

Exhibit J

Directional Boring Standards



SUBMITTAL REQUIREMENTS

Directional Bore Clearance

El Paso Streetcar has identified minimum directional bore clearance requirements for all proposed subterranean crossings under streetcar infrastructure. Specific design requirements are detailed in Figure J – 1.

General

All drawings and calculations for directional boring shall be prepared, sealed and signed by a Professional Engineer (civil or structural) currently licensed in the State of Texas who has previous experience in the design and placement of subterranean facilities.

The designer will be responsible for the accuracy of all controlling dimensions as well as the selection of appropriate materials and systems that accurately reflect the actual field conditions. No subterranean installation within the operational right-of-way will be allowed until the drawings and calculations are reviewed and accepted by EPSC.

Submittal of forms, drawings and calculations shall be provided to EPSC for review in electronic format transmitted by email, or mail (with CD-R or DVD-R properly labeled). Files shall be Adobe PDF compatible. Each separate document shall be a separate PDF file (drawings, specifications, calculations, forms, etc.).

All submittals, design calculations, specifications and drawings shall be prepared in accordance with a QA/QC process. The QA/QC process may follow the established program of EPSC, Engineer in Responsible Charge firm, or Permittee. At a minimum, the QA/QC process must consist of an independent check of design calculations and an independent QC review of the drawings and specifications prior to submittal to EPSC by qualified individuals. Documentation of the QA/QC process, including names and contact information of independent reviewers, shall be made available to EPSC at their request.

A minimum of **FIVE (5) CALENDAR DAYS** should be allowed for EPSC's review, provided that all required submittal materials are included and properly identified.

Drawings

The directional boring drawings must be complete and shall accurately describe the nature of the work. Drawings shall be to scale.

At a minimum, the drawings shall include the following:

- Plan view that includes the following information and meets the following criteria:
 - Streetcar alignment centerline
 - North Arrow
 - All pertinent topographic information
 - Labeling and identification of all Streetcar Operating System elements and facilities (rails, track bed, track centerline, signals, overhead contact system (OCS) poles, OCS wires, and OCS appurtenances)
 - Labeling and identification of all proposed directional borings and support facilities (pot holes, bore pits, etc.)

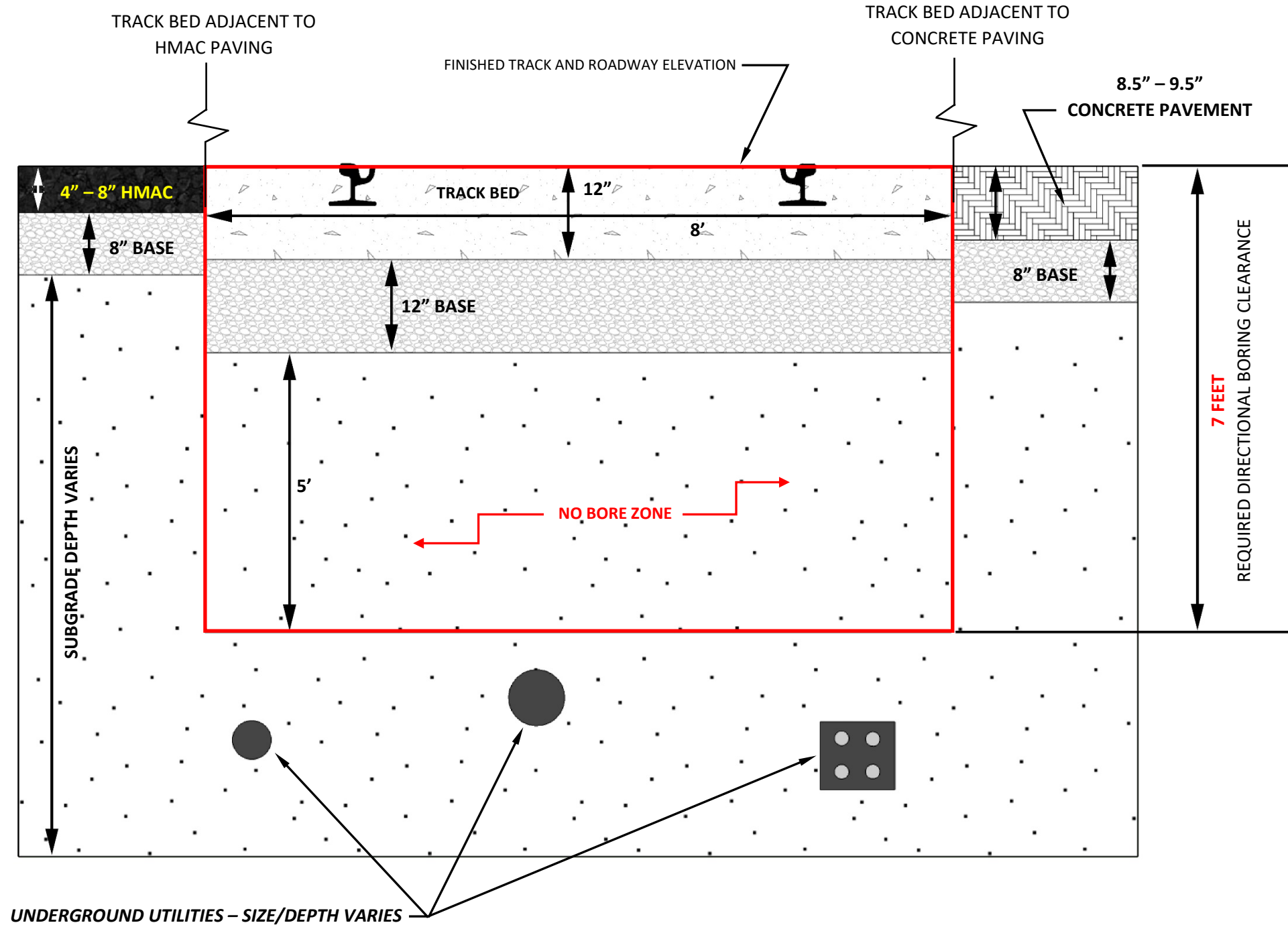
- Section view normal to the track(s) that includes the following information:
 - Length of proposed bore path
 - Depth of proposed bore path
 - Labeling of “No Bore Zone” as depicted in Figure J – 1
 - Direction of bore path
 - Depth of underground utilities (if known)

