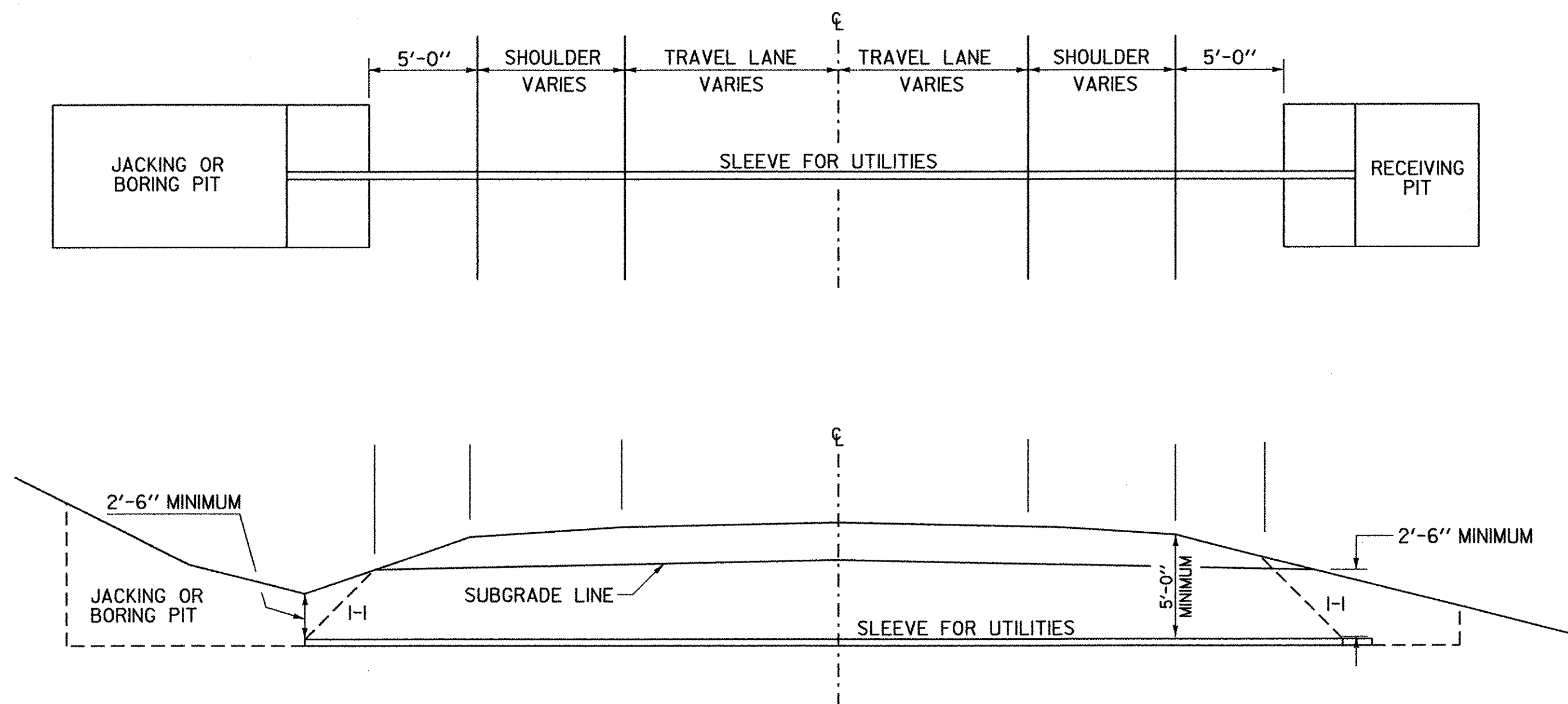
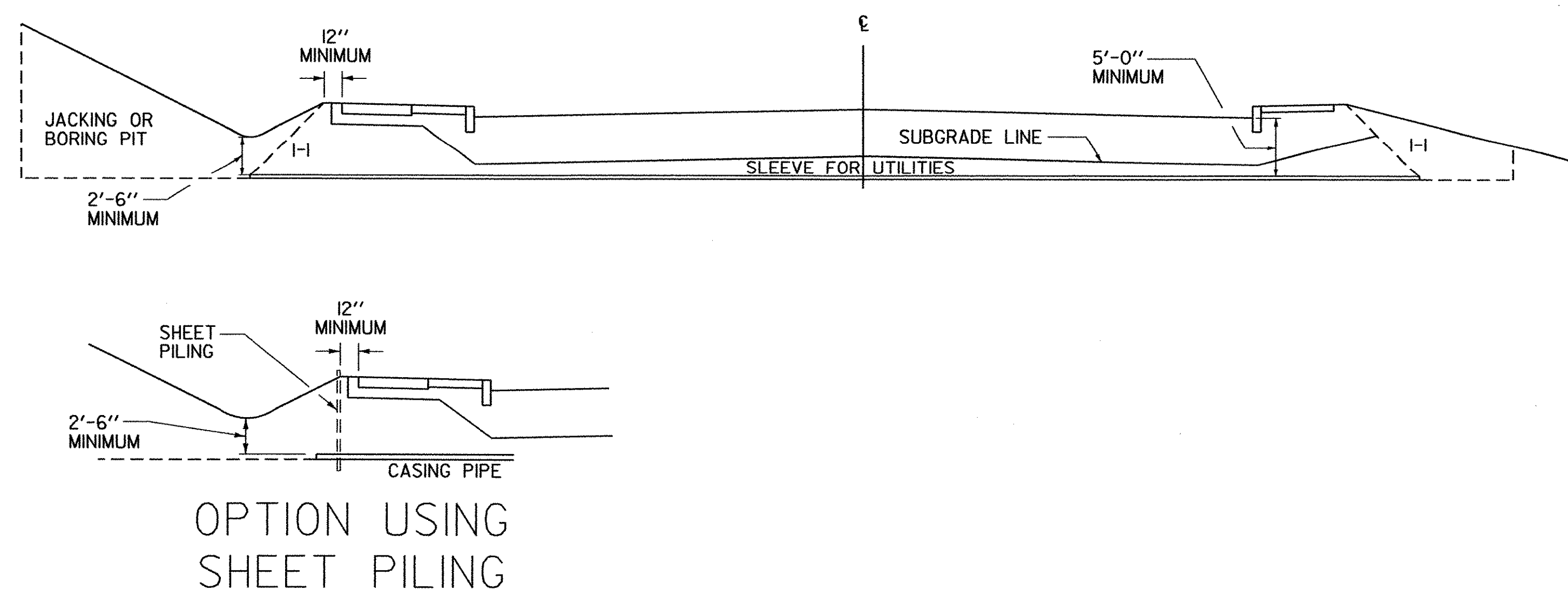


