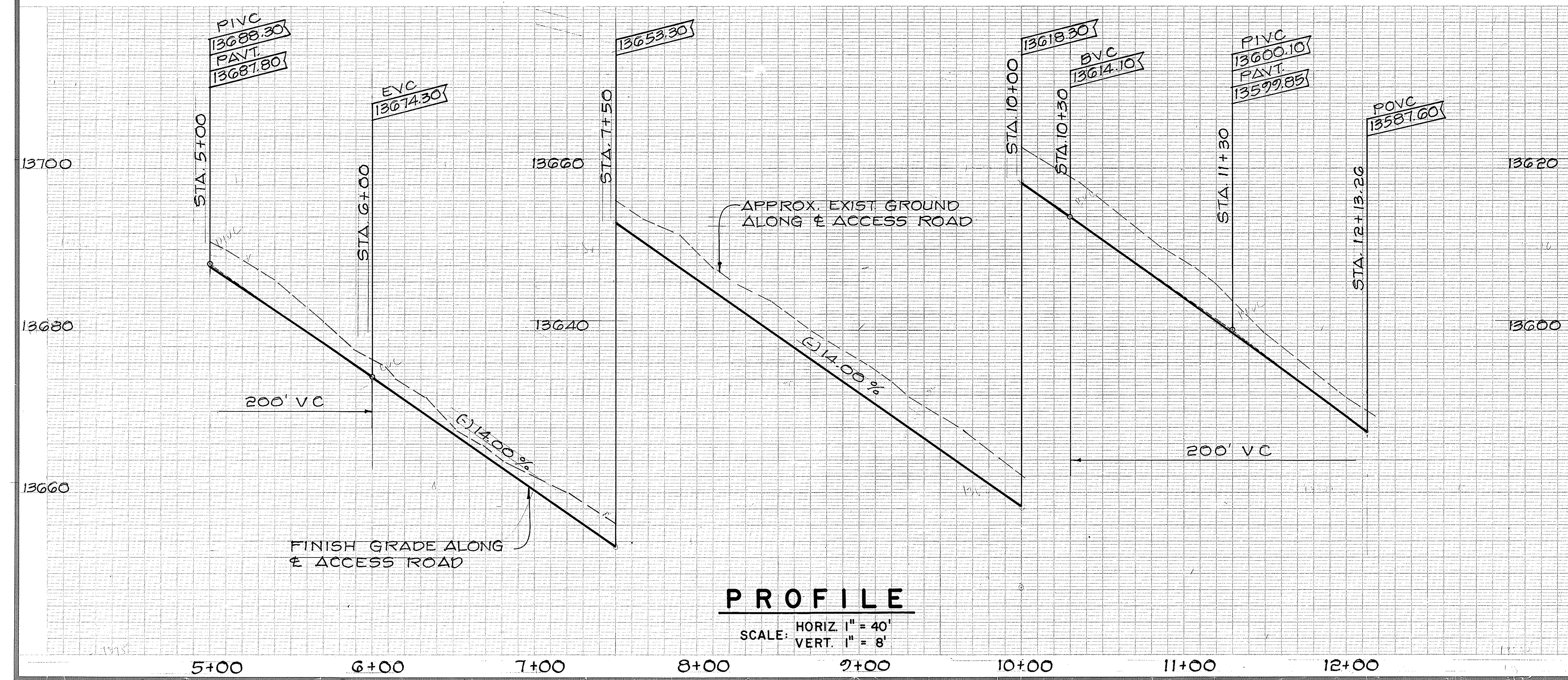
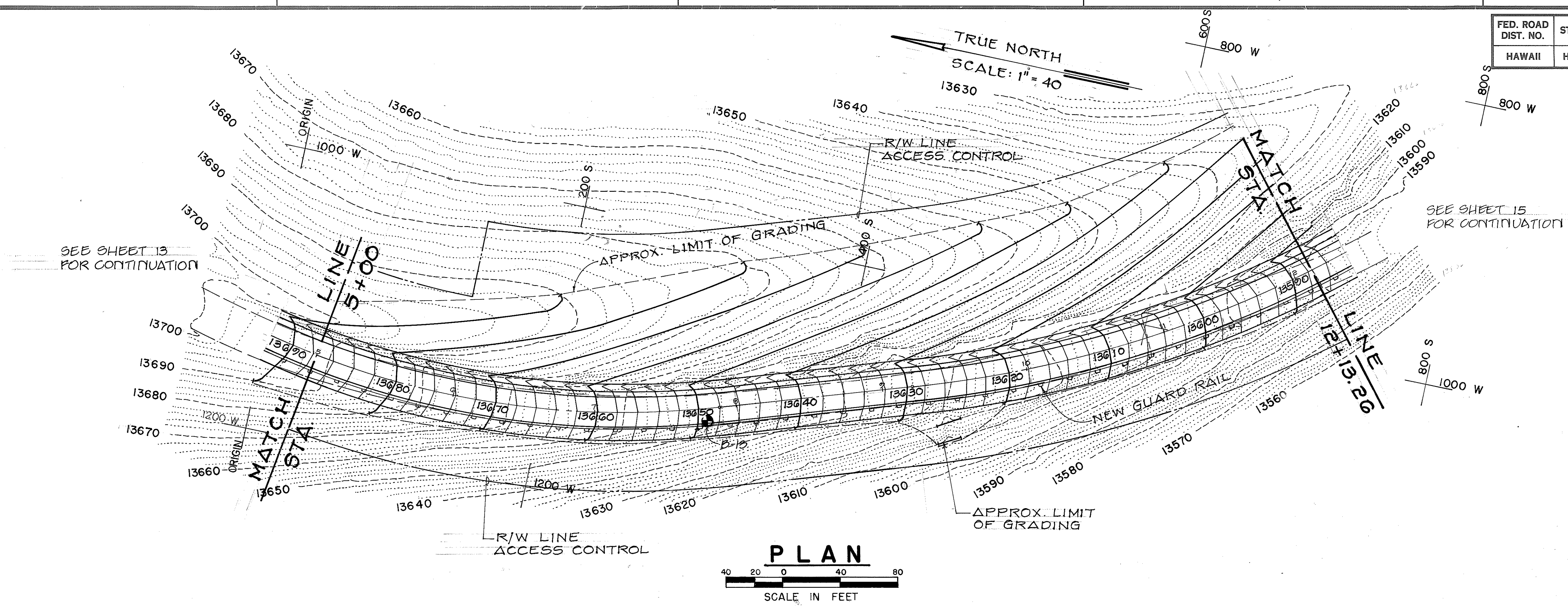