- Specification sheet of proposed material that includes the following information:
 - General specifications
 - Construction materials
 - Dimensions
 - Physical specifications
 - Flame test specifications (if applicable)
 - Environmental specifications
 - Mechanical test specifications
 - Environmental test specifications

- Typical details shall only include those that are pertinent to directional boring installations only. Details including any reference to aerial applications or trenching (except those identifying bore/receiving pits) shall not be included.

GENERAL NOTES:

1. CROSS – SECTION SHOWN IS TYPICAL OF FIELD CONDITIONS FOUND ON STREETCAR OPERATIONAL RIGHT-OF-WAY (ALIGNMENT).
2. A CONCRETE TRACK BED TYPICALLY MEASURING 8 FEET IN WIDTH AND 12 INCHES IN DEPTH (FROM FINISHED ROADWAY ELEVATION) IS FOUND THROUGHOUT THE ALIGNMENT.
3. HMAC OR CONCRETE ROADWAY PAVEMENT OR A COMBINATION OF BOTH MAY BE FOUND ON EITHER SIDE OF TRACK BED AT VARIOUS DEPTHS.
4. AN 8 INCH COMPACTED BASE IS TYPICAL UNDERNEATH THE ADJACENT HMAC OR CONCRETE PAVEMENT.
5. A 12 INCH COMPACTED BASE IS TYPICAL UNDERNEATH THE TRACK BED.
6. A 7 FEET NO BORE ZONE EXISTS FROM FINISHED TRACK/ROADWAY TO A DEPTH OF 7 FEET.
7. SUBGRADE DEPTH VARIES THROUGHOUT THE ALIGNMENT.
8. THIRD PARTY UNDERGROUND UTILITIES ARE PRESENT AT VARIOUS SIZES AND DEPTHS.
9. A 7 FEET DEPTH BORING CLEARANCE (FROM FINISHED TRACK/ROADWAY ELEVATION) IS REQUIRED FOR ALL DIRECTIONAL BORING WHILE WITHIN THE OPERATIONAL RIGHT-OF-WAY, SEE FIGURE 7.1.
10. STREETCAR TRACK ASBUILTS ARE AVAILABLE UPON REQUEST FOR SITE SPECIFIC WORK ALONG THE ALIGNMENT, COORDINATE WITH EL PASO STREETCAR.



UNDERGROUND UTILITIES – SIZE/DEPTH VARIES

TYPICAL STREETCAR TRACK BED CROSS - SECTION – SCALE: N.T.S.

FIGURE
J - 1



**STREETCAR DIRECTIONAL BORE
CLEARANCE ZONE**

11/20/2019

