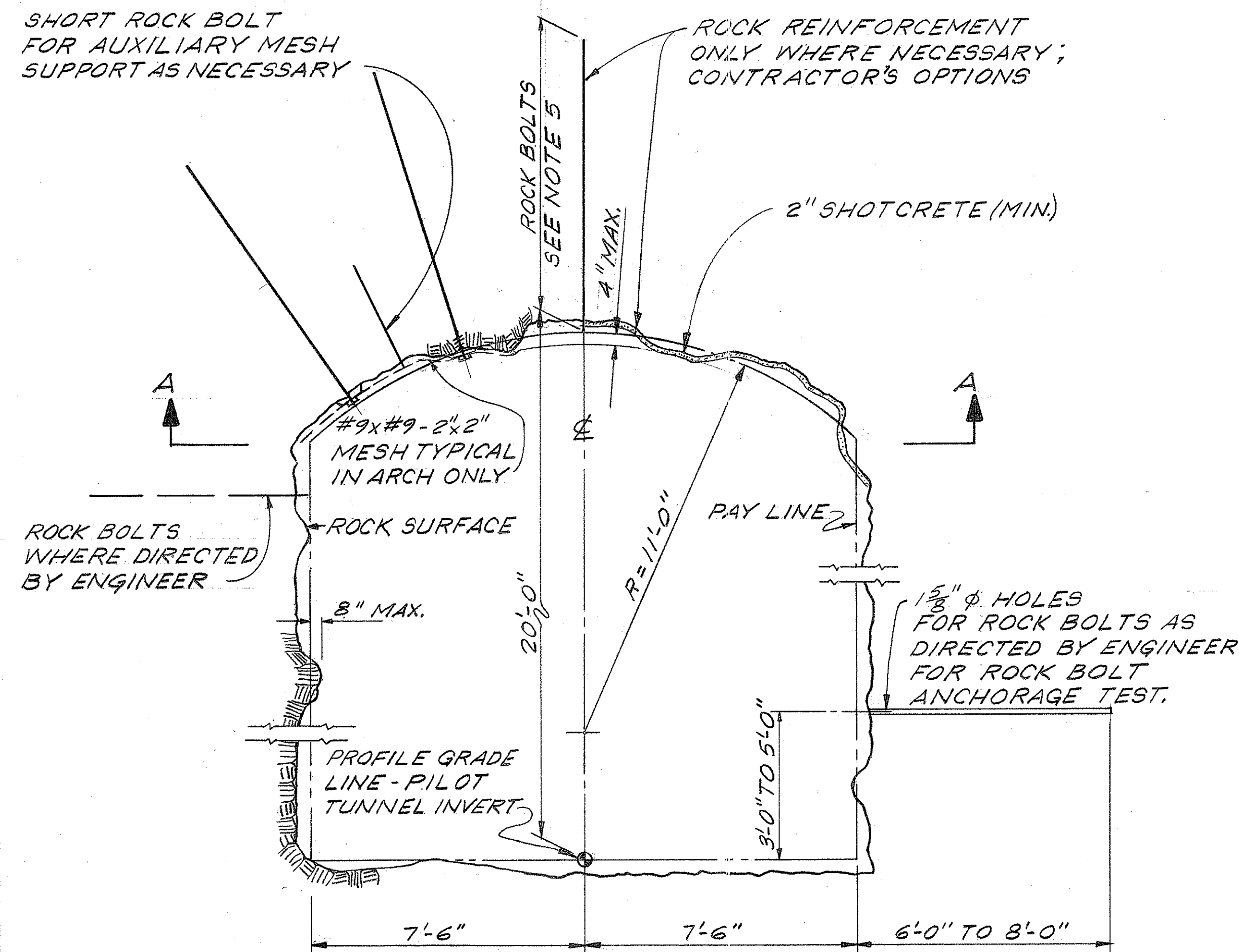
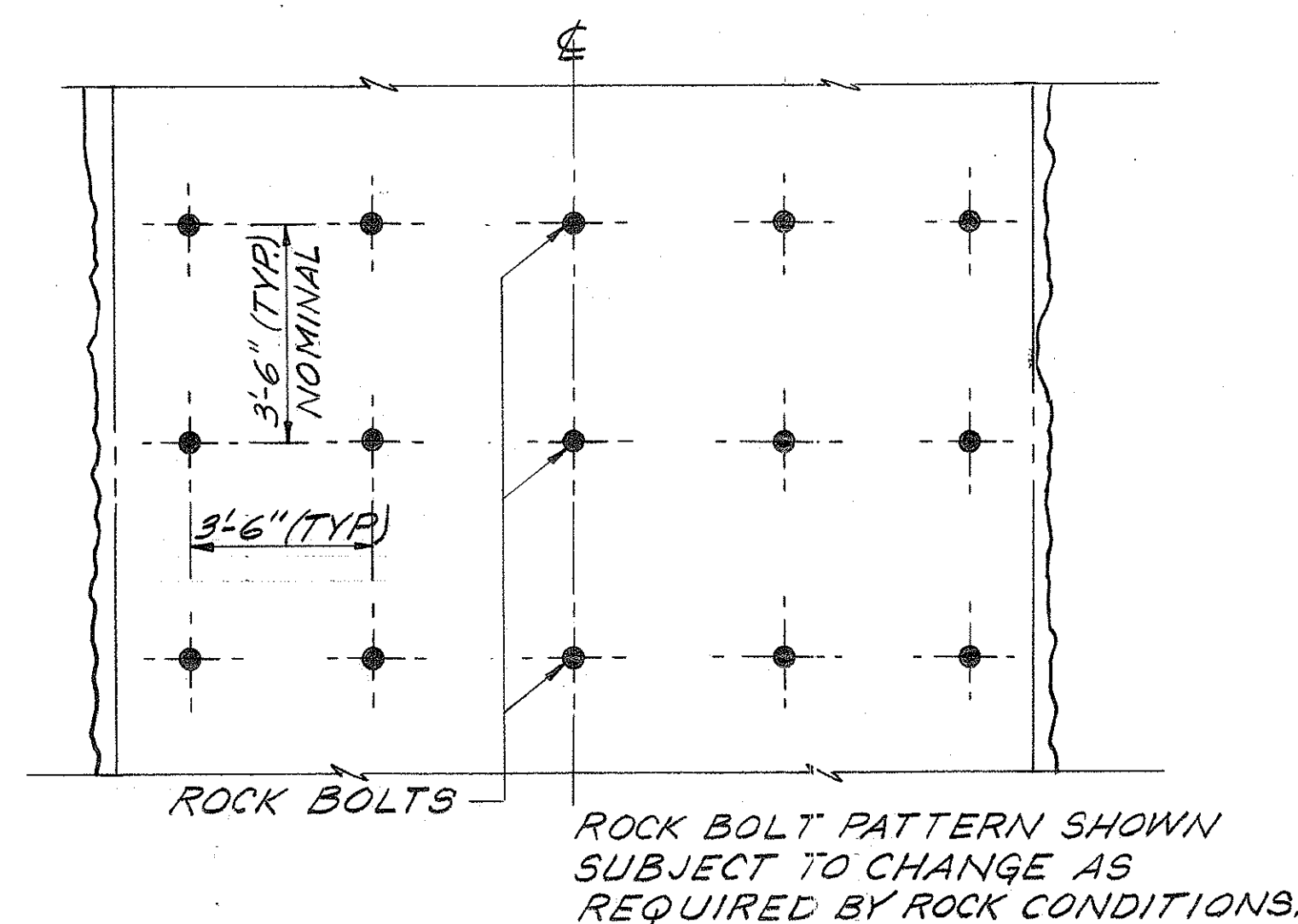


