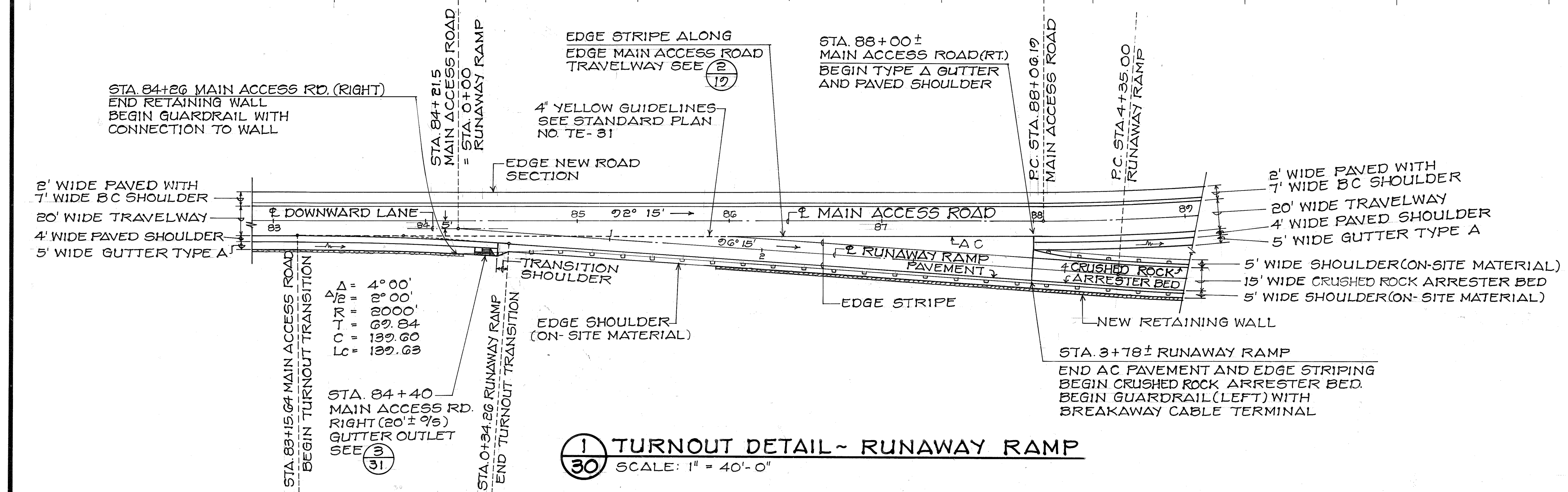
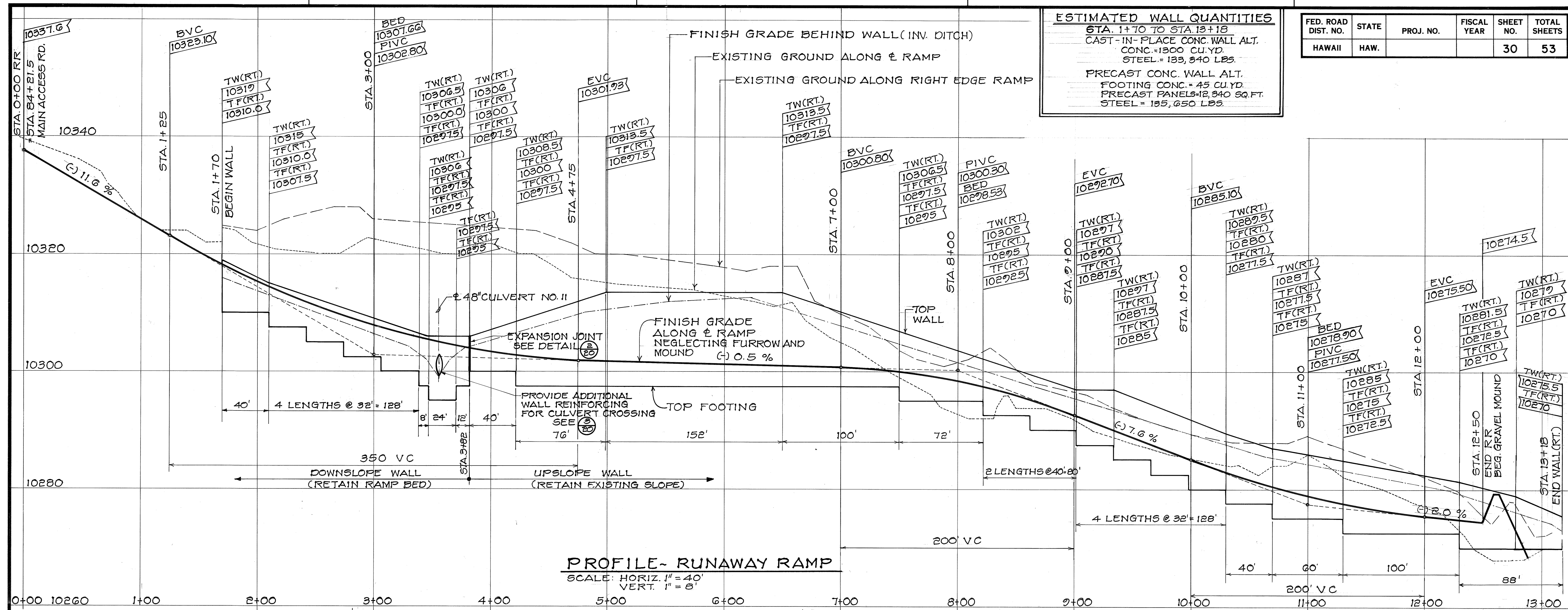