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	14	115



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

MAIN ACCESS ROAD
STA. 5+00 TO STA. 12+13.26

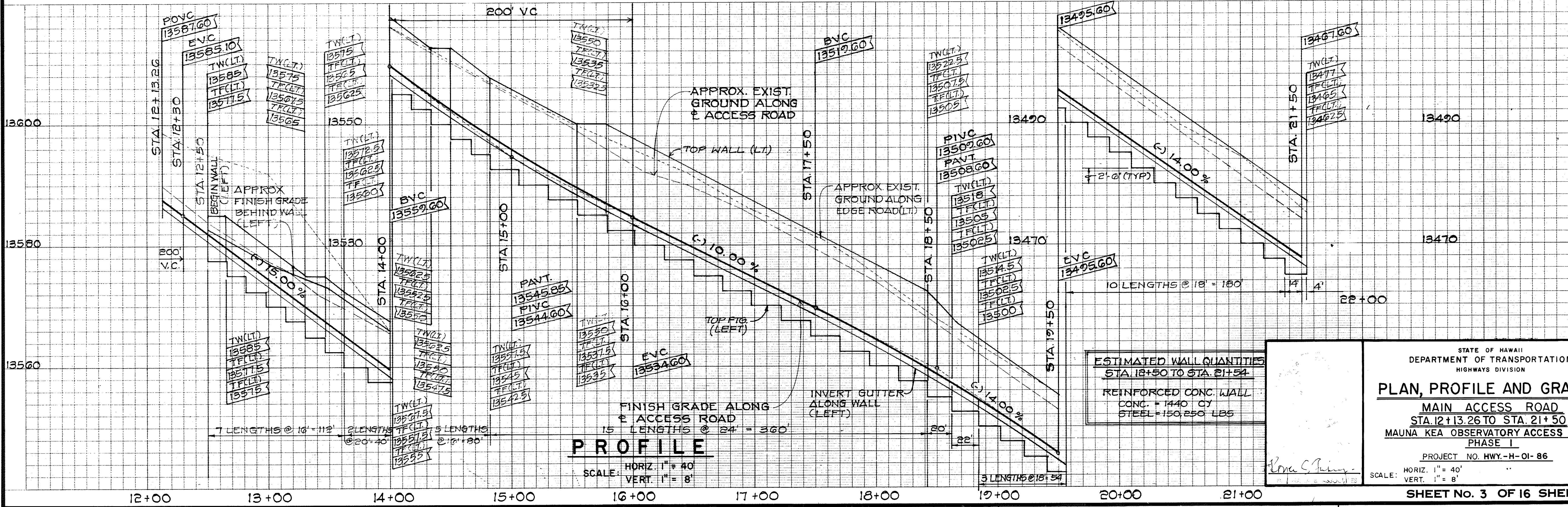
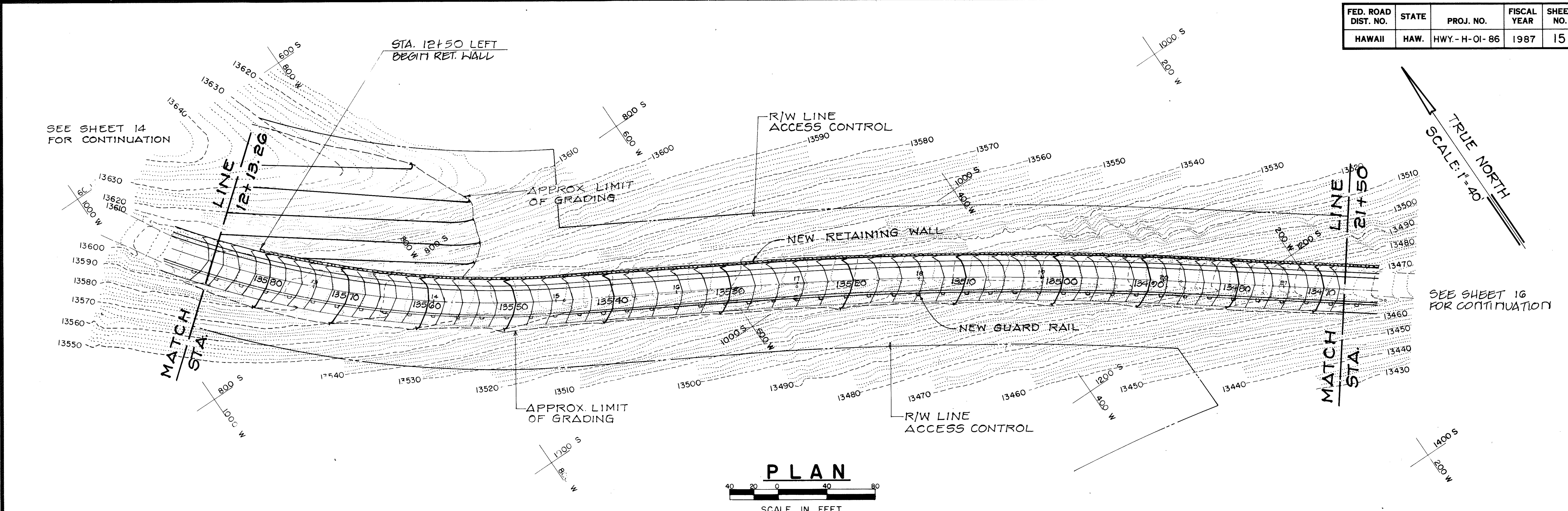
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

PROJECT NO. HWY.-H-01-86

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

SHEET NO. 2 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	15	115



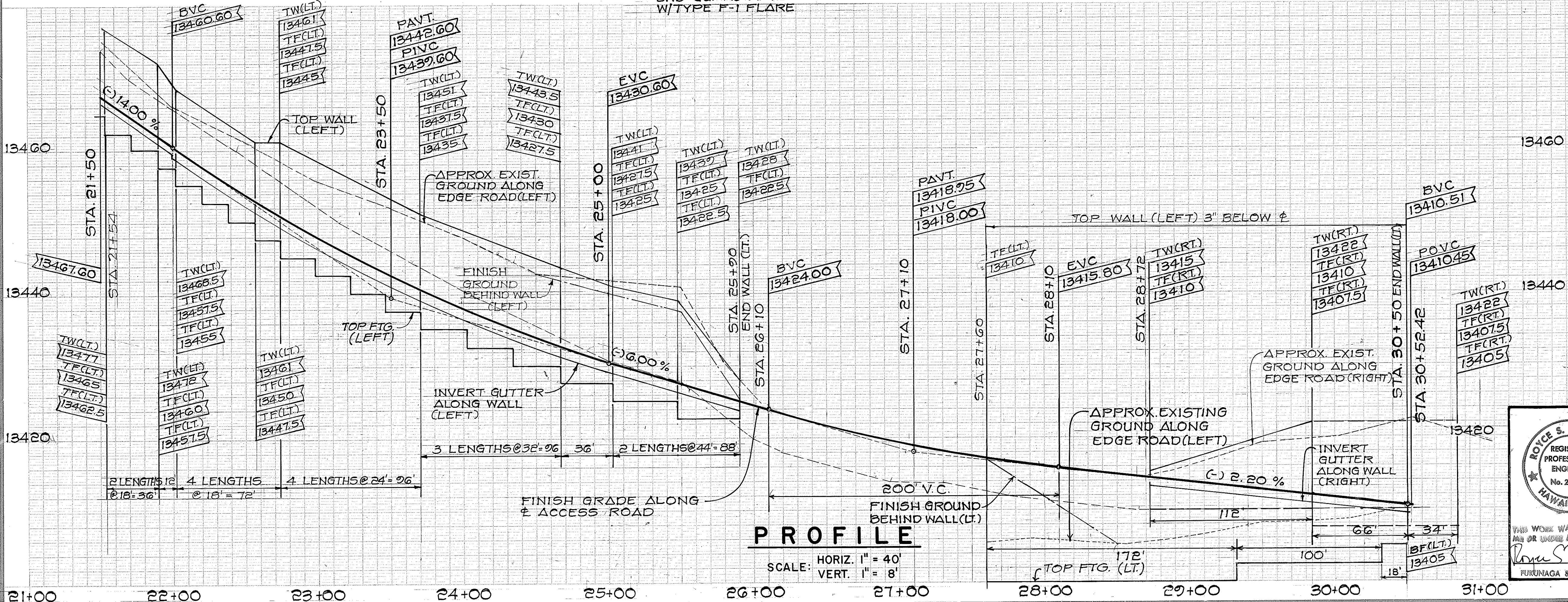
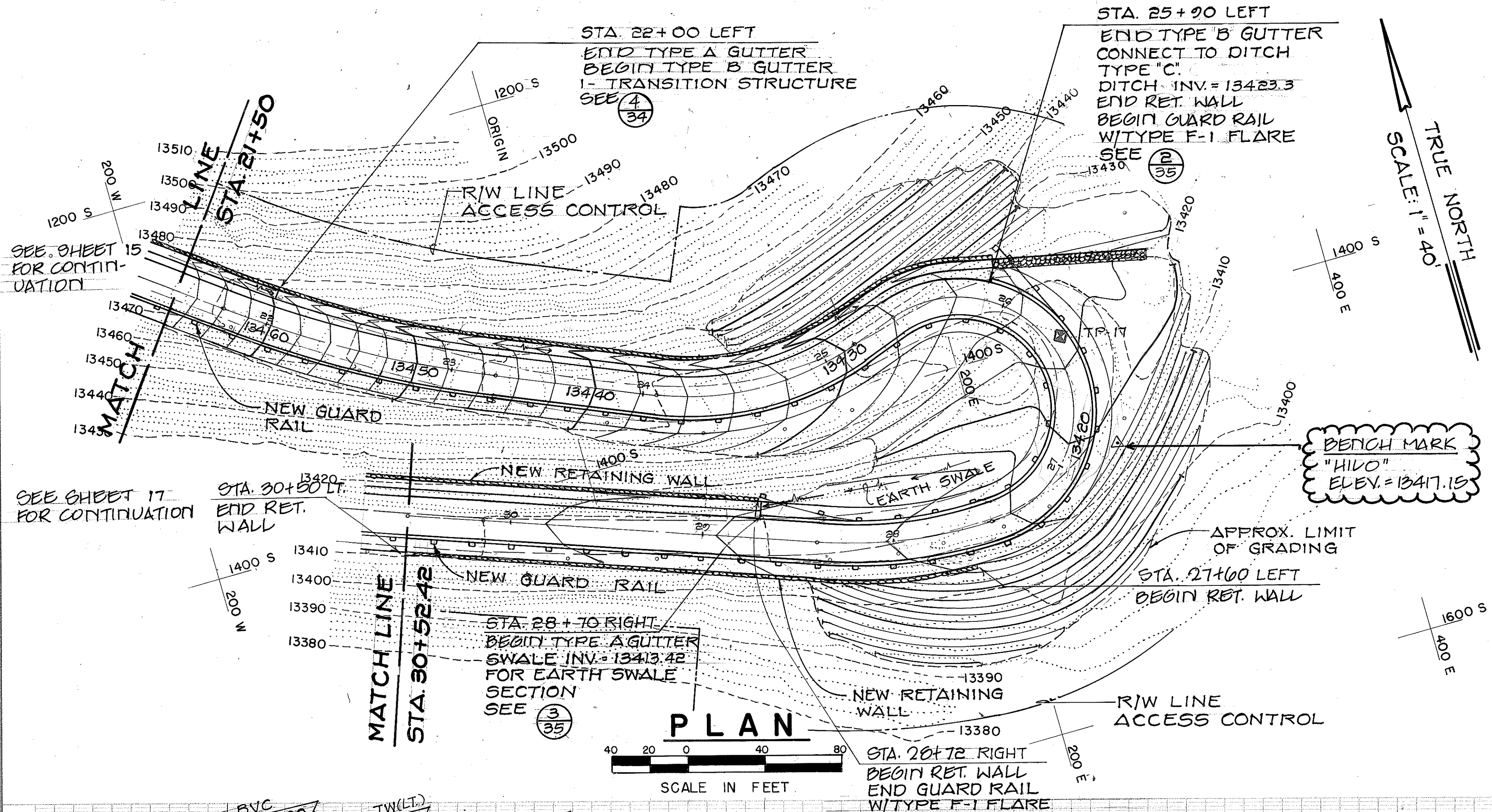
DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
ORIGINAL PLAN	_____
NO.	_____