DETAIL "A" JACKING, BORING, AND DIRECTIONAL BORE - UNCURBED TYPICAL

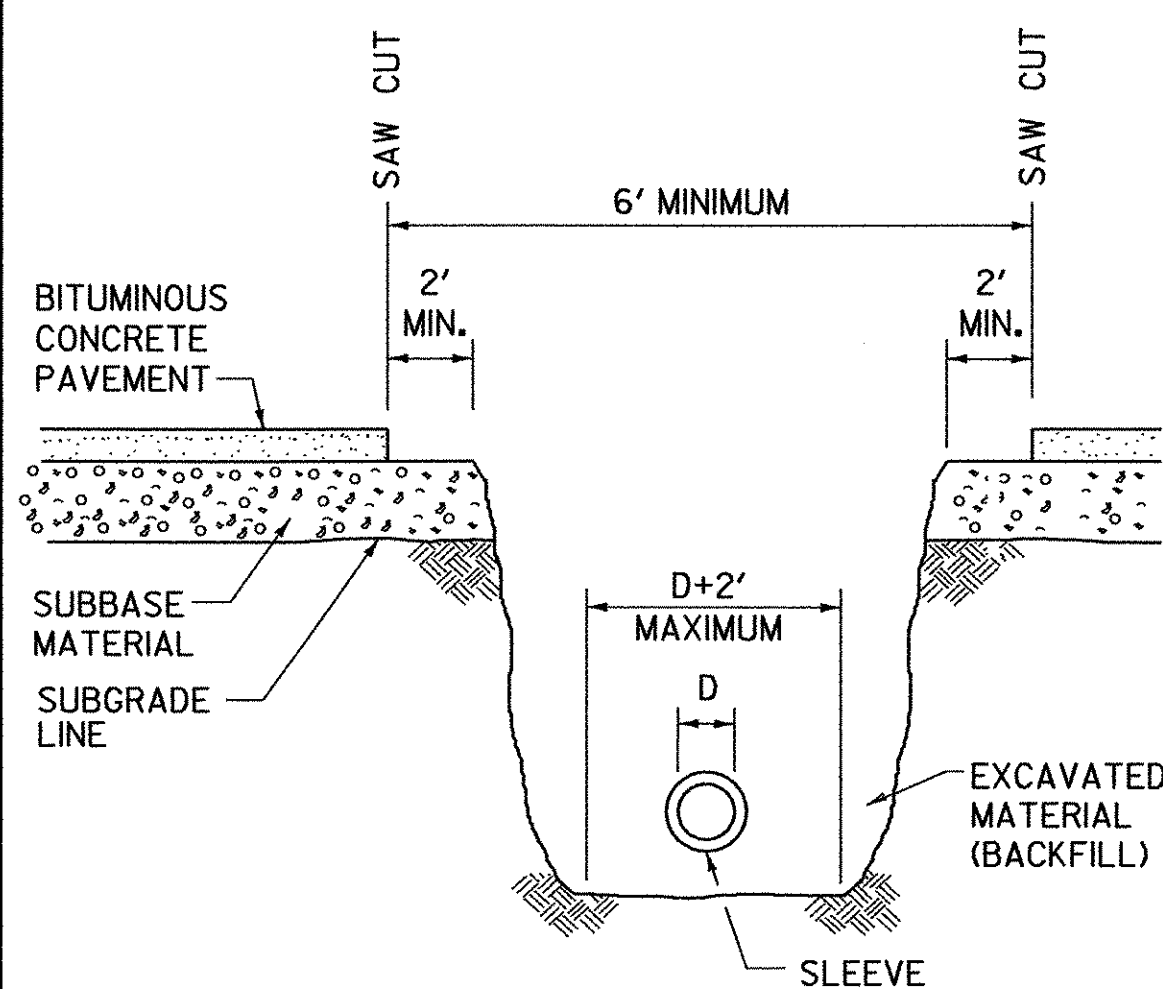


DETAIL "B" JACKING, BORING, AND DIRECTIONAL BORE - CURBED TYPICAL



