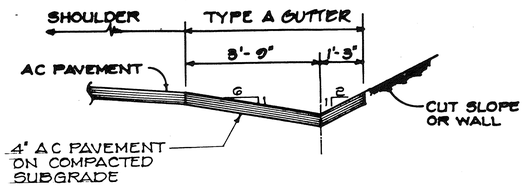
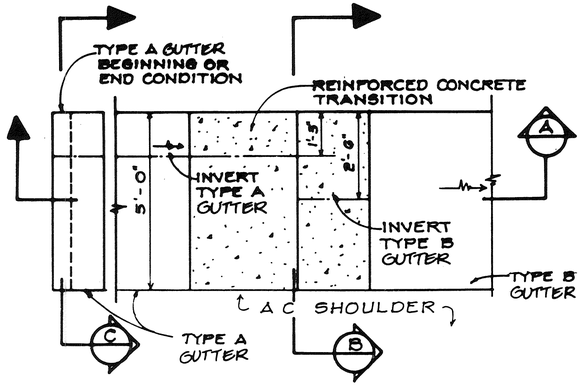
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.			24	53

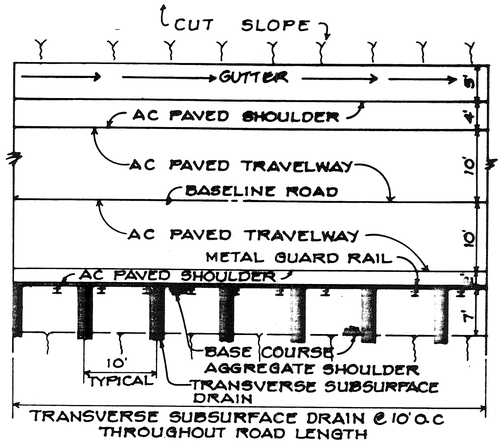


(1/24) TYPE A GUTTER

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

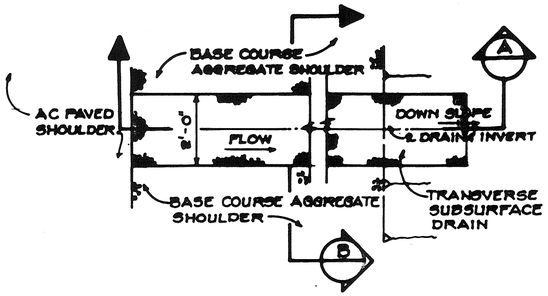


PLAN

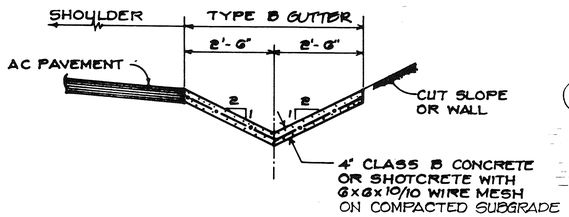


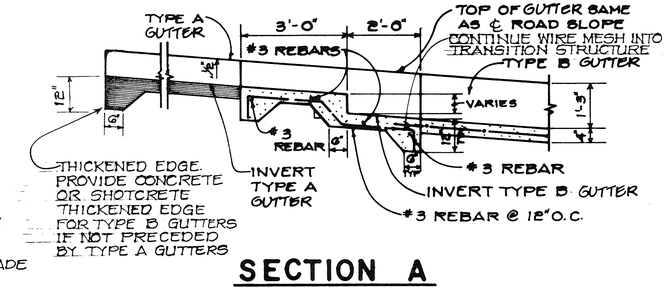
(6/24) PARTIAL MAIN ACCESS ROAD PLAN - TRANSVERSE SUBSURFACE DRAIN

SCALE: 1" = 10'-0"