ESTIMATED WALL QUANTITIES					
STA. 1+70 TO STA. 13+18					
CAST-IN-PLACE CONC. WALL ALT.					
CONC. = 1300 CU. YD.					
STEEL = 133,340 LBS.					
PRECAST CONC. WALL ALT.					
FOOTING CONC. = 45 CU. YD.					
PRECAST PANELS = 12,340 SQ. FT.					
STEEL = 135,650 LBS.					

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.			30	53



DATE: _____

SURVEY PLOTTED BY: _____

DESIGNED BY: _____

NOTED BY: _____

CHECKED BY: _____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

**PROFILE AND DETAIL
 RUNAWAY RAMP**

MAUNA KEA OBSERVATORY ACCESS ROAD
 PHASE III - B

PROJECT NO. _____

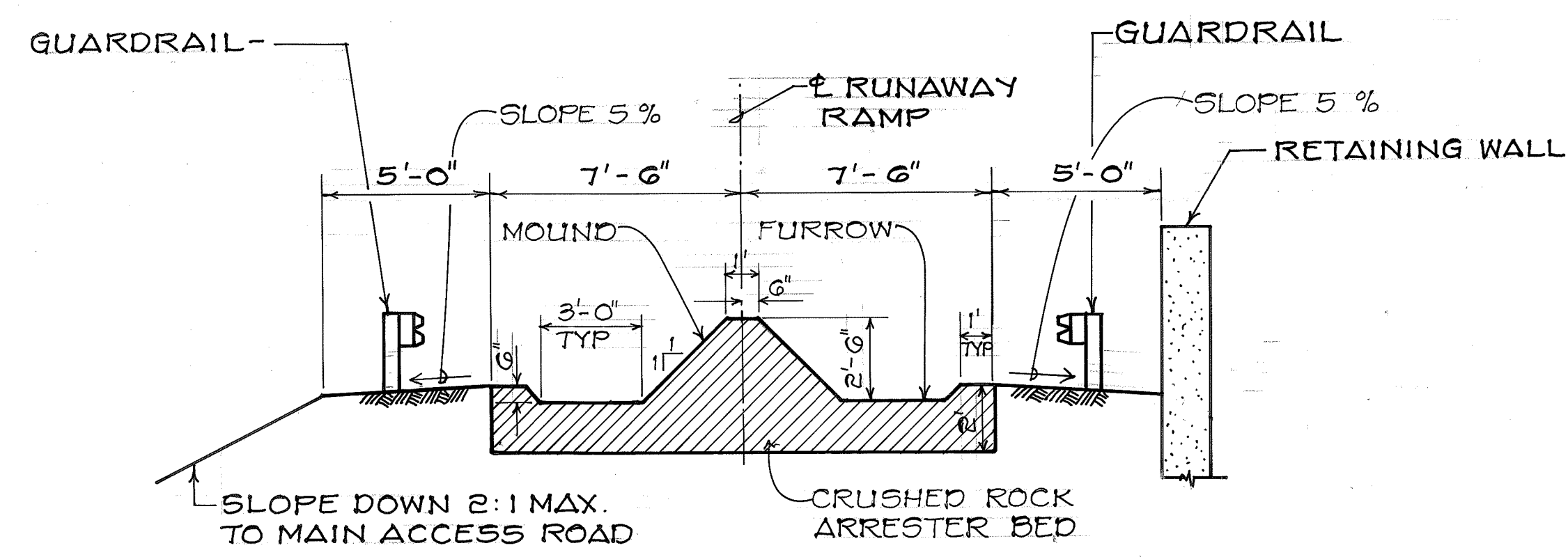
SCALE: HORIZ. 1" = 40' VERT. 1" = 8'

