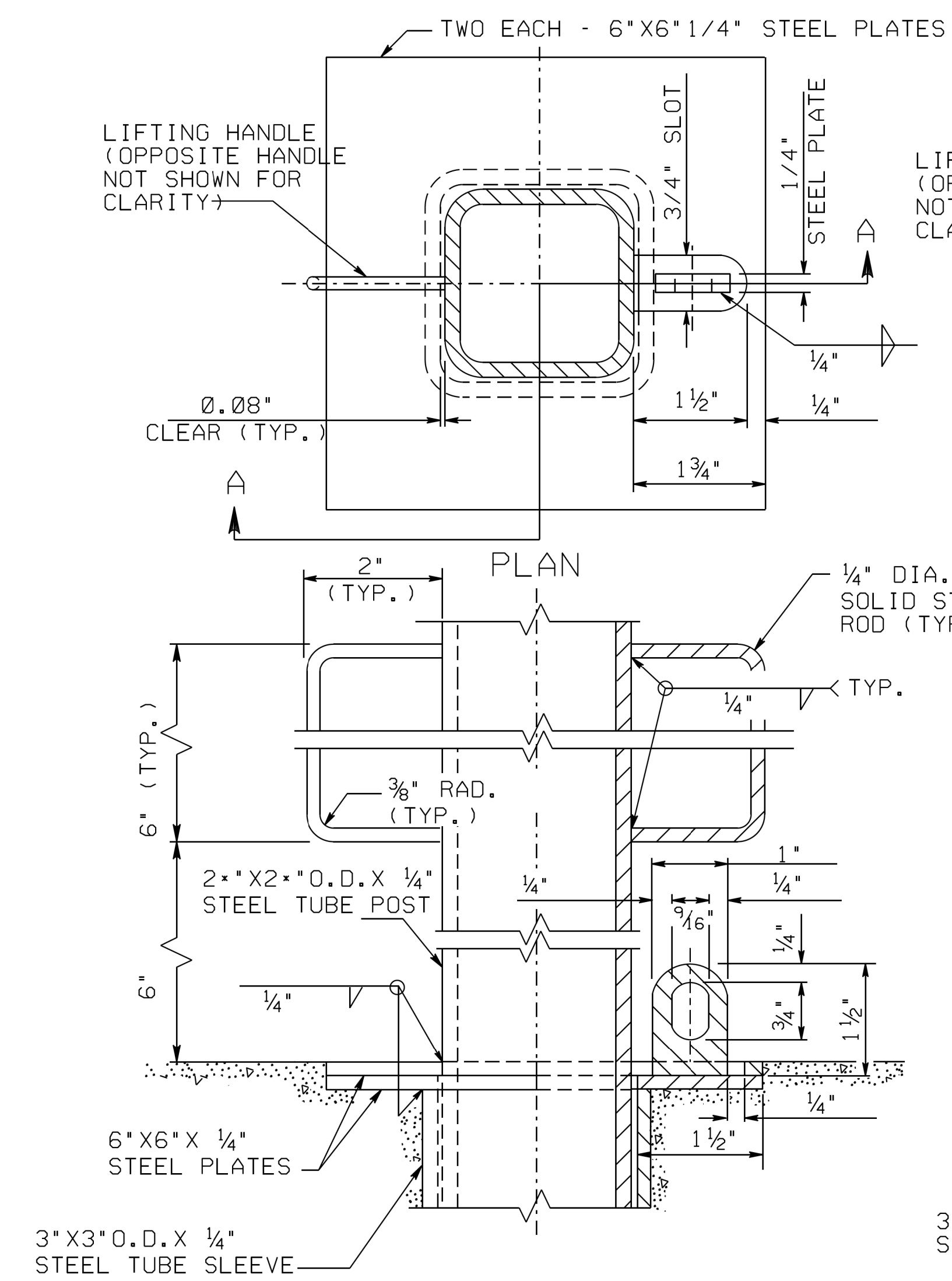