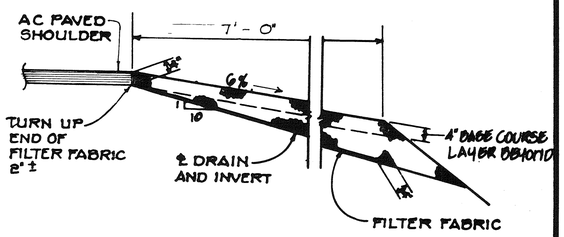


PLAN





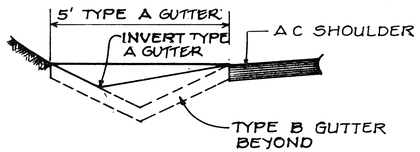
SECTION A



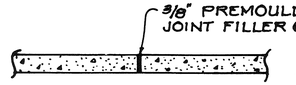
SECTION A

(2/24) TYPE B GUTTER

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



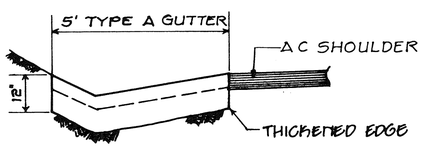
SECTION B



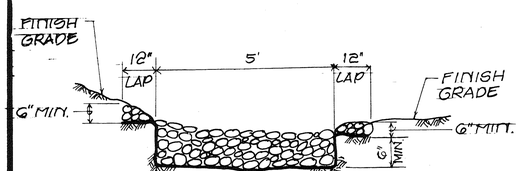
NOTE: PROVIDE EXPANSION JOINT AT 25' O.C. FOR ALL CLASS B CONCRETE AND SHOTCRETE GUTTERS.

(3/24) TYPICAL EXPANSION JOINT

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



SECTION C



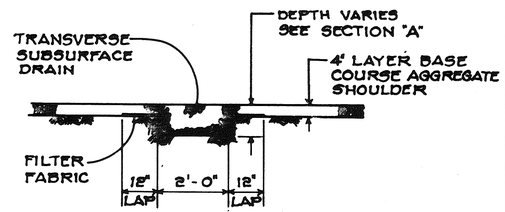
(4/24) ROCK RIP RAP

NO SCALE

NOTE: PROVIDE RIP RAP AT ALL GUTTER OUTLETS AND AT STA. 134+50 FOLLOWING TYPE B GUTTER

(5/24) TYPE A AND TYPE B TRANSITION GUTTER DETAILS

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



SECTION B

(7/24) TRANSVERSE SUBSURFACE DRAIN DETAILS

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

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
PREPD SHEET NO.

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

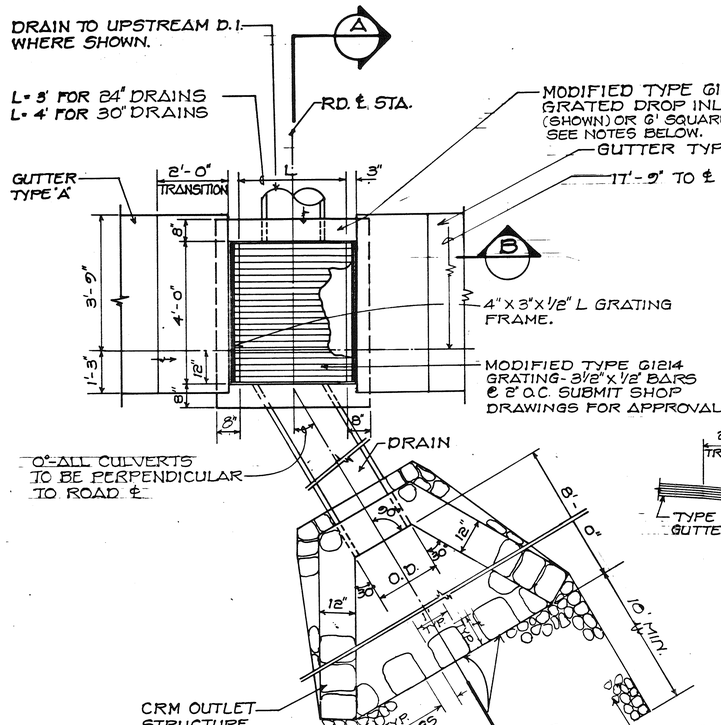
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Royce S Fukunaga