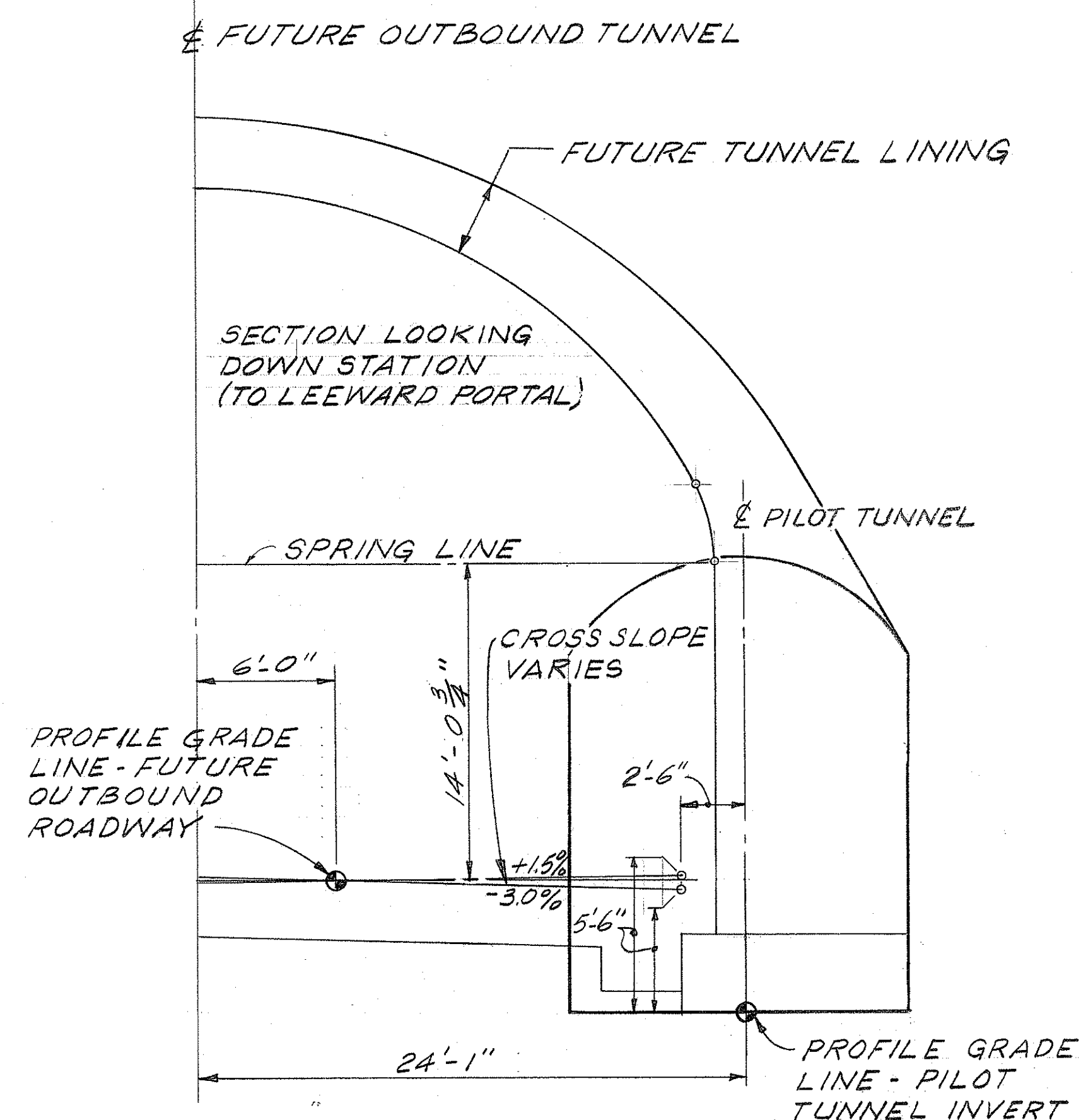
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-(9)6	1975	10	17