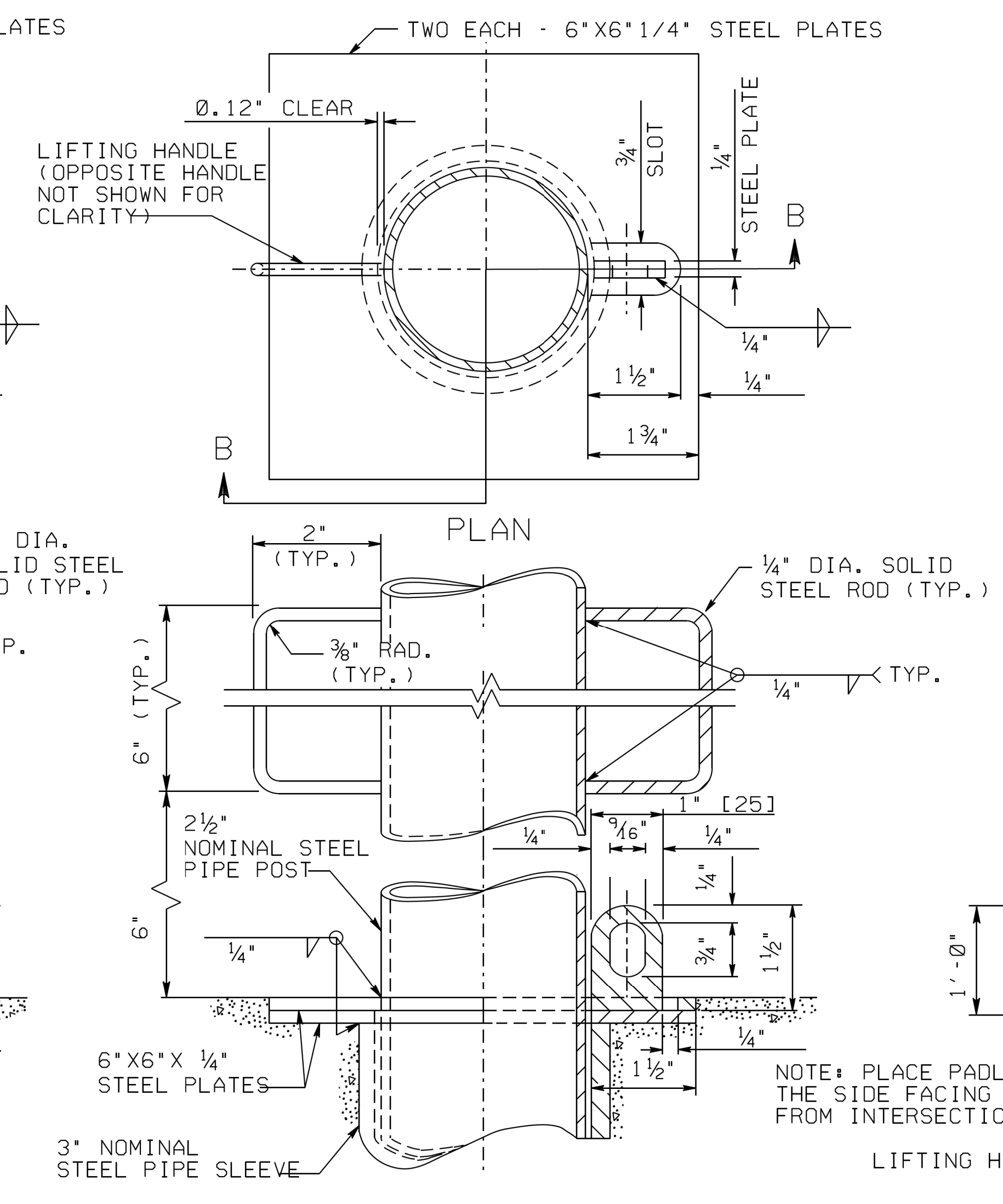