ESTIMATED WALL QUANTITIES
STA 12+50 TO STA 21+50
REINFORCED CONC. WALL
CONC. = 1440 CY
STEEL = 150,250 LBS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING
MAIN ACCESS ROAD
STA 12+13.26 TO STA 21+50
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I
PROJECT NO. HWY.-H-01-86
SCALE: HORIZ. 1" = 40'
VERT. 1" = 8'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	16	115



ESTIMATED WALL QUANTITIES	
STA. 21+54 TO STA. 30+84	
REINFORCED CONC. WALL	
CONC. = 1350 CY	
STEEL = 155,420 LBS	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING
MAIN ACCESS ROAD
STA. 21+50 TO STA. 30+52.42
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

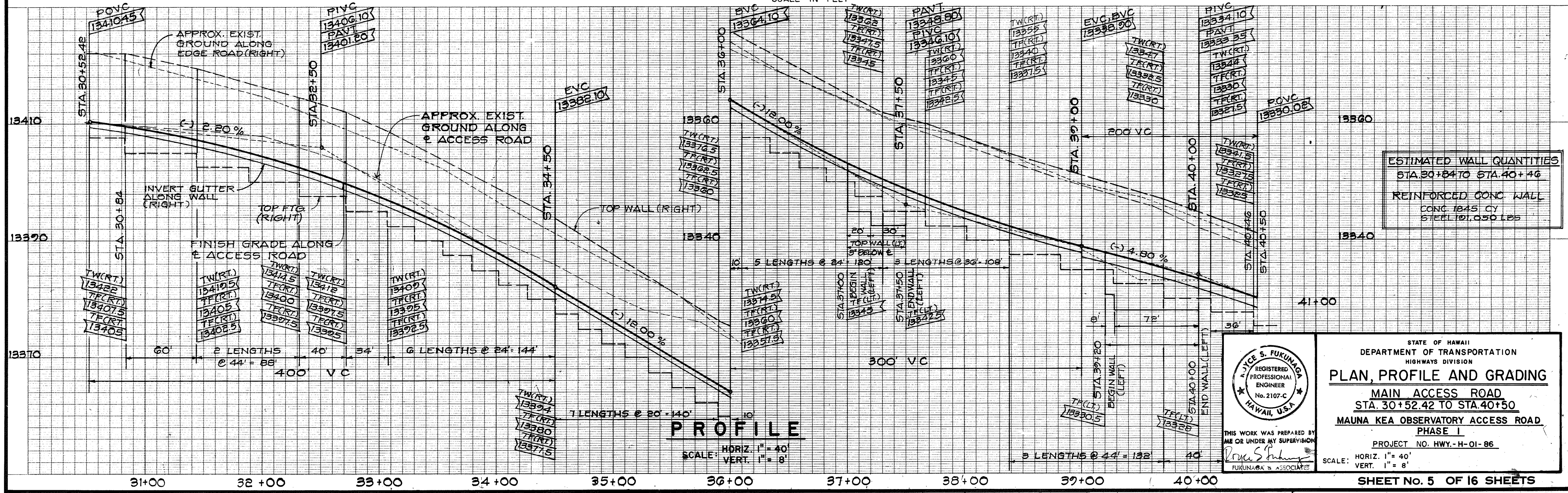
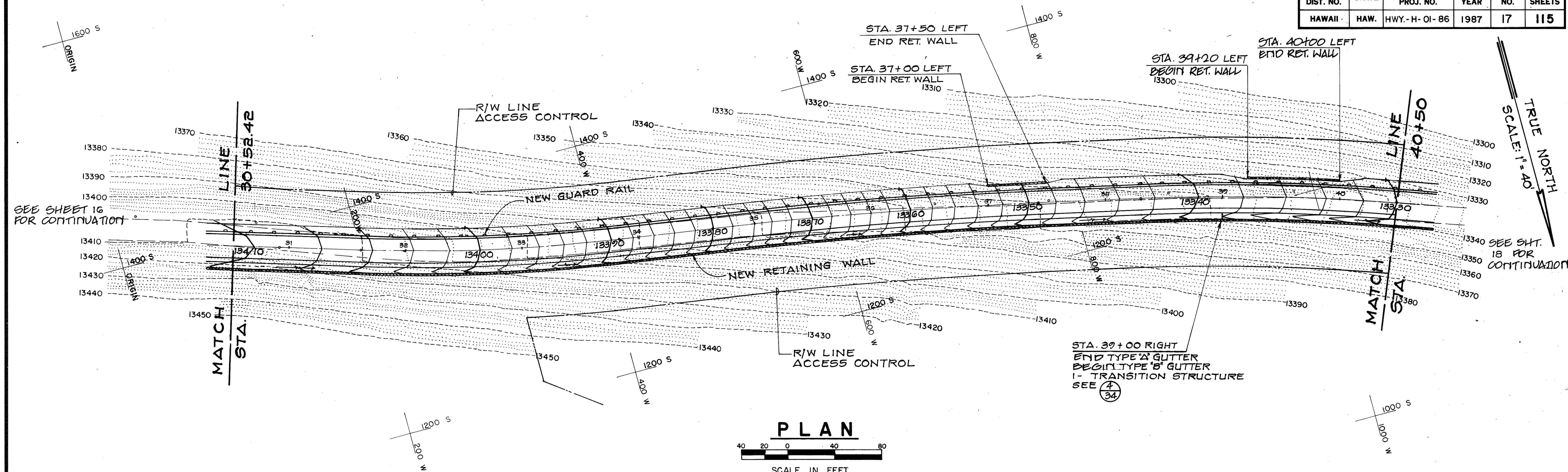
PROJECT NO. HWY.-H-01-86

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

SHEET No. 4 OF 16 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	17	115



ESTIMATED WALL QUANTITIES
STA. 30+52.42 TO STA. 40+50
REINFORCED CONC. WALL
CONC. 1845 CY
STEEL 101,030 LBS



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING
MAIN ACCESS ROAD
STA. 30+52.42 TO STA. 40+50
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