SHEET No. 1 OF 2 SHEETS

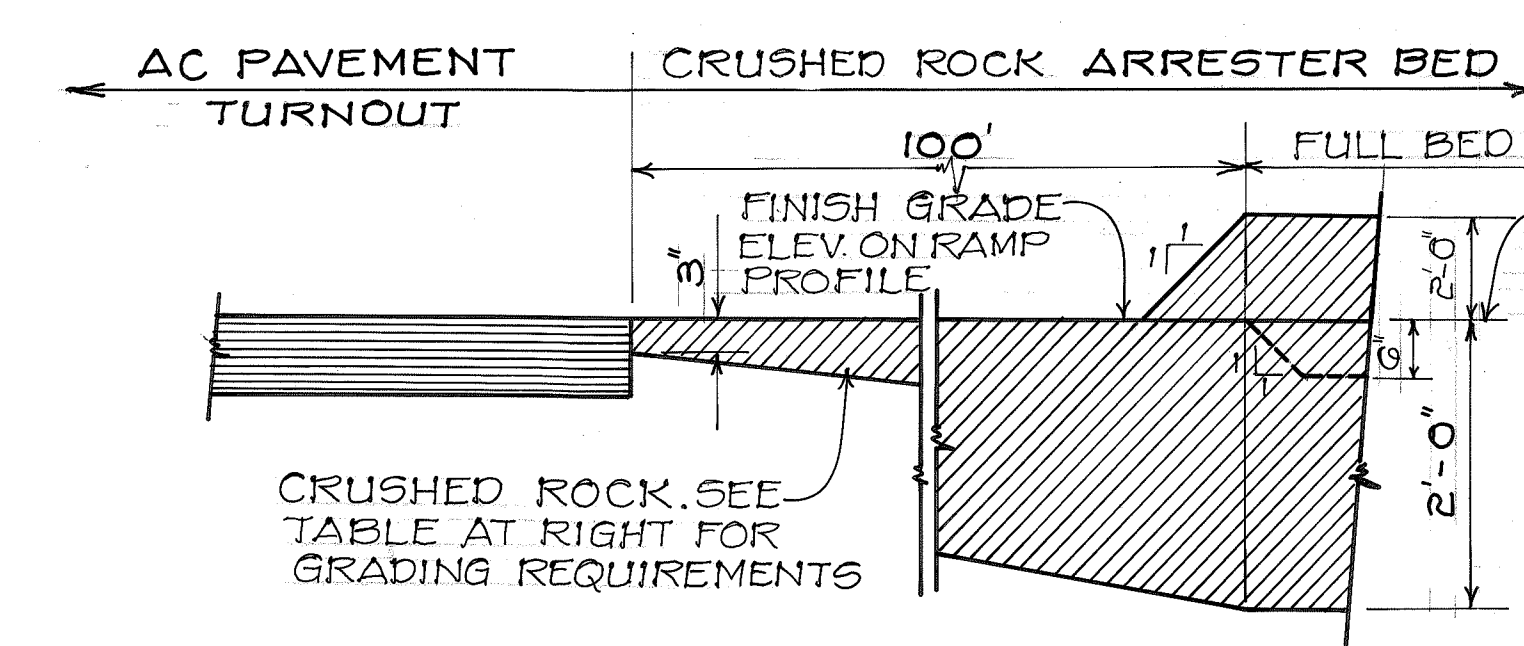
ROYCE S. FUKUNAGA
 REGISTERED PROFESSIONAL ENGINEER
 No. 2107-C
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Royce S. Fukunaga

