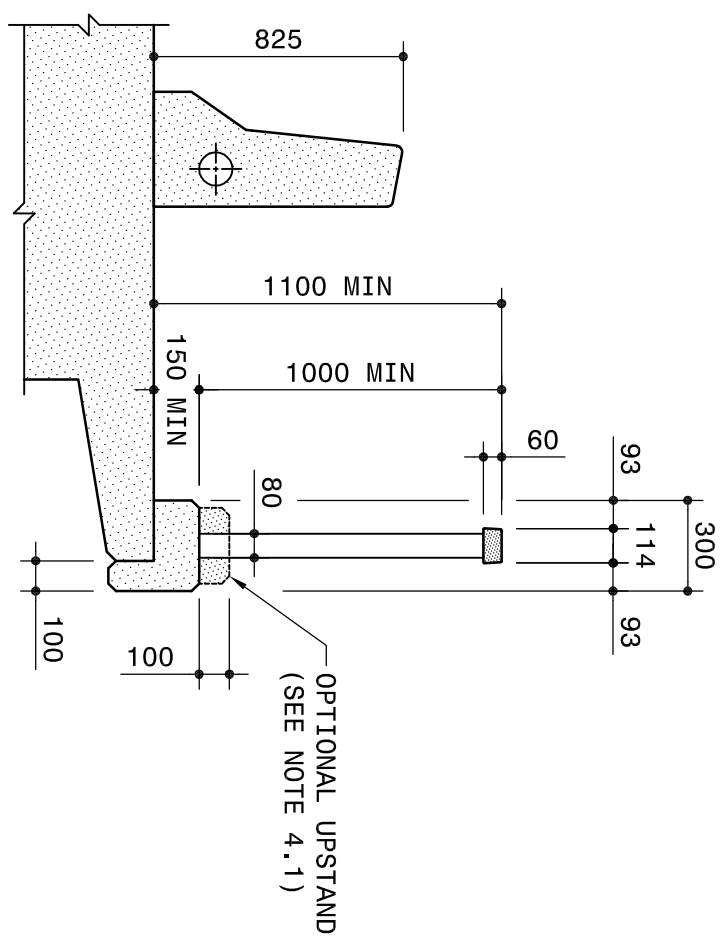
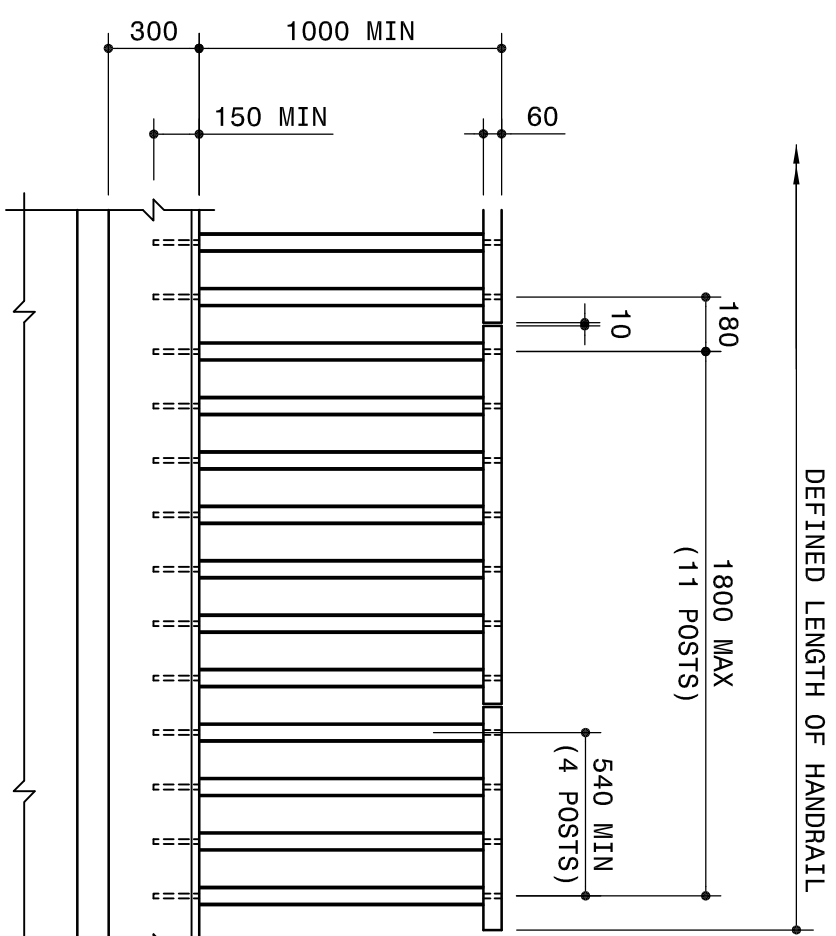


NOTE:
Y10 BARS SHALL BE SAW CUT AND NOT
GUILLOTINED. ALL BURS ON CUT ENDS
SHALL BE REMOVED BY GRINDING.