PROJECT NO. HWY.-H-01-86

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

SHEET NO. 5 OF 16 SHEETS

SURVEY NOTED BY: _____ DATE: _____

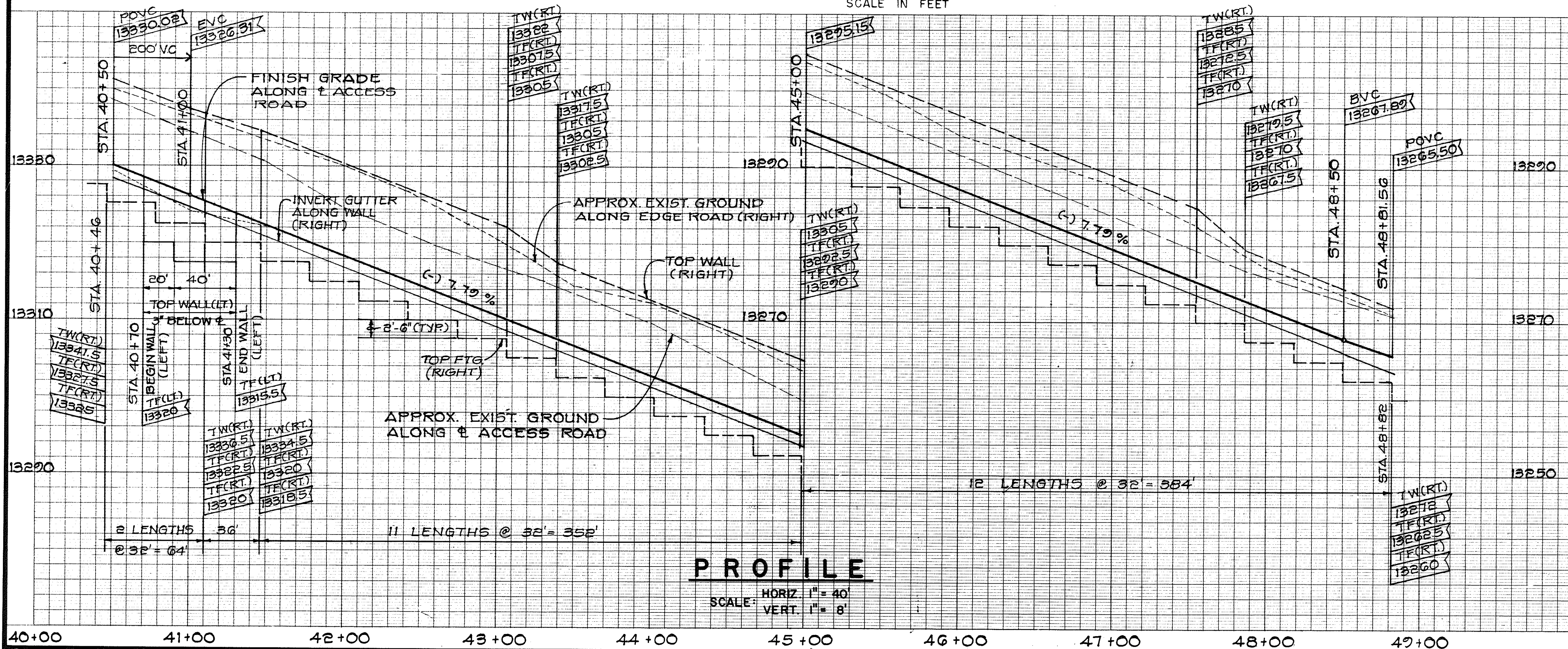
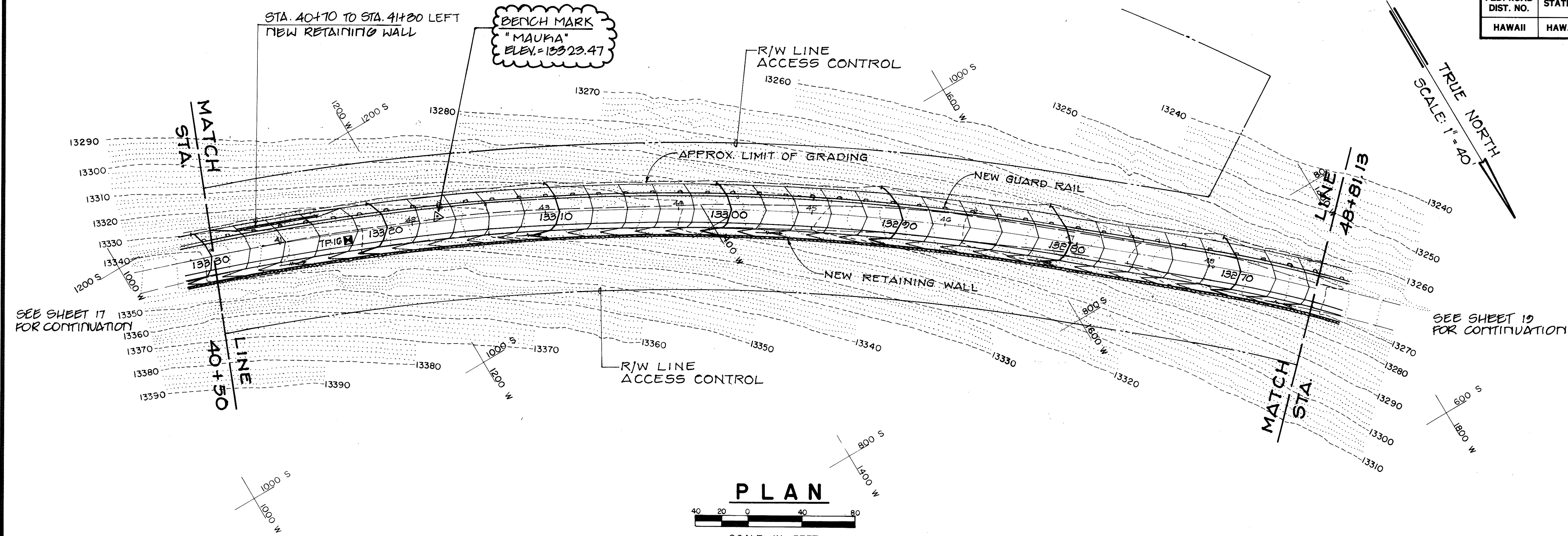
PLAN DRAWN BY: _____