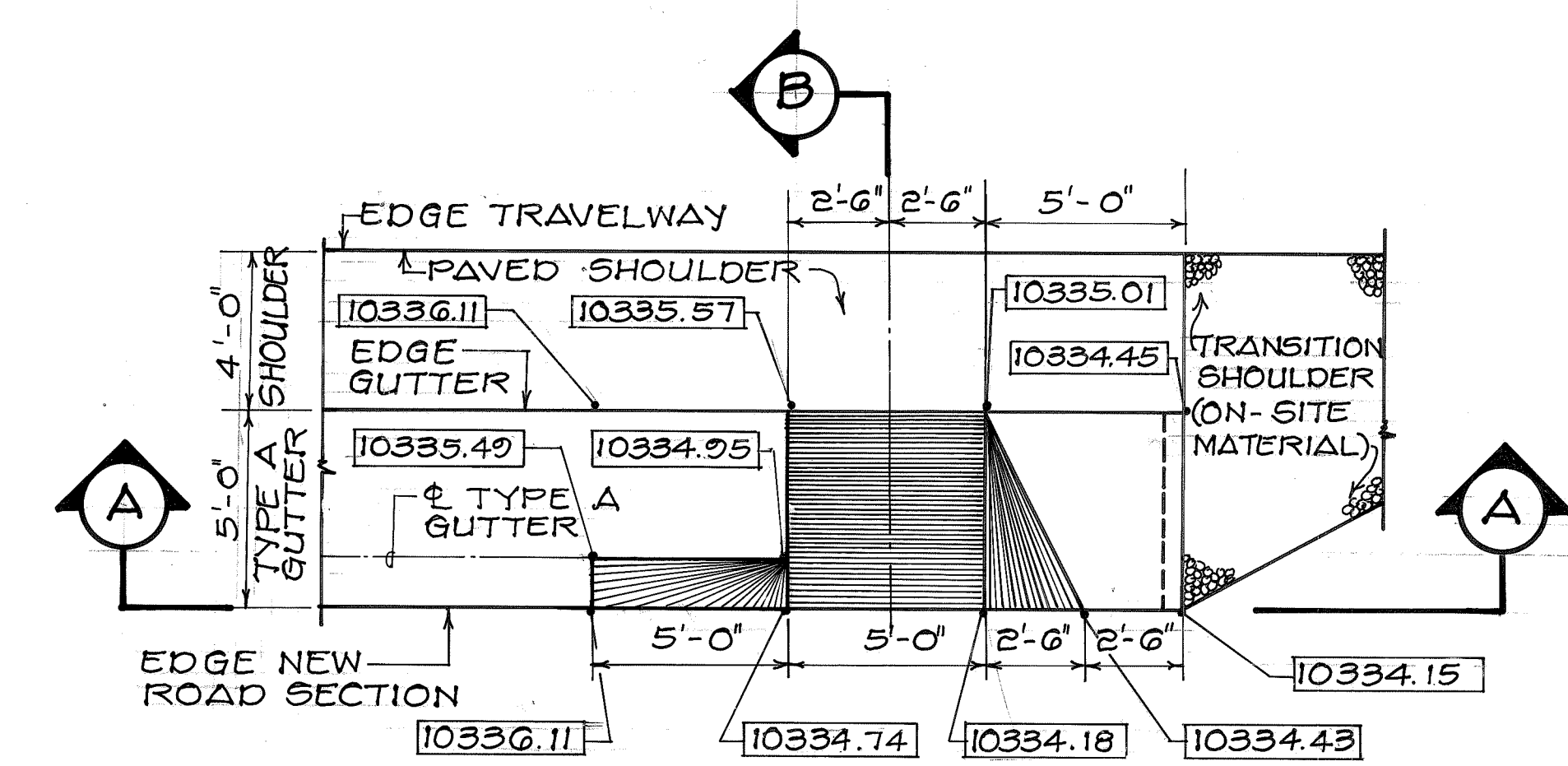


1
31 TYPICAL SECTION~ RUNAWAY RAMP
@ FULL BED THICKNESS
SCALE: 1/4" = 1'-0"