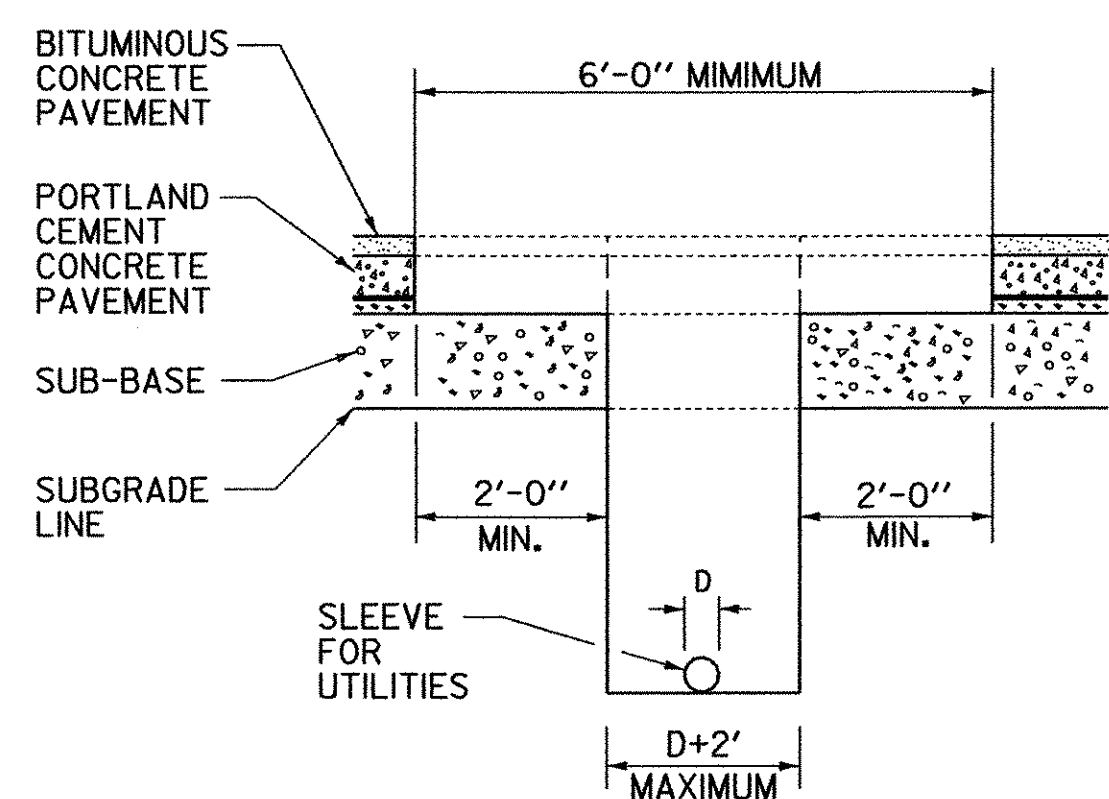
OPEN CUT AND PAVEMENT REPLACEMENT
APPLICABLE ONLY WHEN SPECIFICALLY AUTHORIZED BY HIGHWAY PERMIT