NOTE BOOK DESIGNED BY: _____

QUANTITIES BY: _____

CHECKED BY: _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	18	115



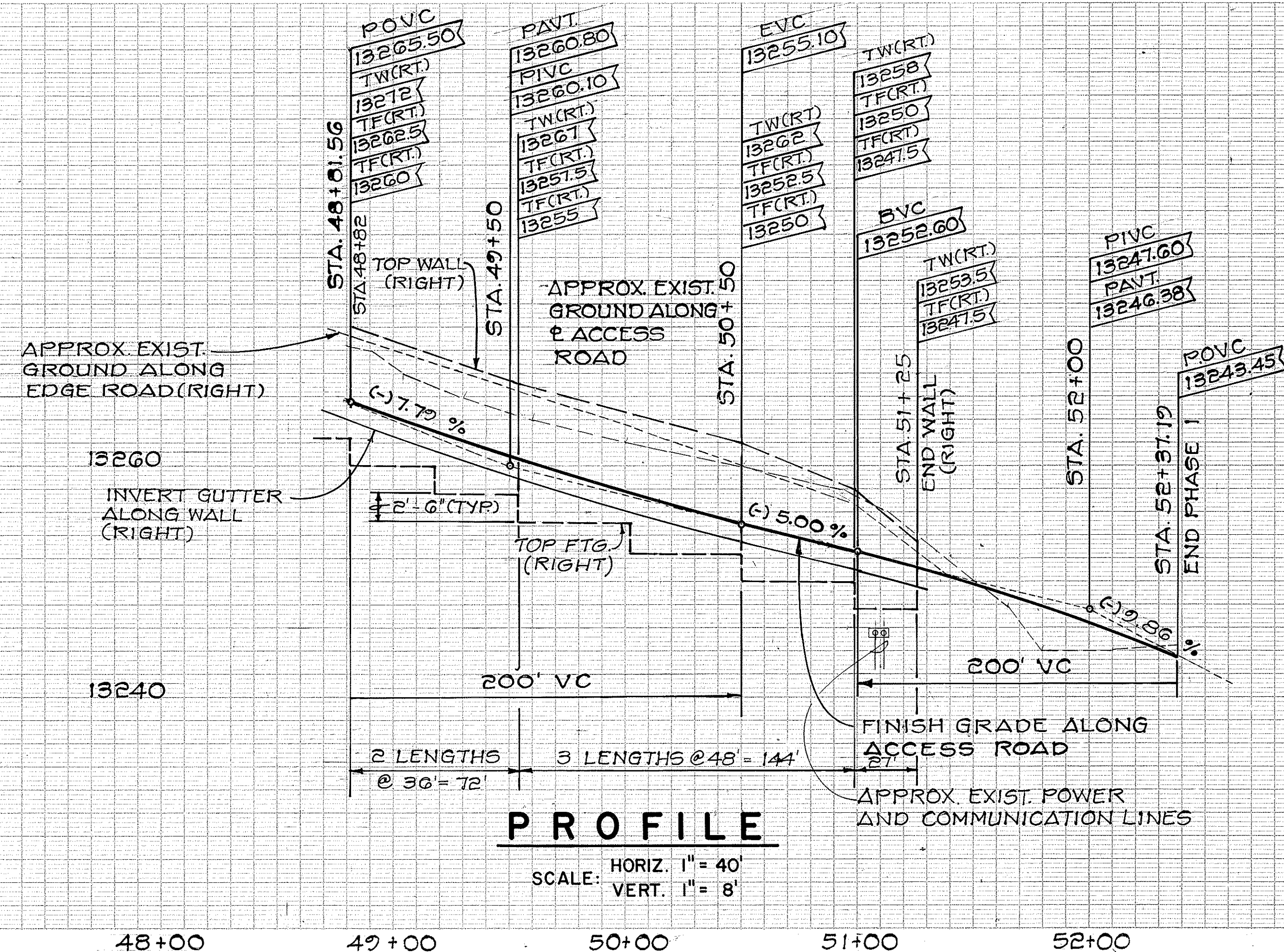
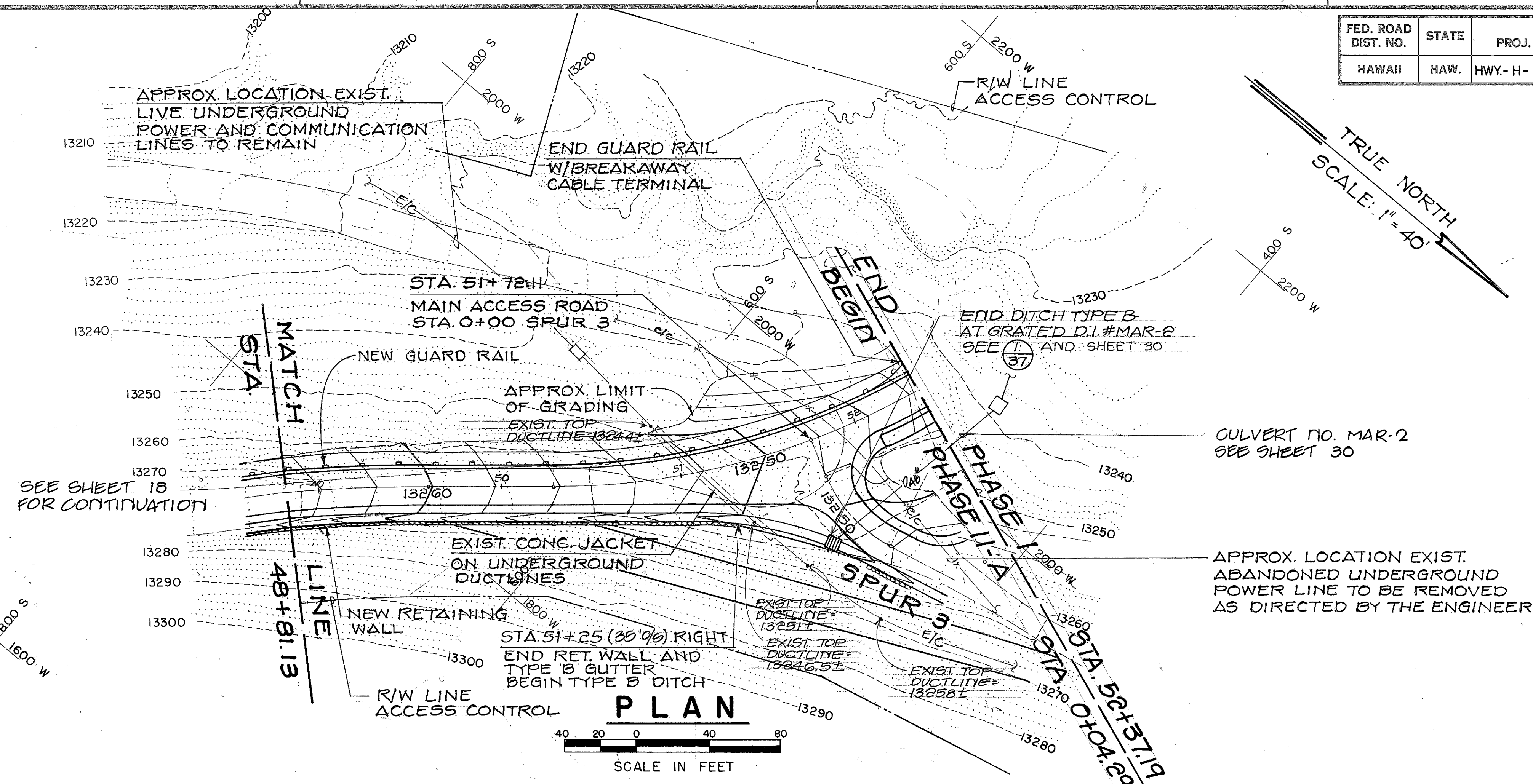
ESTIMATED WALL QUANTITIES	
STA. 40+46 TO STA. 48+82	
REINFORCED CONC. WALL	
CONC. = 1445 CY.	
STEEL = 150,870 LBS.	

ROYCE S. FUKUNAGA
 REGISTERED PROFESSIONAL ENGINEER
 NO. 2107-C
 HAWAII, U.S.A.
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
 R. S. Fukunaga
 FUKUNAGA & ASSOCIATES

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PLAN, PROFILE AND GRADING
MAIN ACCESS ROAD
STA. 40+50 TO STA. 48+81.13
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I
 PROJECT NO. HWY.-H-01-86
 SCALE: HORIZ. 1" = 40'
 VERT. 1" = 8'
SHEET NO. 6 OF 16 SHEETS

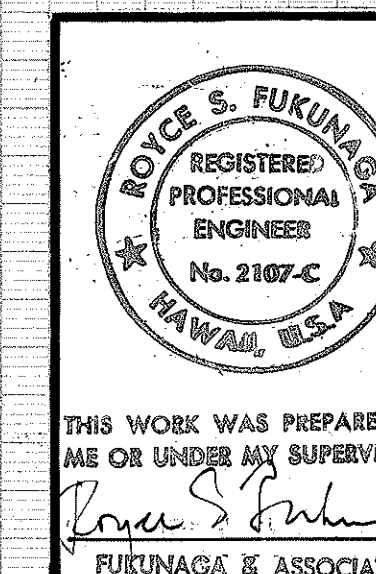
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	19	115