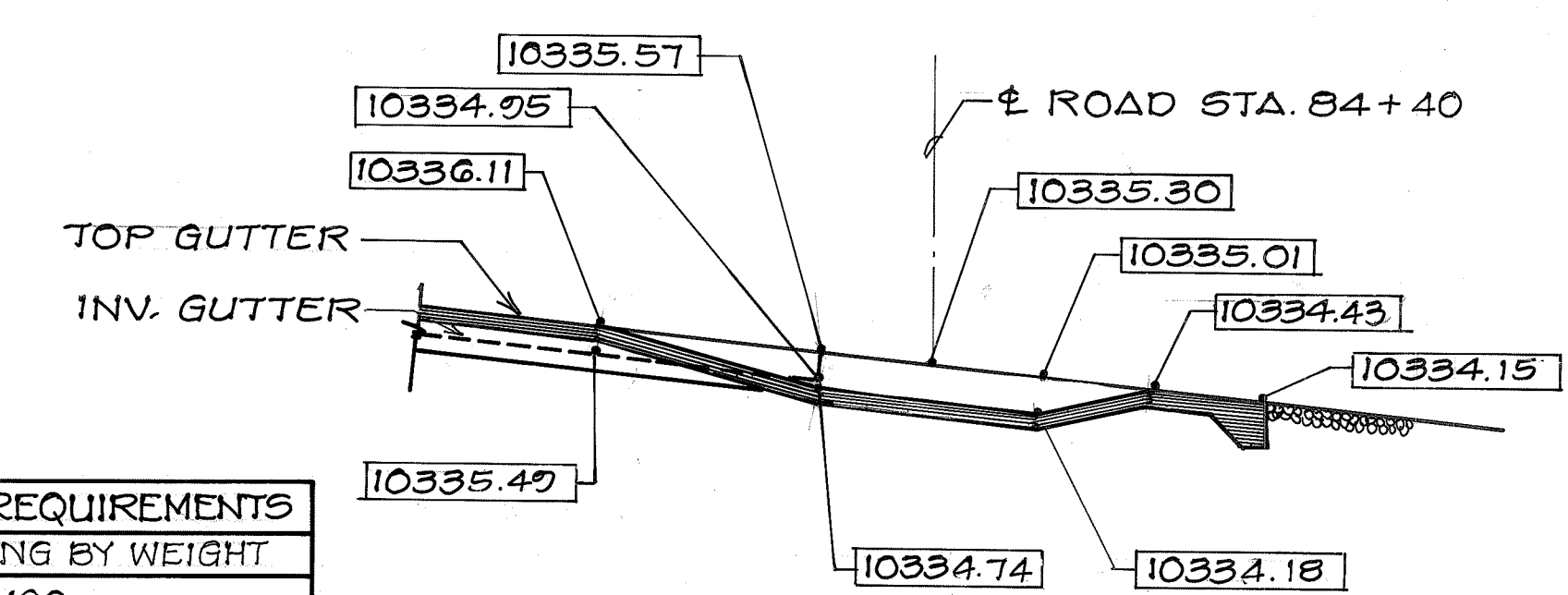


2
31 RUNAWAY RAMP ARRESTER BED
THICKNESS DETAIL
NOT TO SCALE

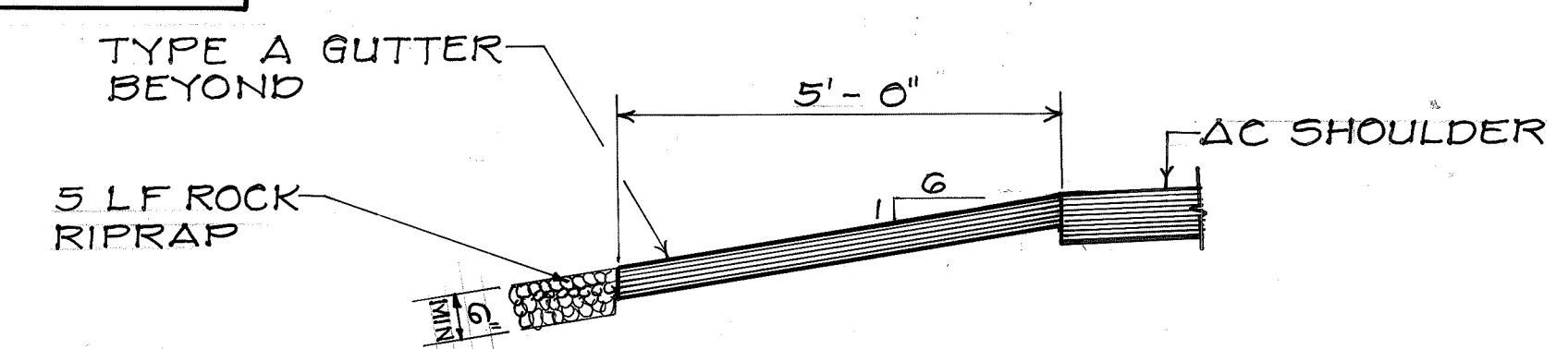
CRUSHED ROCK GRADING REQUIREMENTS	
SIEVE SIZE	% PASSING BY WEIGHT
3/4"	100
1/2"	70 - 100
3/8"	35 - 50
#4	0 - 5
#8	0 - 3



PLAN
SCALE: 1/4" = 1'-0"