DETAIL "C" OPEN CUT EXCAVATION ACROSS BITUMINOUS CONCRETE PAVEMENT

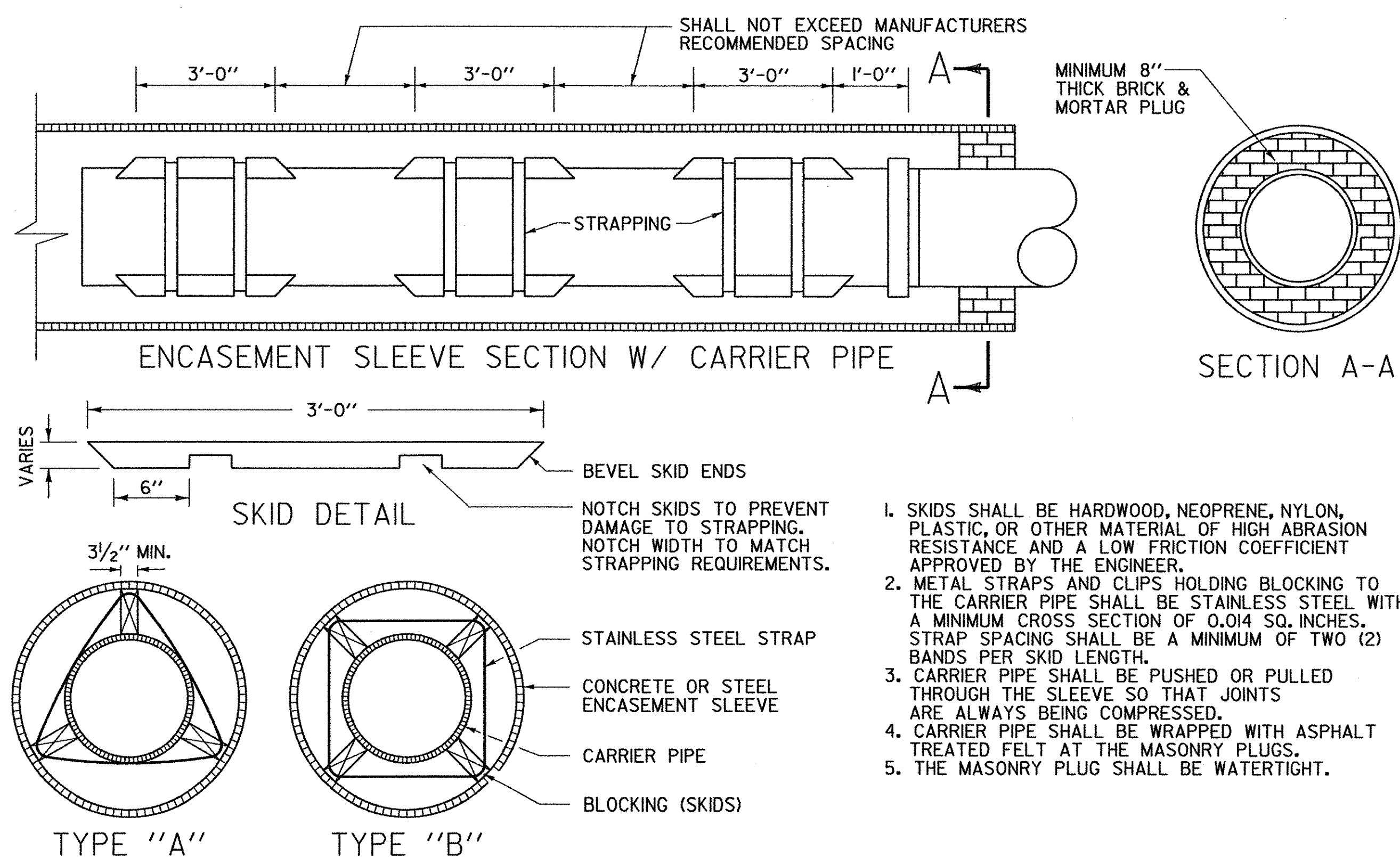


DETAIL "D" OPEN CUT W/ PORTLAND CEMENT CONC. PAVEMENT

IN THE EVENT THAT AN ADJACENT TRANSVERSE JOINT IS LESS THAN FOUR FEET FROM THE CUT, THE PAVEMENT SHALL BE REMOVED TO THAT JOINT.
DRILL & GROUT 4' LONG #5 BARS INTO 2' DEEP HOLES DRILLED EVERY 18" ALONG BOTH SIDES OF SAWN CONCRETE. TIE TOGETHER WITH #5 BARS.