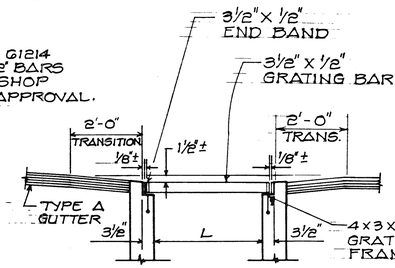
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAIN DETAILS

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE III - B
PROJECT NO.
SCALE: AS SHOWN

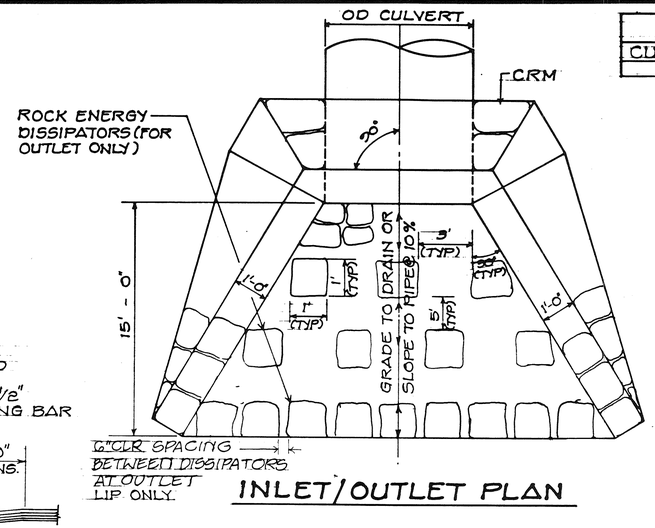
SHEET No. 1 OF 3 SHEETS





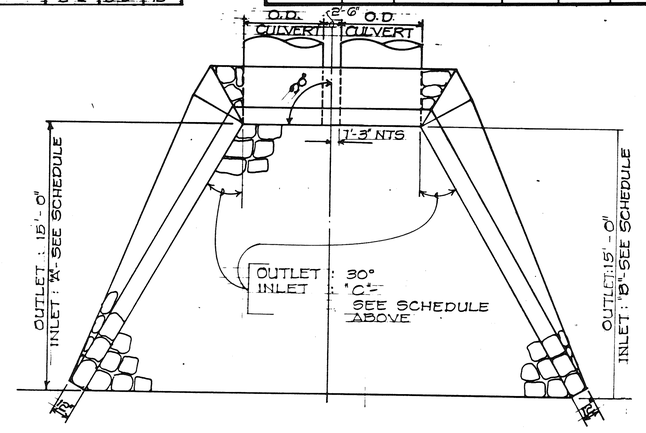
SECTION "B"