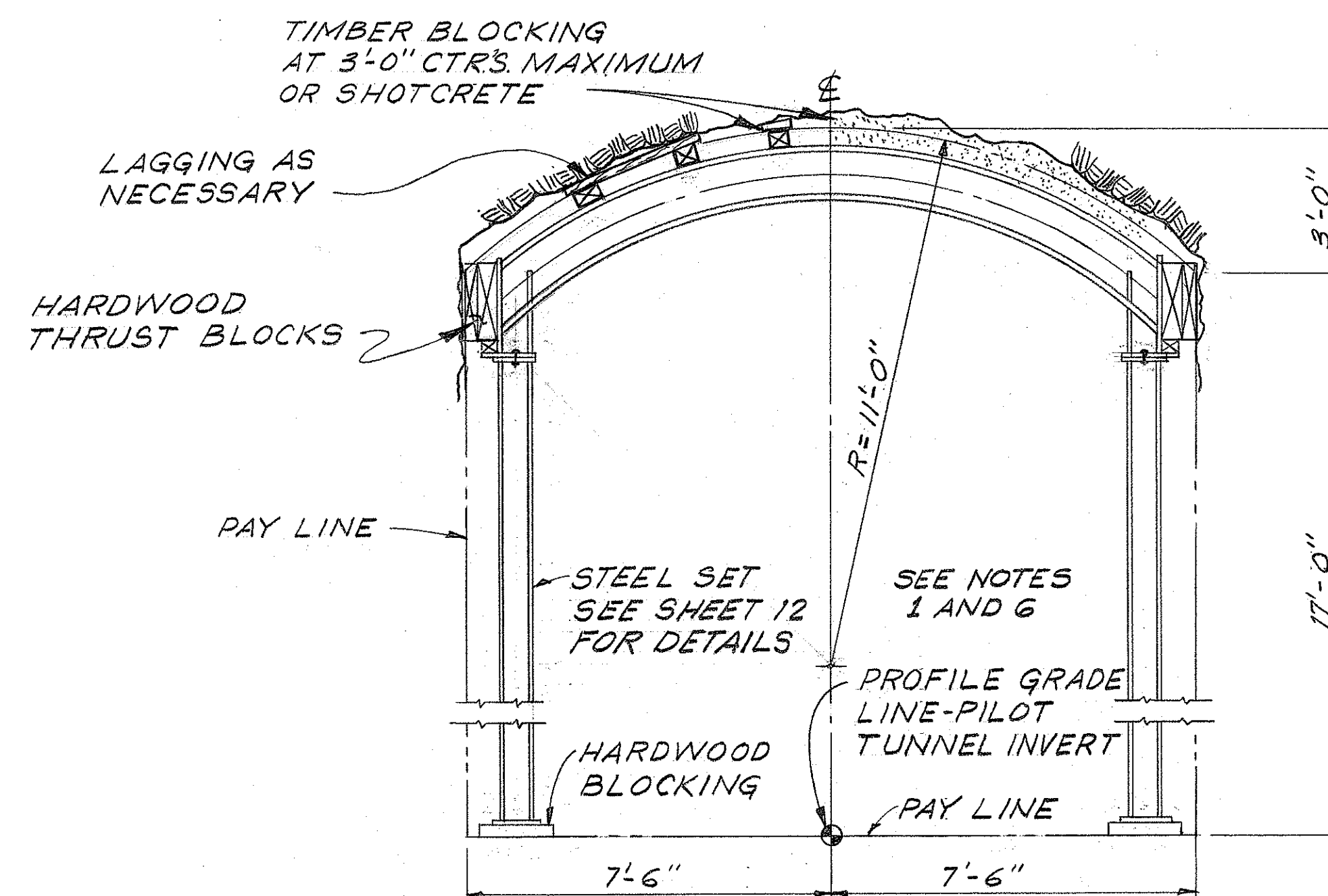
TYPICAL CROSS SECTION IN ROCK
SCALE: 3/8" = 1'-0"