DETAIL "E" CONCRETE OR STEEL SLEEVE



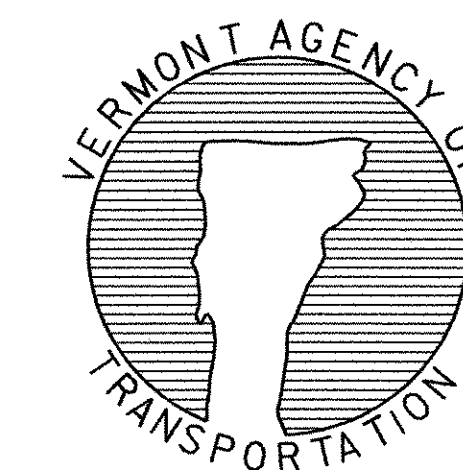
GENERAL NOTES

1. SHEET PILING MAY BE DRIVEN VERTICALLY FIVE (5) FEET OUTSIDE THE SHOULDER POINT, OR ONE (1) FOOT BACK OF THE SIDEWALK, TO ALLOW FOR A SHORTER SLEEVE.
2. SEE DETAIL 'A' OR 'B' FOR DETERMINING SLEEVE LENGTH.
3. IN THE EVENT THAT PERMISSION IS GRANTED TO CUT AN EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, ALL CUTS SHALL BE MADE WITH A SAW TO FULL DEPTH.
4. PORTLAND CEMENT CONCRETE PATCHES SHALL BE PROPERLY CURED FOR SEVEN (7) DAYS BEFORE BEING SUBJECTED TO TRAFFIC LOADS. WHEN HIGH EARLY STRENGTH CEMENT IS USED, PROPER CURING FOR THREE (3) DAYS SHALL BE REQUIRED BEFORE BEING SUBJECTED TO TRAFFIC LOADS. WHEN A HIGH STRENGTH, QUICK SETTING CONCRETE PATCHING COMPOUND IS APPROVED, IT SHALL BE PROPERLY CURED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS BEFORE BEING SUBJECTED TO TRAFFIC LOADS.
5. ALL EXPOSED BITUMINOUS SURFACES SHALL BE COATED WITH EMULSIFIED ASPHALT PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
6. BITUMINOUS CONCRETE PAVEMENTS SHALL BE REPLACED WITH BITUMINOUS CONCRETE PAVEMENT AT THE SAME THICKNESS OF THE PAVEMENT BEING REMOVED, AND IN ACCORDANCE WITH THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 406. PORTLAND CEMENT CONCRETE PAVEMENT AND SUBBASE ARE TO BE REPLACED IN KIND. MATERIAL BELOW SUBGRADE TO BE REPLACED WITH EXCAVATED MATERIAL, OR AS DIRECTED BY THE ENGINEER. ALL BACKFILL MATERIAL SHALL BE MADE IN SIX (6) INCH MAXIMUM LIFTS AND COMPACTED TO NOT LESS THAN 95% MAXIMUM DRY DENSITY.
7. THE DIAMETER OF THE ENCASEMENT SLEEVE SHALL BE EQUAL TO THE DIAMETER OF THE CARRIER PIPE PLUS TWELVE (12) INCHES. (SEE VAOT SPECIFICATIONS, SECTION 625, FOR EXCEPTIONS.)

REVISIONS AND CORRECTIONS
DEC. 23, 1974 - ORIGINAL APPROVAL
SEPT. 9, 1975 - CARRIER PIPE AND PORTLAND CEMENT NOTES REVISED
OCT. 30, 1985 - REVISED TO CONFORM WITH 1986 SPECIFICATIONS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
MAR. 10, 1995 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
MARCH 3, 2003 - REVISED TO REFLECT CURRENT DESIGN CRITERIA

APPROVED
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
CHIEF OF UTILITIES
[Signature]
FEDERAL HIGHWAY ADMINISTRATION

HIGHWAY CROSSING SLEEVES FOR UNDERGROUND UTILITIES



STANDARD D-20