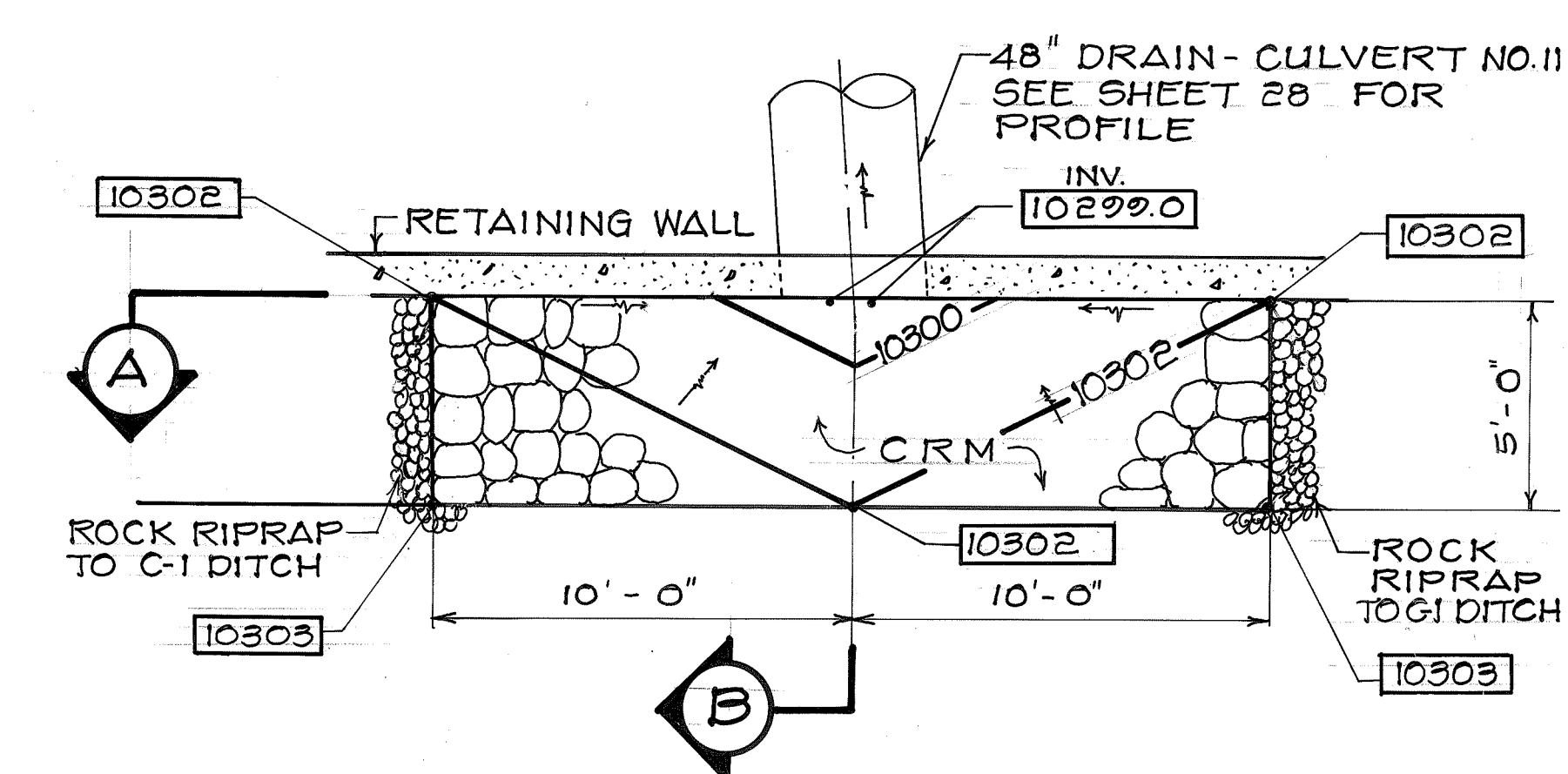


SECTION "A"
SCALE: 1/4" = 1'-0"