INSIDE ELEVATION B-B OF HANDRAIL ON SLOPE

SCALE 1:5

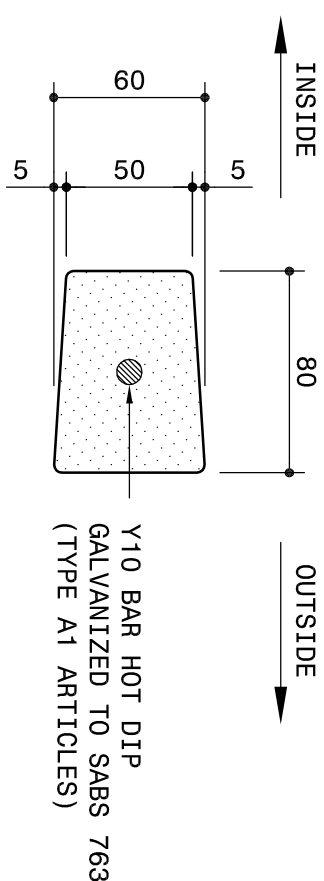


HANDRAIL ELEVATION

SCALE 1:25

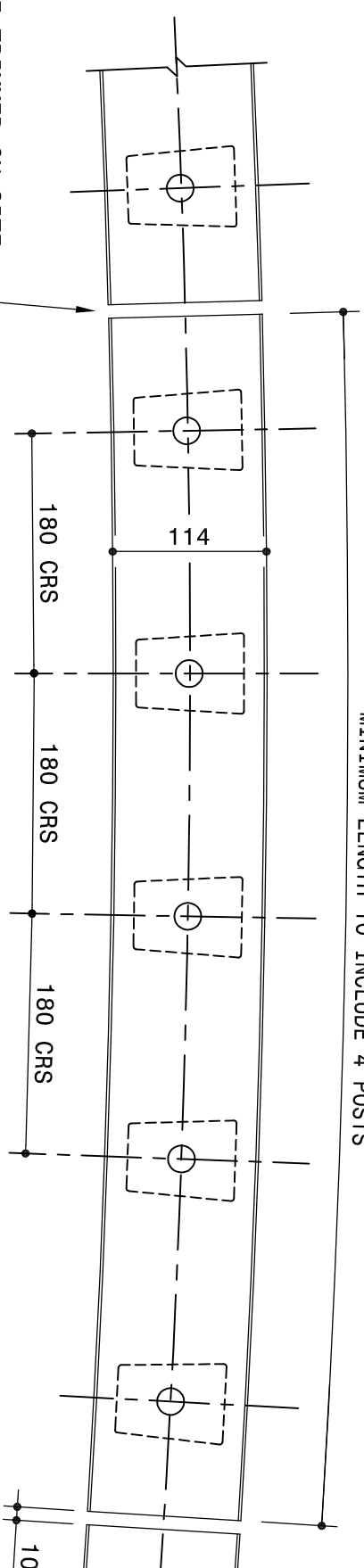
HANDRAIL DETAILS

SCALE 1:25



SECTION A-A

SCALE 1:3



PLAN OF CURVED PRECAST TOP RAIL

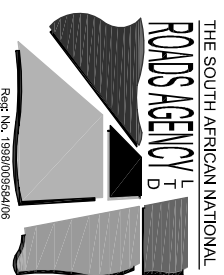
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[illegible]

SANRAL TYPICAL DRAWINGS

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TYPICAL DRAWINGS - STRUCTURES