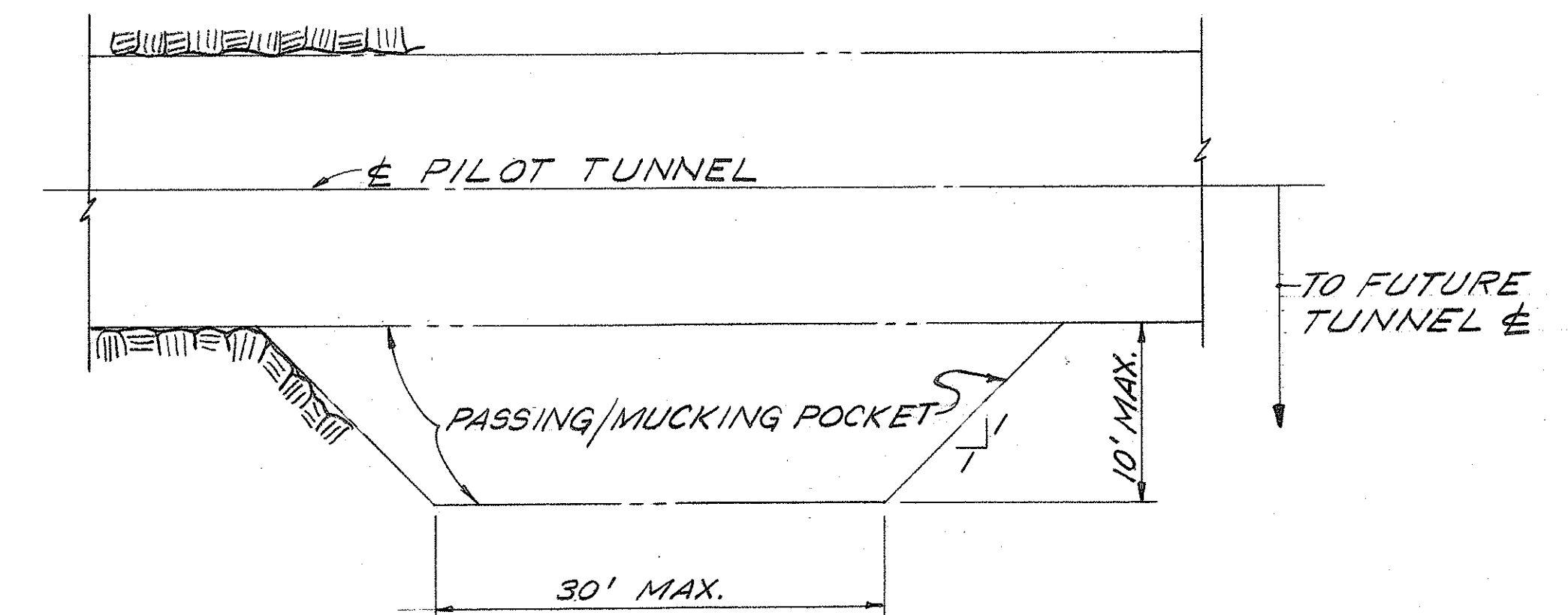
SECTION A-A
SCALE: 3/8" = 1'-0"