NOTES

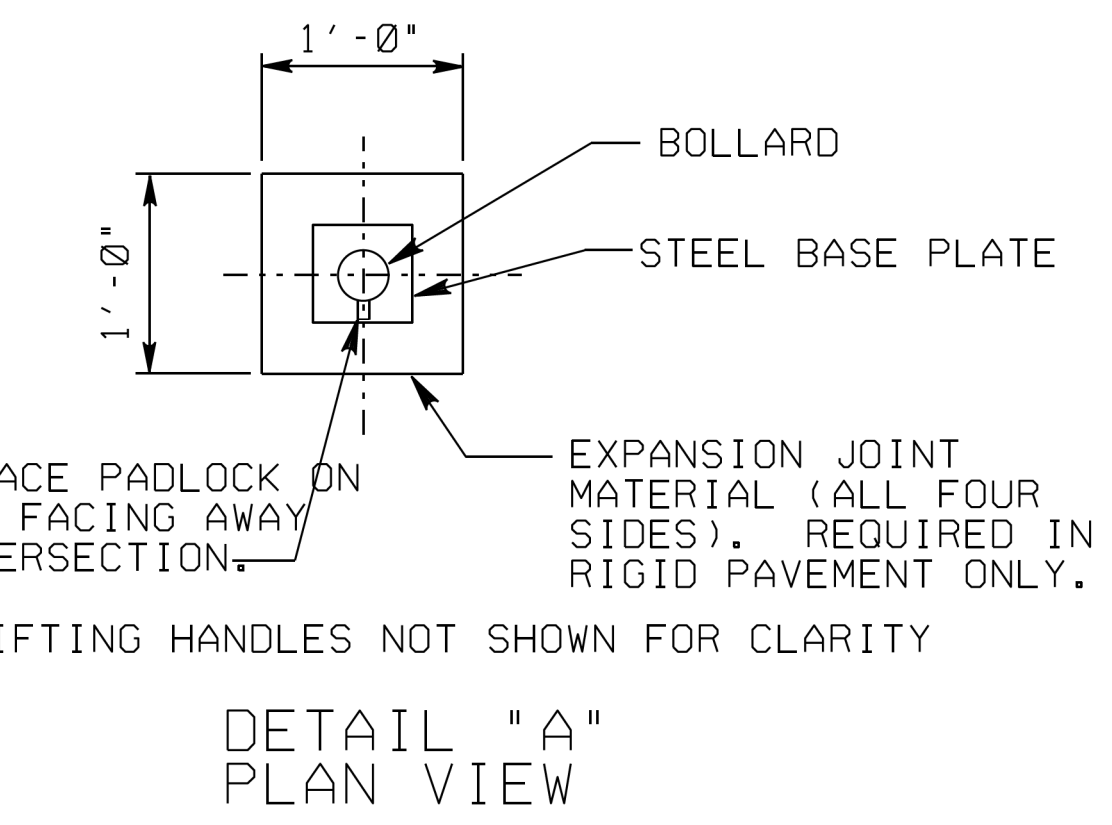
- GENERAL:** MOUNT ALL BOLLARD SLEEVES FLUSH WITH THE BIKEWAY PAVEMENT.
- CONCRETE ENCASEMENT:** SLEEVE ENCASEMENT SHALL BE SQUARE AS SHOWN, IN CONCRETE PAVEMENT, BUT MAY BE SQUARE OR ROUND IN FLEXIBLE PAVEMENT. ROUND ENCASEMENT SHOULD BE 1'-0" DIAMETER.
- PREFORMED EXPANSION JOINT FILLER:** IS REQUIRED WHEN BOLLARDS ARE SET IN CONCRETE PAVEMENT.
- STEEL PIPE:** ASTM A 53 SCHEDULE 40.
- CONCRETE:** USE CLASS B CONCRETE.
- GALVANIZING:** AFTER FABRICATING, HOT-DIP GALVANIZE ALL STEEL PARTS, INCLUDING STEEL PIPE, AS SPECIFIED IN ASTM A 123.
- ALUMINUM:** ALL STEEL COMPONENTS MAY BE REPLACED BY ALUMINUM COMPONENTS MEETING THE FOLLOWING ASTM SPECIFICATIONS: B 209 (PLATE), B 210 OR B 241 (DRAWN SEAMLESS TUBES & PLATES), B 211 (RODS), AND F 901 (BOLTS).
- PERMANENT BOLLARDS:** PERMANENT BOLLARDS SHALL BE THE SAME AS REMOVABLE BOLLARDS, EXCEPT THAT THE STEEL PLATES, SLEEVES AND LIFTING HANDLES SHALL BE OMITTED. ENCASE POSTS DIRECTLY IN CONCRETE.