ESTIMATED WALL QUANTITIES
STA. 48+88 TO STA. 51+25

REINFORCED CONC. WALL
CONC. 265 CY
STEEL 26,450 LBS



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

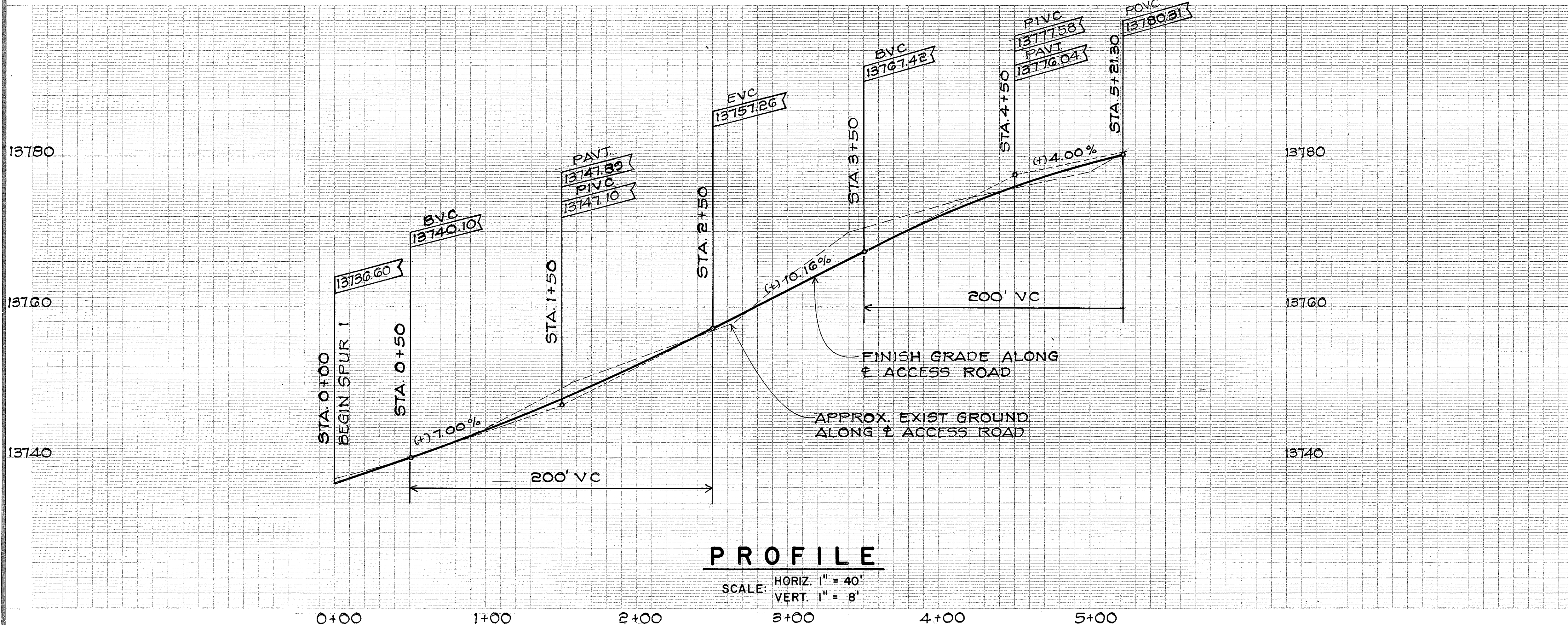
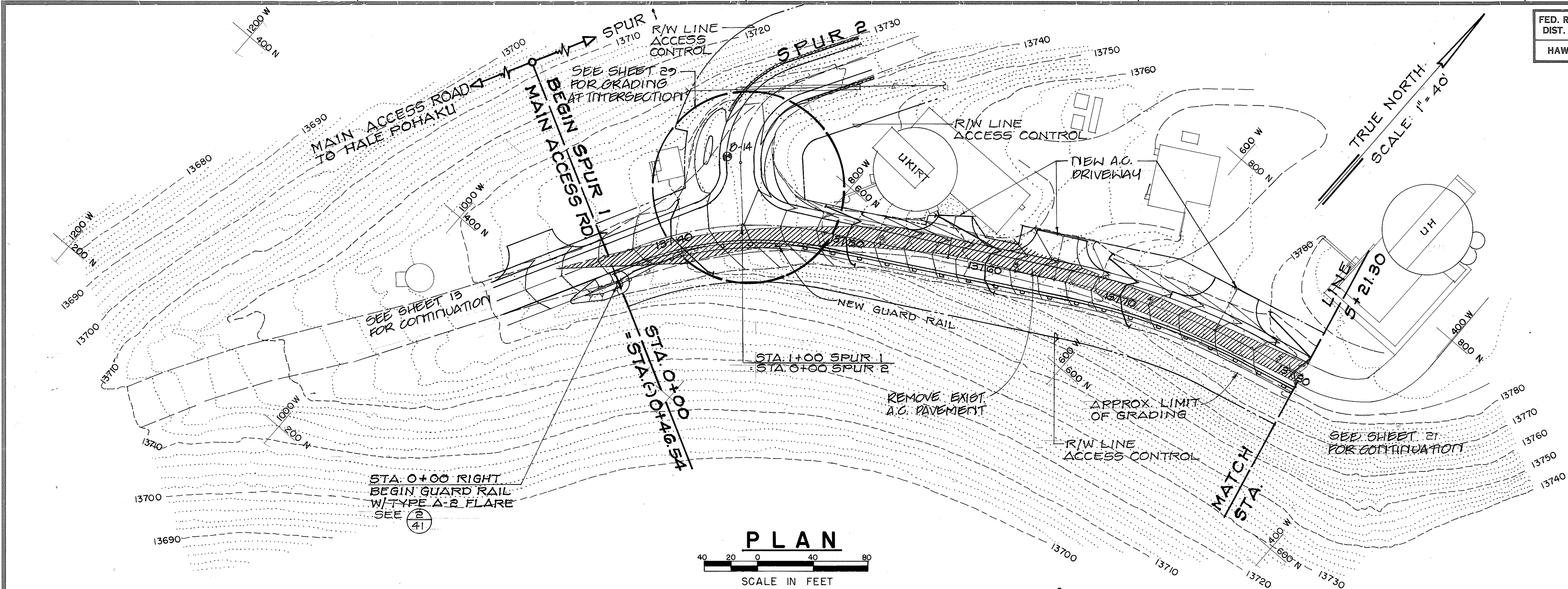
MAIN ACCESS ROAD
STA. 48+81.13 TO STA. 52+37.19
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

PROJECT NO. HWY.-H-01-86

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