SCHEDULE	
CULVERT NO.	SLOPE
12	20%
10	30%
14	50%

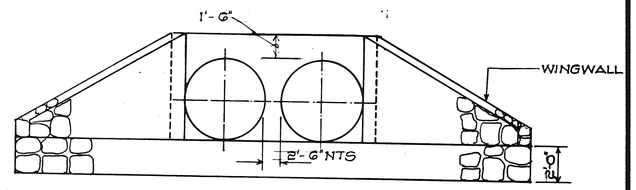


INLET/OUTLET PLAN

SCHEDULE			
CULVERT NO.	A	B	C
14	8'-0"	8'-0"	45°

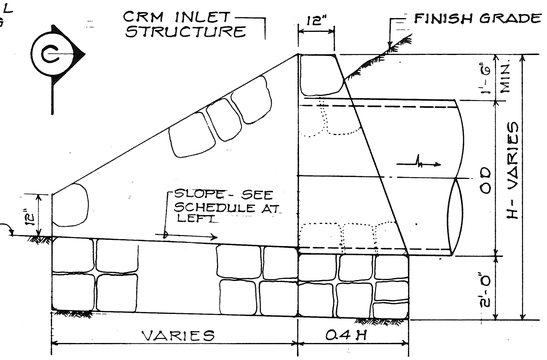


PLAN



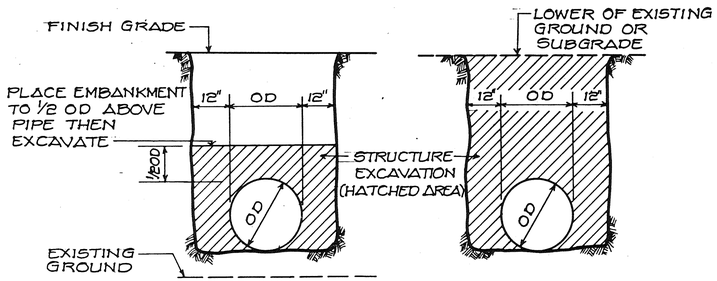
FRONT ELEVATION

NOTE:
1 SEE (2/25) FOR INLET AND OUTLET SECTIONS AND ENERGY DISSIPATOR PLACEMENT.



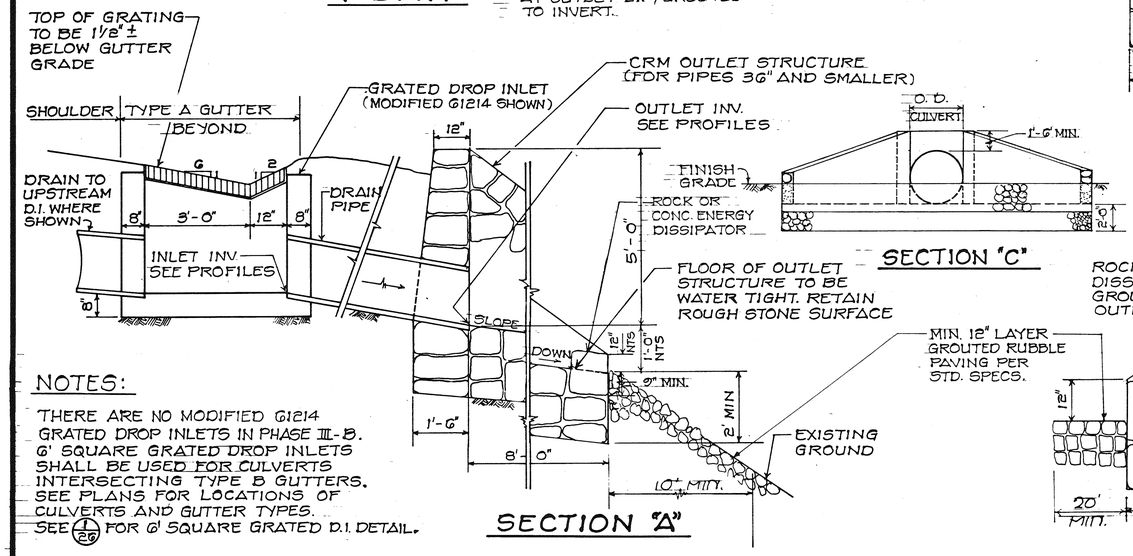
INLET SECTION

(3/25) DETAIL - CRM INLET/OUTLET FOR MULTIPLE PIPES
NOT TO SCALE



FILL SECTION CUT SECTION

(4/25) TRENCH EXCAVATION PAY LIMIT
SCALE: AS NOTED



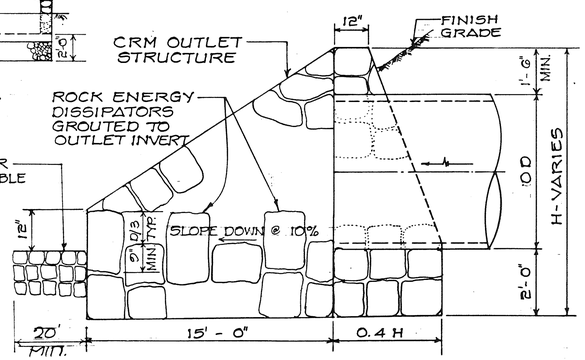
SECTION "C"