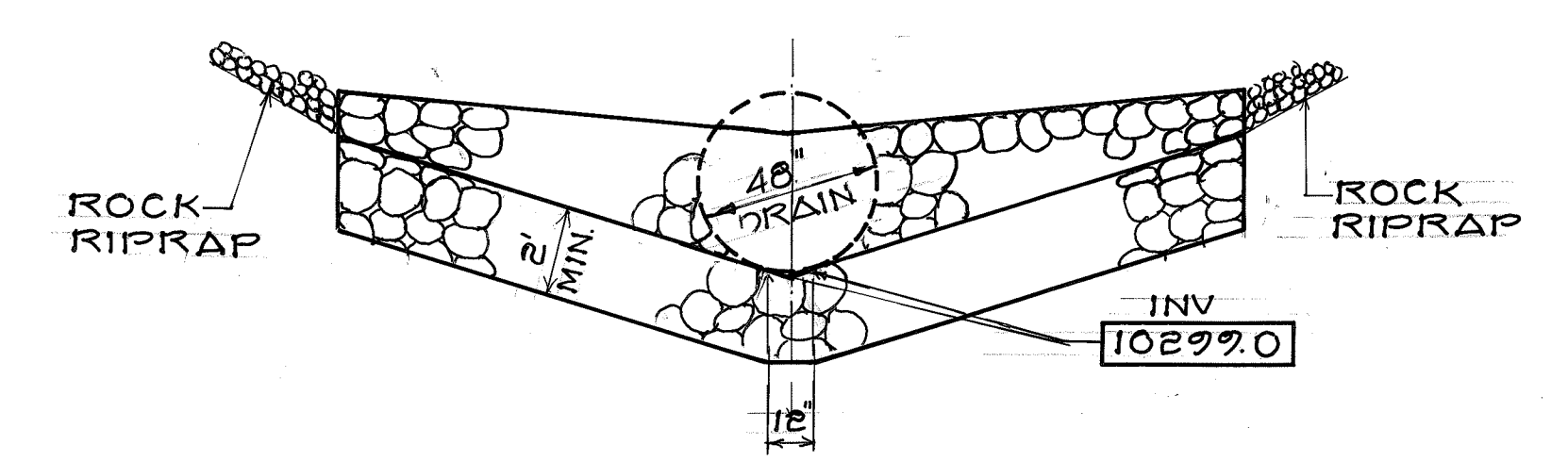


SECTION "B"
SCALE: 1/2" = 1'-0"