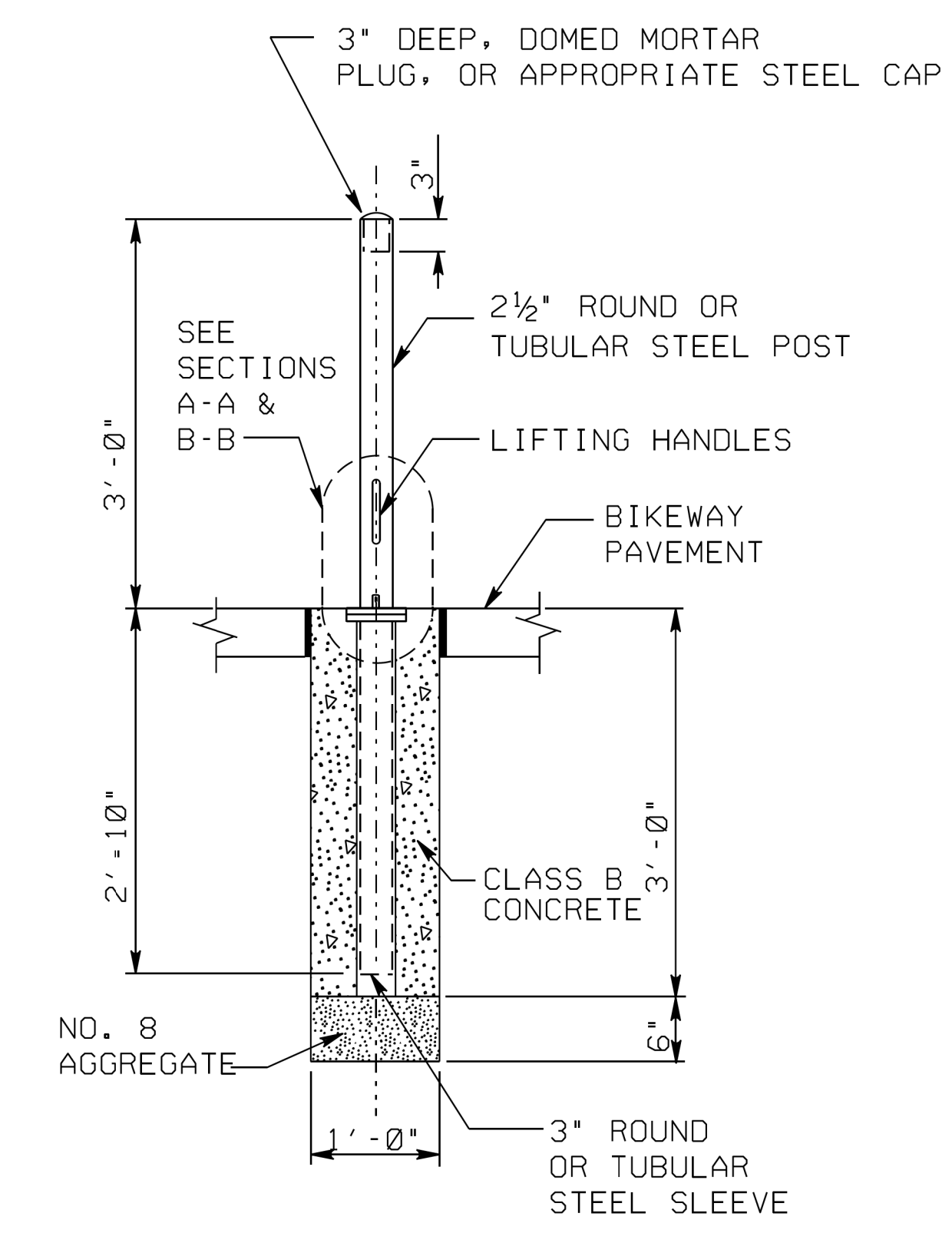
SECTION A-A
REMOVABLE SQUARE BOLLARD



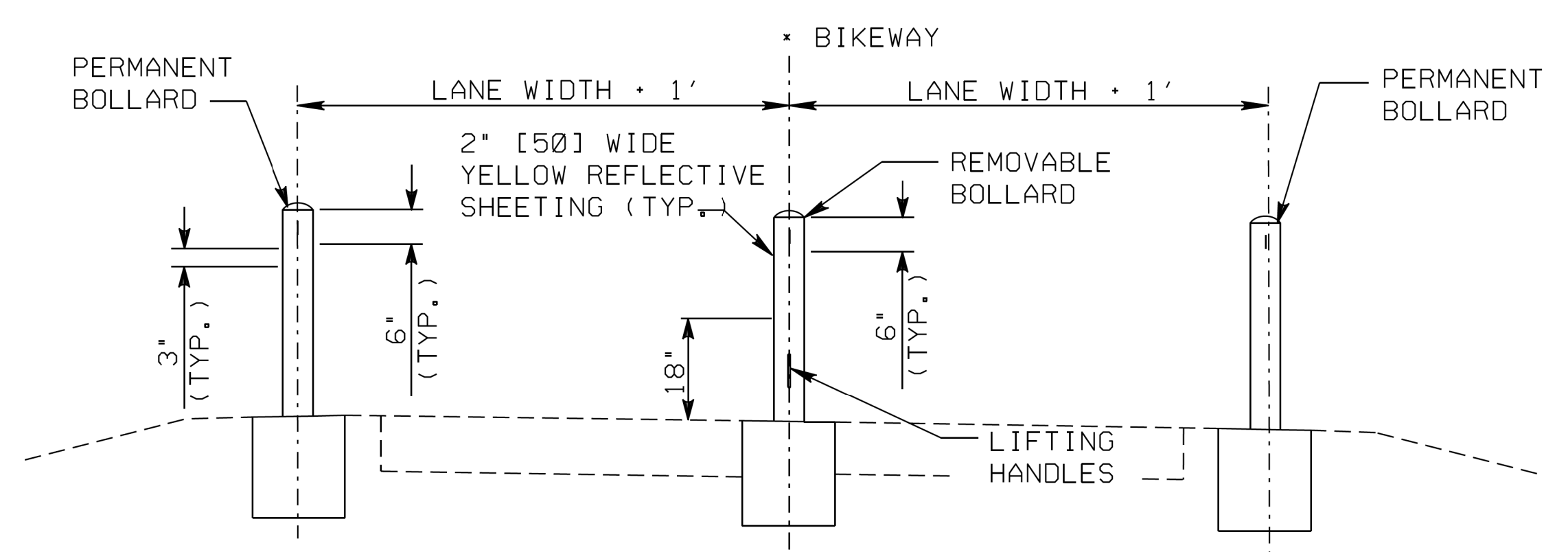
SECTION B-B
REMOVABLE ROUND BOLLARD



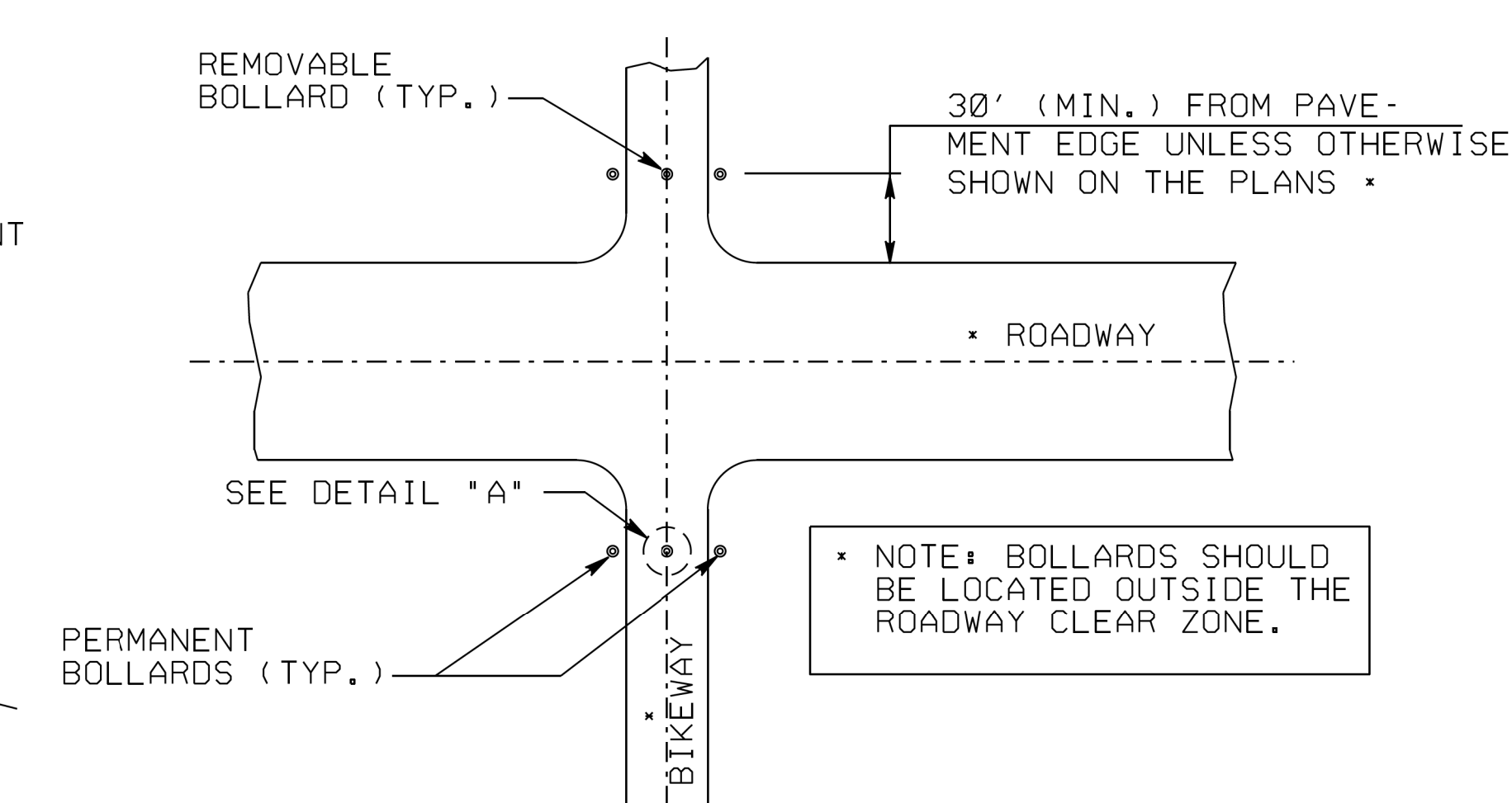
DETAIL "A"
PLAN VIEW



DETAIL "A"
ELEVATION VIEW
REMOVABLE BOLLARD



BOLLARD PLACEMENT - ELEVATION VIEW



BOLLARD PLACEMENT - PLAN VIEW

* NOTE: BOLLARDS SHOULD BE LOCATED OUTSIDE THE ROADWAY CLEAR ZONE.

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6/15/2021



DocuSigned by:
Daniel S. Howerton
873F3D7DC0C45E

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-707-6950 FAX 919-250-4119

STEEL BOLLARDS

ORIGINAL BY:	DATE:
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: nbritt/english/misc/bollards steel.dgn	