SECTION "A"

NOTES:

THERE ARE NO MODIFIED G1214 GRATED DROP INLETS IN PHASE III-B. 6' SQUARE GRATED DROP INLETS SHALL BE USED FOR CULVERTS INTERSECTING TYPE B GUTTERS. SEE PLANS FOR LOCATIONS OF CULVERTS AND GUTTER TYPES. SEE (1/26) FOR 6' SQUARE GRATED D.I. DETAIL.

(1/25) DETAILS - GRATED DROP INLET WITH CRM OUTLET STRUCTURE
SCALE: 1/2" = 1'-0"



OUTLET SECTION

NOTE: SEE (1/25) FOR OUTLET STRUCTURES FOR PIPES 36" AND SMALLER.

(2/25) DETAILS - CRM INLET/OUTLET FOR SINGLE PIPES LARGER THAN 36"
NO SCALE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.			25	53

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

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

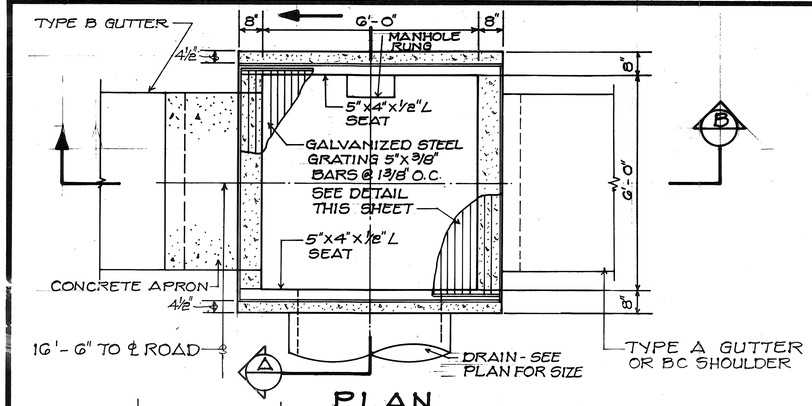
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAIN DETAILS

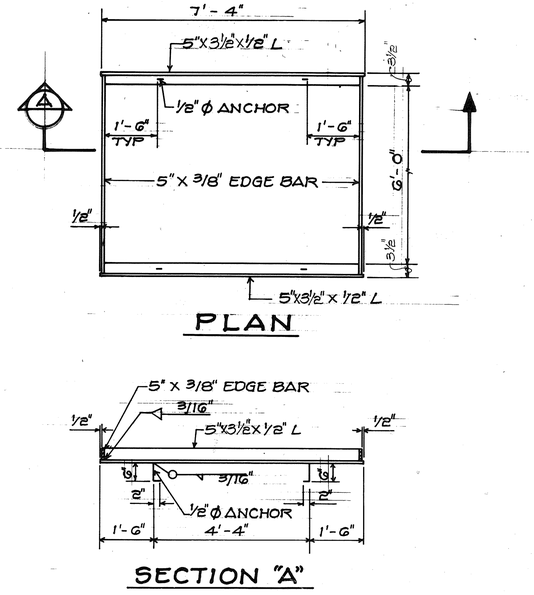
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE III - B
PROJECT NO.
SCALE : AS SHOWN