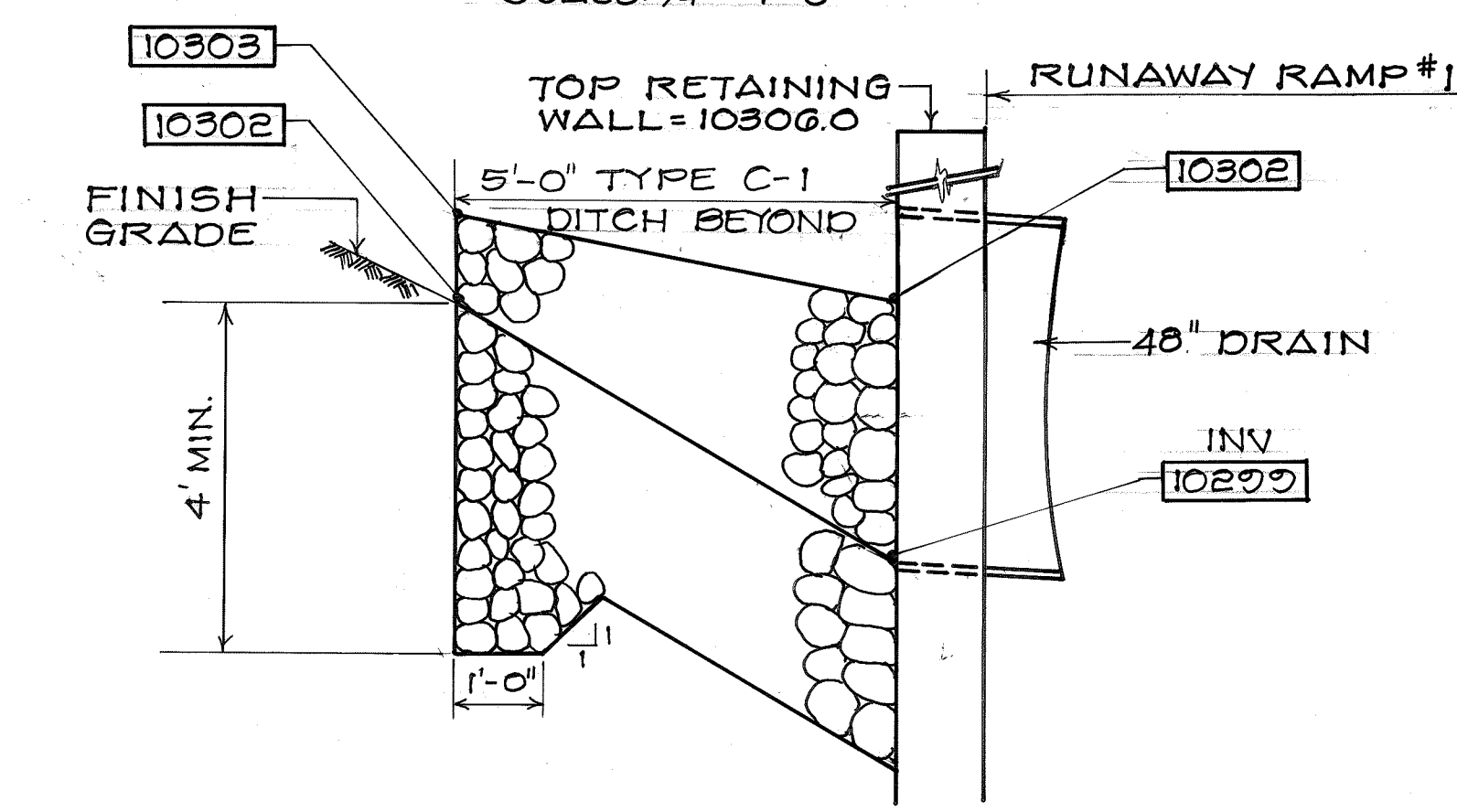
3
31 DETAIL~ GUTTER OUTLET
@ STA. 84+40
SCALE: AS SHOWN



PLAN
SCALE: 1/4" = 1'-0"



SECTION "A"
SCALE: 1/4" = 1'-0"



SECTION "B"
SCALE: 1/2" = 1'-0"

4
31 DETAIL~ CRM INLET STRUCTURE
FOR CULVERT NO. 11
SCALE: AS SHOWN

BOYCE S. FUKUNAGA
REGISTERED PROFESSIONAL ENGINEER
No. 2107-C
HAWAII, USA

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
Boyce S. Fukunaga

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RUNAWAY RAMP DETAILS

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE III - B

PROJECT NO. _____
SCALE: AS SHOWN

SURVEY PLOTTED BY _____ DATE _____
DRAWN BY _____
DESIGNED BY _____
CHECKED BY _____
NOTE BOOK _____
No. _____