RELATION OF PILOT TUNNEL TO FUTURE TUNNEL
SCALE: 3/16" = 1'-0"



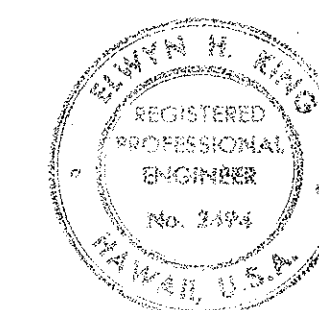
SECTION AT WINDWARD PORTAL
SCALE: 3/8" = 1'-0"



TYPICAL PASSING/MUCKING POCKET
SCALE: 1/8" = 1'-0"
7 POCKETS MAXIMUM; MINIMUM SPACING ABOUT 400 FT. CTRS.
LOCATE POCKETS WHERE STEEL SETS ARE NOT REQUIRED.

NOTES:

1. MINIMUM OF 10 STEEL SETS (ROCK) AT MAXIMUM SPACING OF 4'-0" CENTERS, PLUS ADDITIONAL SETS AS NECESSARY TO REACH COMPETENT ROCK, SHALL BE ERECTED AT WINDWARD PORTAL.
2. ROCK TUNNEL MAY BE DRIVEN WITHOUT SUPPORT WHERE APPROPRIATE WHERE ROCK REINFORCEMENT IS REQUIRED EITHER SHOTCRETE OR PRETENSIONED ROCK BOLTS SHALL BE USED ACROSS FULL ARCH.
3. MINIMUM OF 10 ROCK SETS WITH DETAIL II (SHEET 12) SHALL BE KEPT READY FOR INSTALLATION AS DIRECTED.
4. WHERE BOLTS ARE USED FOR REINFORCEMENT, MINIMUMS ARE TO BE 3/4" DIAMETER, 8'-0" LENGTH, AND 3'-6" SPACING EACH WAY.
5. MINIMUM OF 30 SOFT GROUND STEEL SETS TO BE FURNISHED BEFORE TURNING WINDWARD PORTAL FOR INSTALLATION AS DIRECTED IF PORTAL IS IN SOFT GROUND.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Edwin H. King

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL ROCK SECTIONS

TRANS KOOLAU PILOT TUNNEL

PROJECT No. I-H3-I(9)6

SCALE: AS NOTED DATE: JULY 10, 1975

SHEET No. OF SHEETS