SHEET No. 2 OF 3 SHEETS

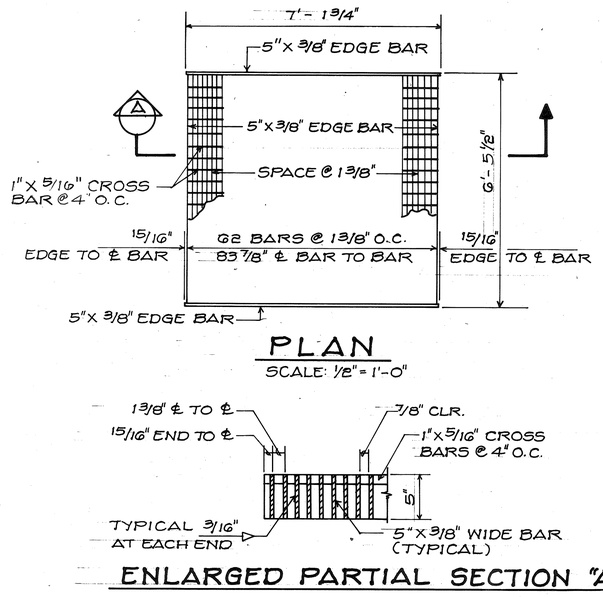
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.			26	53



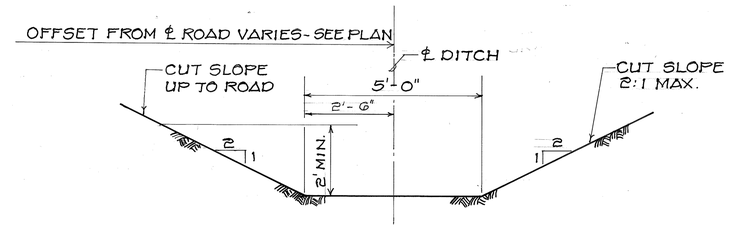
1/26 TYPICAL DETAIL~ 6' SQUARE DROP INLET
SCALE: ½" = 1'-0"



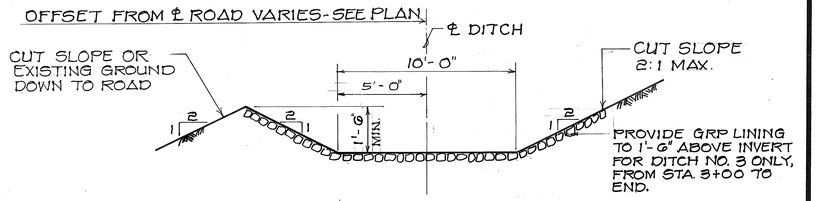
2/26 DETAIL~ GRATING FRAME FOR 6' SQUARE DROP INLET
SCALE: ½" = 1'-0"



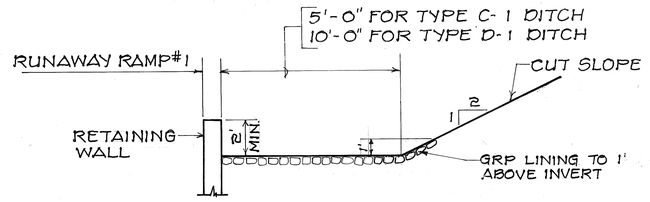
3/26 DETAIL~ GRATING FOR 6' SQUARE DROP INLET
SCALE AS NOTED



4/26 TYPE C DITCH
SCALE: ½" = 1'-0"



5/26 TYPE D DITCH
SCALE: ¼" = 1'-0"



6/26 TYPE C-1 & D-1 DITCHES
SCALE: ¼" = 1'-0"

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
ORIGINAL PLAN
NOTE BOOK
No.

SHIGEMURA, LAU, SAKANASHI HIGUCHI & ASSOC., INC. CONSULTING STRUCTURAL ENGINEERS

HOWARD K. C. LAU REGISTERED PROFESSIONAL ENGINEER No. 4529-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

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

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAIN DETAILS

MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE III - B
PROJECT NO.
SCALE : AS SHOWN

SHEET No. 3 OF 3 SHEETS