SHEET No. 7 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY. - H-01-86	1987	20	115



SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
NO.	

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Royce S. Fukunaga

FUKUNAGA & ASSOCIATES

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

SPUR 1

STA. 0+00 TO STA. 5+21.30

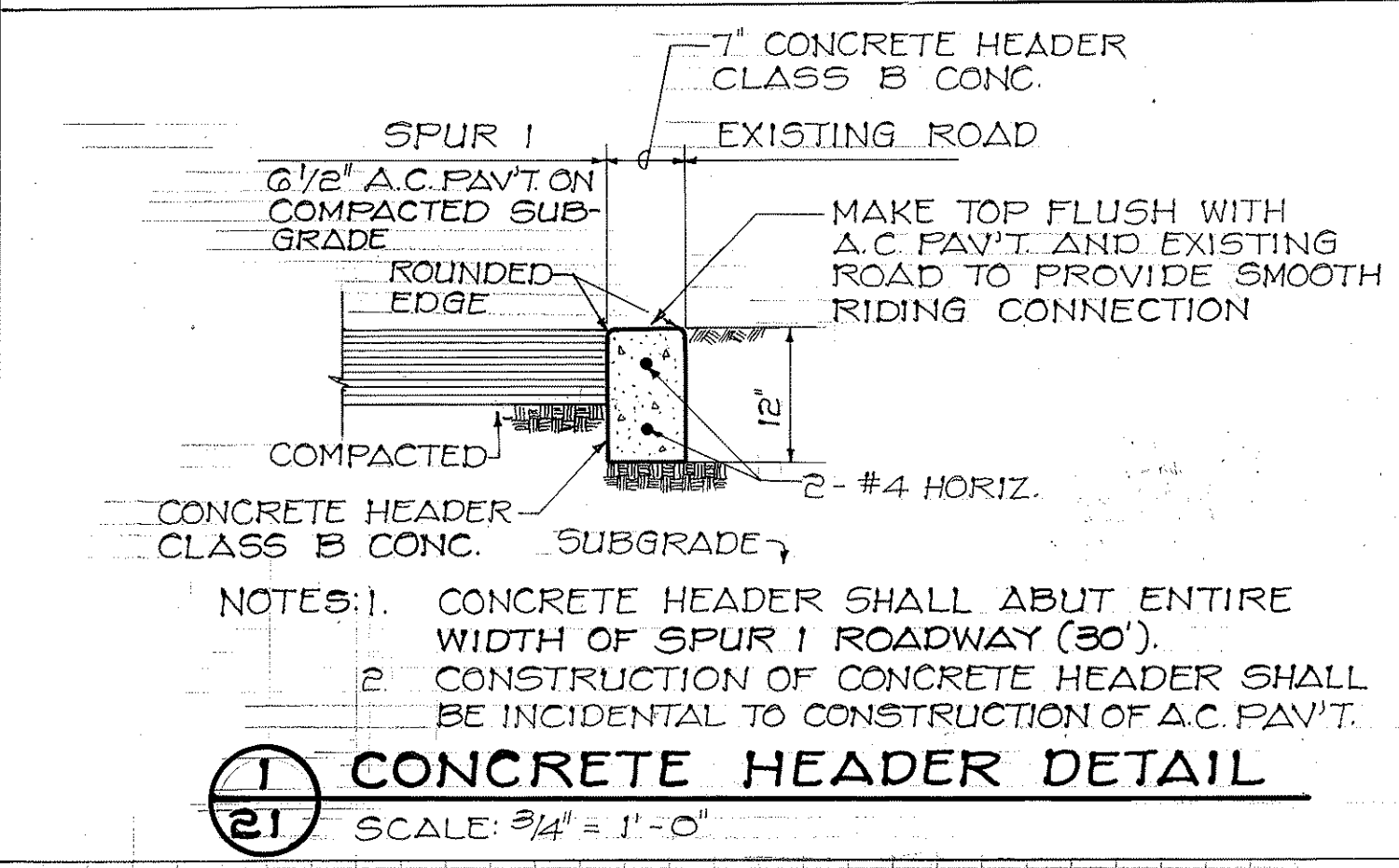
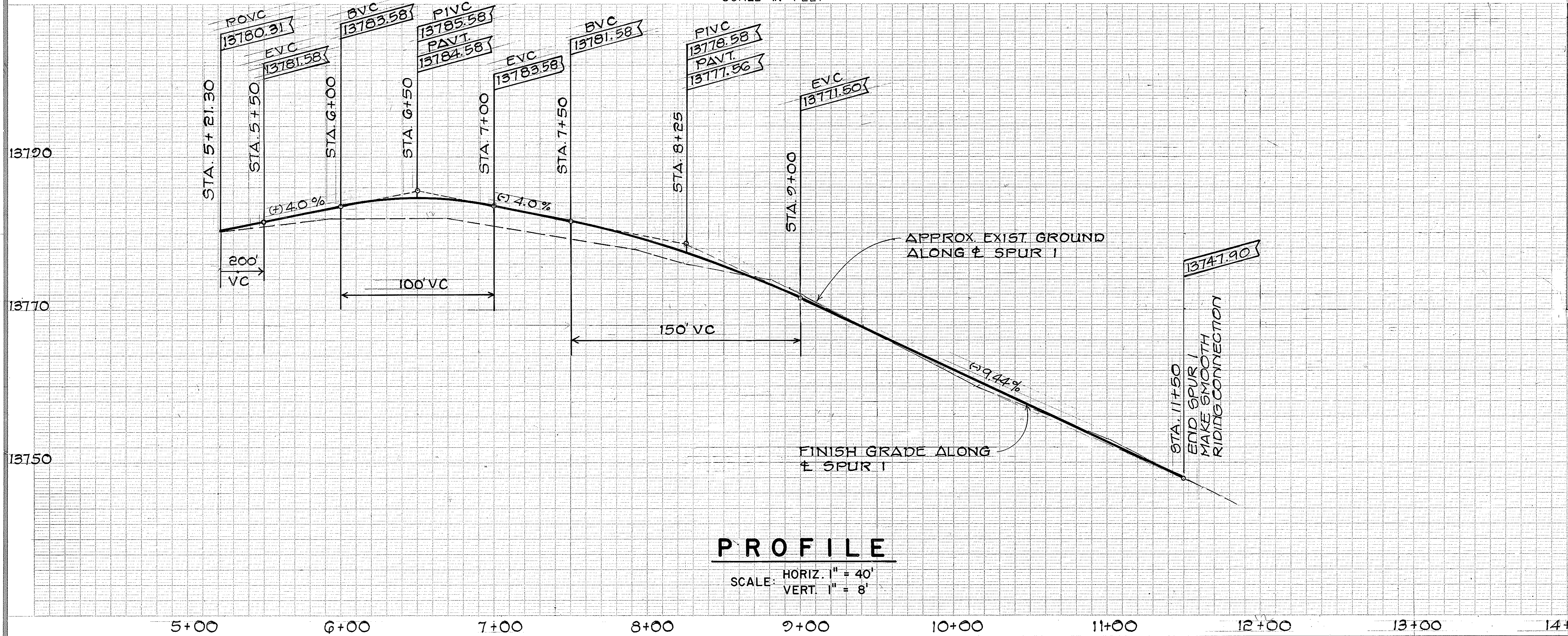
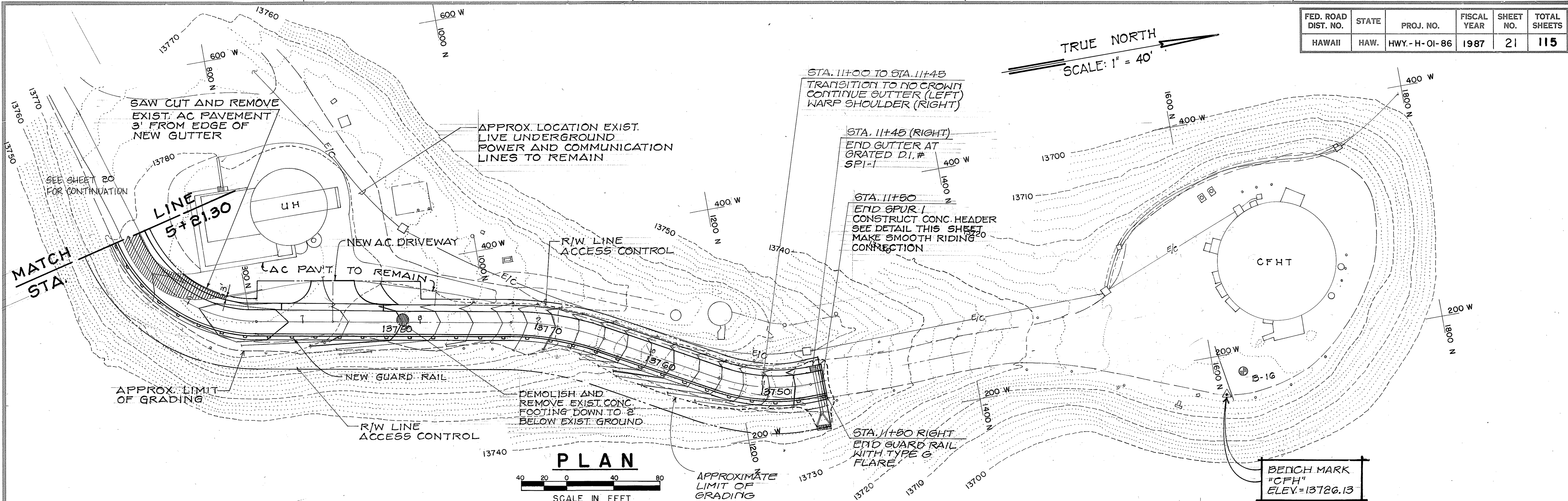
MAUNA KEA OBSERVATORY ACCESS ROAD