PEDESTRIAN PARAPET
PRECAST CONCRETE
1.5kN/m DESIGN - LAYOUT & DETAILS

SANRAL DOC. No. (PDF)
164989-v1

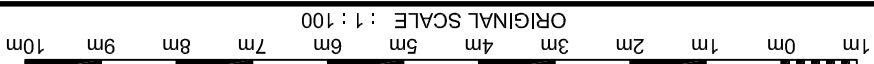
SANRAL DOC. No. (DWG)
164990-v1

SANRAL DRAWING No.
TD-S-P-803-V1

NOTES

1. GENERAL

- 1.1 CONCRETE FOR PRECAST CONCRETE HANDRAIL MEMBERS SHALL BE CLASS 40/13 AND SHALL BE DESIGNED FOR LOW SHRINKAGE VALUES.
- 1.2 ALL BONDED CONNECTIONS SHALL BE MADE WITH RESIN WITH A SHEAR AND BOND STRENGTH GREATER THAN THAT OF THE CONCRETE.
- 1.3 FINISH TO PRECAST MEMBERS SHALL BE CLASS F3 AND U3 (STEEL TROWEL). ALL CORNERS TO BE ROUNDED 3mm.
- 1.4 NO SAG WILL BE ALLOWED BETWEEN THE ENDS OF ANY SINGLE TOP RAIL UNIT. MAXIMUM PERMISSIBLE BOWING WILL BE 2 mm PER METER OF TOP RAIL.
- 1.5 POSTS AND TOP RAILS SHALL BE PROPERLY BRACED UNTIL THE RESIN USED FOR FIXING HAS SET. CURING TIME SHALL BE VERIFIED BY THE ENGINEER.
2. DESIGN AND DETAILING REQUIREMENTS:
- 2.1 HANDRAIL DESIGNED FOR 1.5 kN/m LOADING AS DEFINED IN TMH 7. USE ON PEDESTRIAN BRIDGES OR WITH SIDEWALK PROTECTED BY VEHICLE BARRIER.
- 2.2 ALLOWANCE SHALL BE MADE FOR VERTICAL AND HORIZONTAL IRREGULARITIES OF THE TOP OF THE KERB OR BRIDGE DECK WHERE HANDRAILS ARE INSTALLED ON EXISTING BRIDGES.
- 2.3 THE ENGINEER SHALL VERIFY THAT THE REINFORCEMENT AND CONCRETE IN THE KERB IS ADEQUATE FOR THE INSTALLATION OF THE HANDRAILS.
- 2.4 WHERE THE TOP SURFACE OF THE KERB IS IRREGULAR OR OF INSUFFICIENT STRENGTH FOR ANCHORING THE POSTS, MIN 30 mm DEEP CORE HOLES OR A 30mm DEEP SLOT SHALL BE PROVIDED TO ENSURE PROPER BEDDING OF THE POSTS. THE CORE HOLES OR SLOTS SHALL BE FILLED WITH AN APPROVED PROPRIETARY BEDDING GROUT AFTER THE POSTS HAVE BEEN FIXED.
- 2.5 WHERE EXISTING HANDRAIL MEMBERS ARE REMOVED PRIOR TO THE INSTALLATION OF NEW PRECAST CONCRETE HANDRAILS, THE EXISTING MEMBERS SHALL BE REMOVED TO A DEPTH OF AT LEAST 3 mm BELOW THE TOP OF THE KERB AND THE SURFACE SHALL BE MADE GOOD WITH AN APPROVED PATCHING MORTAR,
- 2.6 DIAMETERS OF HOLES FOR THE BONDED CONNECTIONS WILL DEPEND ON THE RESIN USED BY THE CONTRACTOR. THE ENGINEER SHALL VERIFY THE REQUIRED HOLE SIZES AND ACCEPTABILITY OF THE PROPOSED RESIN.
3. APPROVAL OF INSTALLERS AND MATERIALS:
- 3.1 THE CONTRACTOR SHALL SUBMIT SAMPLES OF THE HANDRAIL MEMBERS HE INTENDS USING TO THE ENGINEER FOR APPROVAL. SUCH SAMPLES WILL BE KEPT AND USED BY THE ENGINEER AS A COMPARATIVE STANDARD FOR THE MEMBERS ACTUALLY INSTALLED ON THE BRIDGE.
- 3.2 THE ENGINEER MAY ALSO REQUIRE DESTRUCTIVE TESTING OF INDIVIDUAL MEMBERS TO CONFIRM THEIR COMPLIANCE WITH THE SPECIFIED MANUFACTURING PROCEDURES
- 3.3 THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE THE ENGINEER WITH PROOF OF COMPETENCE OF THE PROPOSED INSTALLERS OF THE HANDRAILS.
4. VERTICAL ALIGNMENT
- 4.1 WHERE THE TOP OF THE KERB OR DECK DISPLAYS POOR VERTICAL ALIGNMENT, THE ALIGNMENT SHALL BE IMPROVED BY MEANS OF GRINDING PRIOR TO THE INSTALLATION OF THE POSTS OR BY CASTING AN UPSTAND AROUND THE POSTS AFTER INSTALLATION. THIS DECISION WILL BE MADE BY THE ENGINEER.
- 4.2 A RECESS SHALL BE FORMED IN THE KERB OR DECK UNDER THE CONTACT AREA UNDER THE POST BY MEANS OF COING OR PROVIDING A SLOT. THE SLOT OR CORED HOLES SHALL BE FILLED WITH AN APPROVED REPAIR MORTAR AFTER THE POSTS HAVE BEEN INSTALLED. THIS METHOD MAY BE ELIMINATED ONLY ON THE EXPRESS INSTRUCTION OF THE ENGINEER.



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