PHASE I

PROJECT NO. HWY.-H-01-86

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY. - H-01-86	1987	21	115



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

SPUR 1
STA. 5+21.30 TO STA. 11+50
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

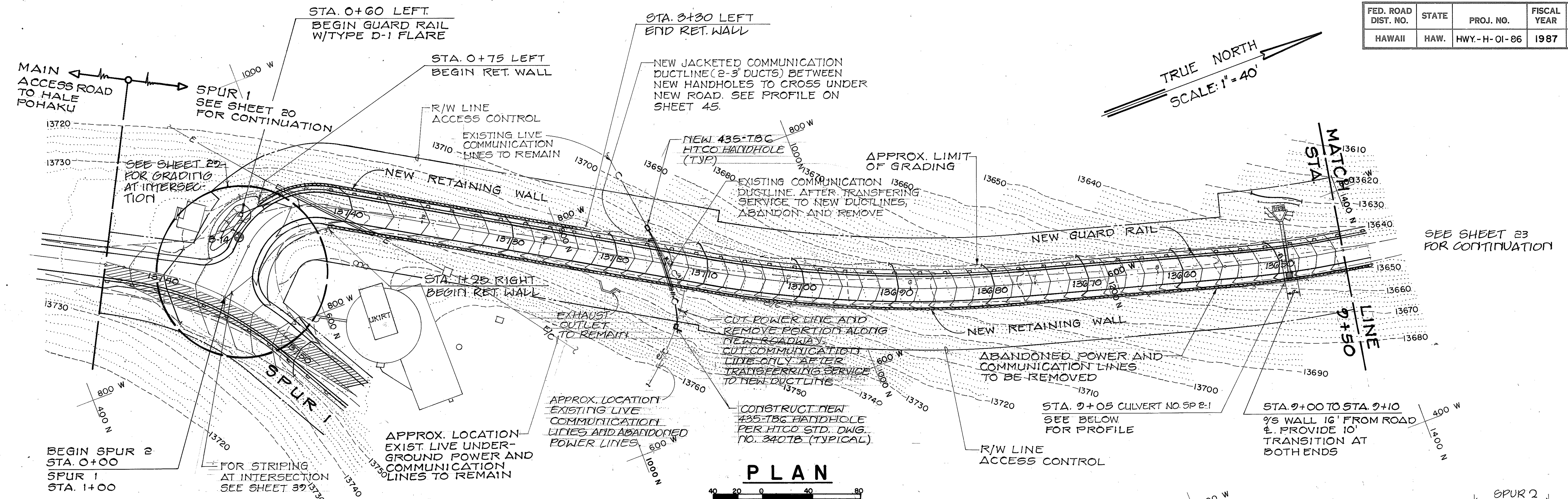
PROJECT NO. HWY. - H-01-86

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

SHEET No. 9 OF 16 SHEETS

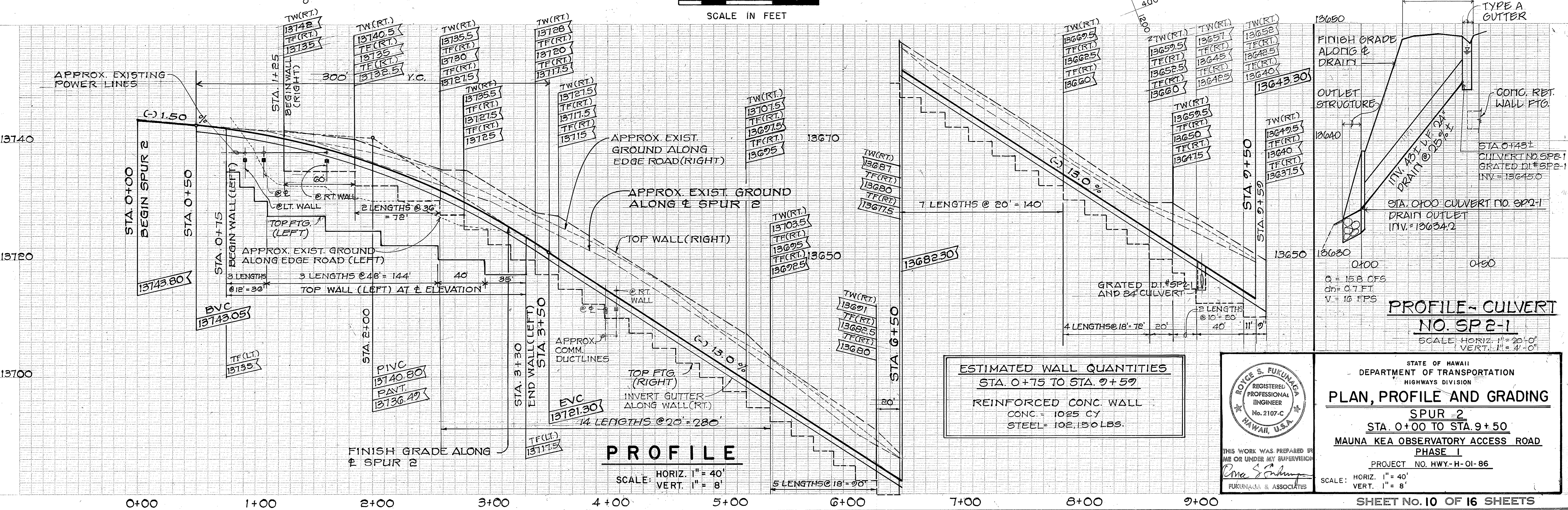
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	22	115



PLAN

SCALE IN FEET
0 20 40 60 80



PROFILE

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

ESTIMATED WALL QUANTITIES
STA. 0+75 TO STA. 9+59
REINFORCED CONC. WALL
CONC. = 1025 CY
STEEL = 102,150 LBS.

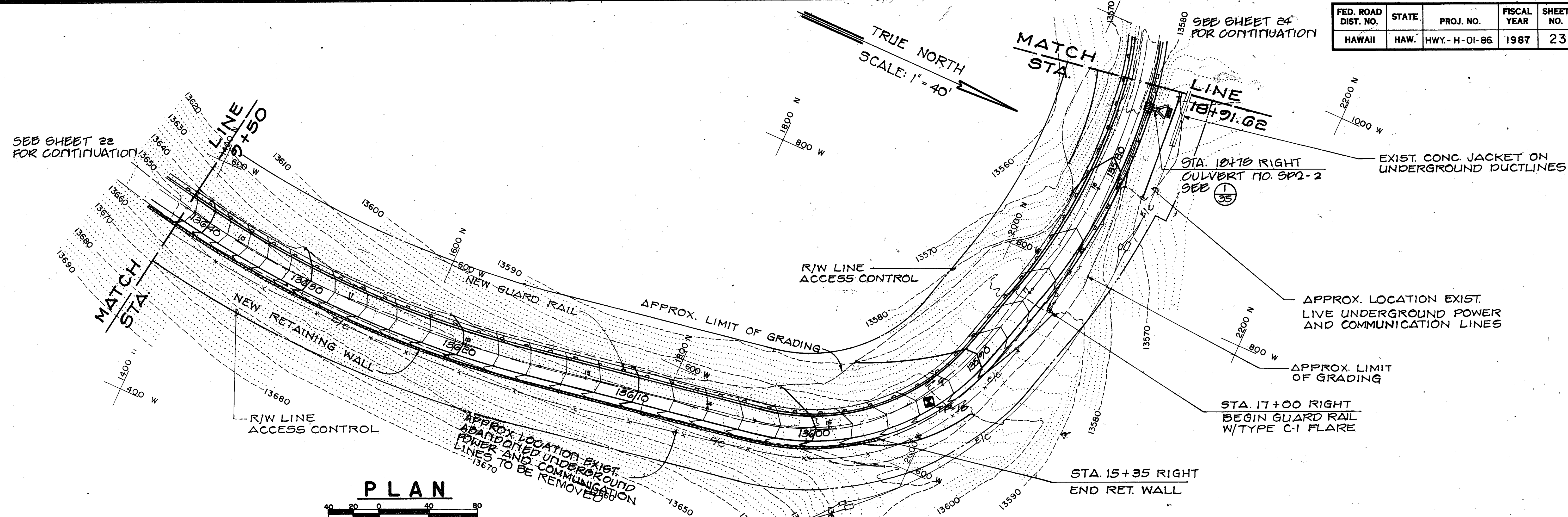
PROFILE - CULVERT NO. SP2-1

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PLAN, PROFILE AND GRADING
SPUR 2
STA. 0+00 TO STA. 9+50
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I
PROJECT NO. HWY.-H-01-86
SCALE: HORIZ. 1" = 40'
VERT. 1" = 8'
SHEET No. 10 OF 16 SHEETS

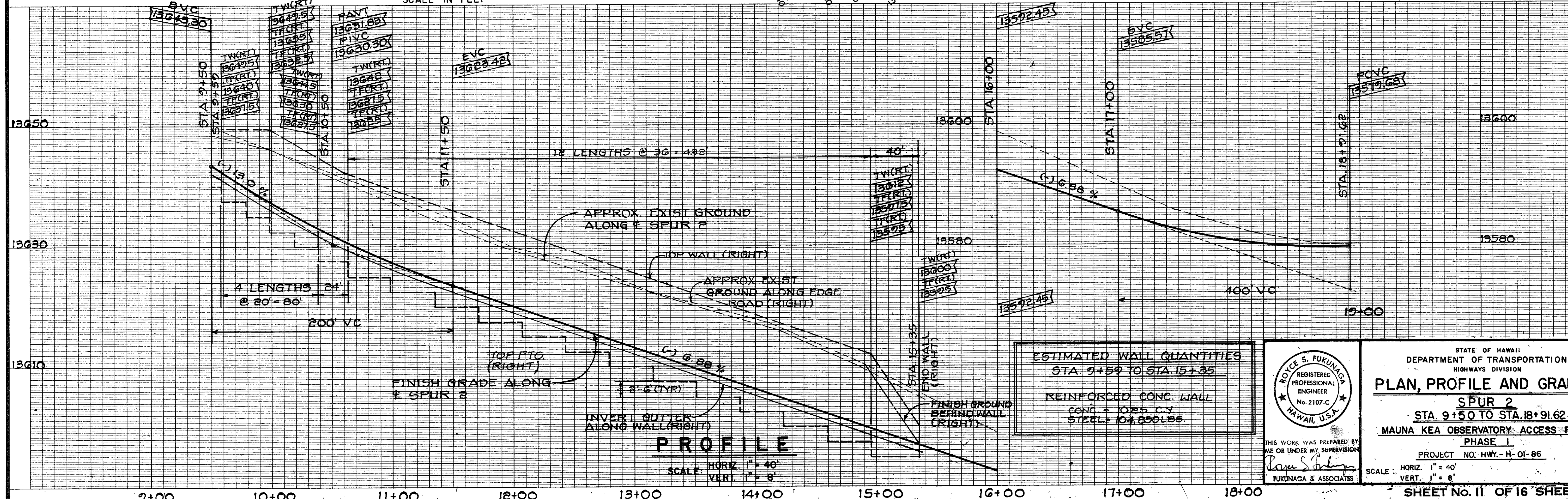
ROYCE S. FUKUNAGA
REGISTERED PROFESSIONAL ENGINEER
No. 2107-C
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
P. S. Fukunaga
FUKUNAGA & ASSOCIATES

ORIGINAL PLAN
DATE
SURVEY PLOTTED BY
DRAWN BY
DESIGNED BY
NOTED BY
CHECKED BY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY. - H-01-86	1987	23	115

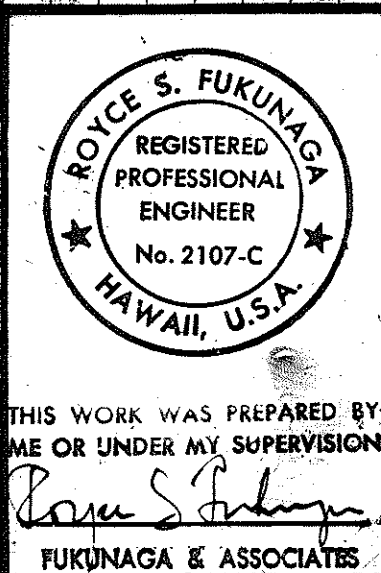


PLAN
SCALE IN FEET
0 20 40 80



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

ESTIMATED WALL QUANTITIES	
STA. 9+50 TO STA. 15+35	
REINFORCED CONC. WALL	
CONC. = 1025 C.Y.	
STEEL = 104,850 LBS.	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

SPUR 2
STA. 9+50 TO STA. 18+91.62
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

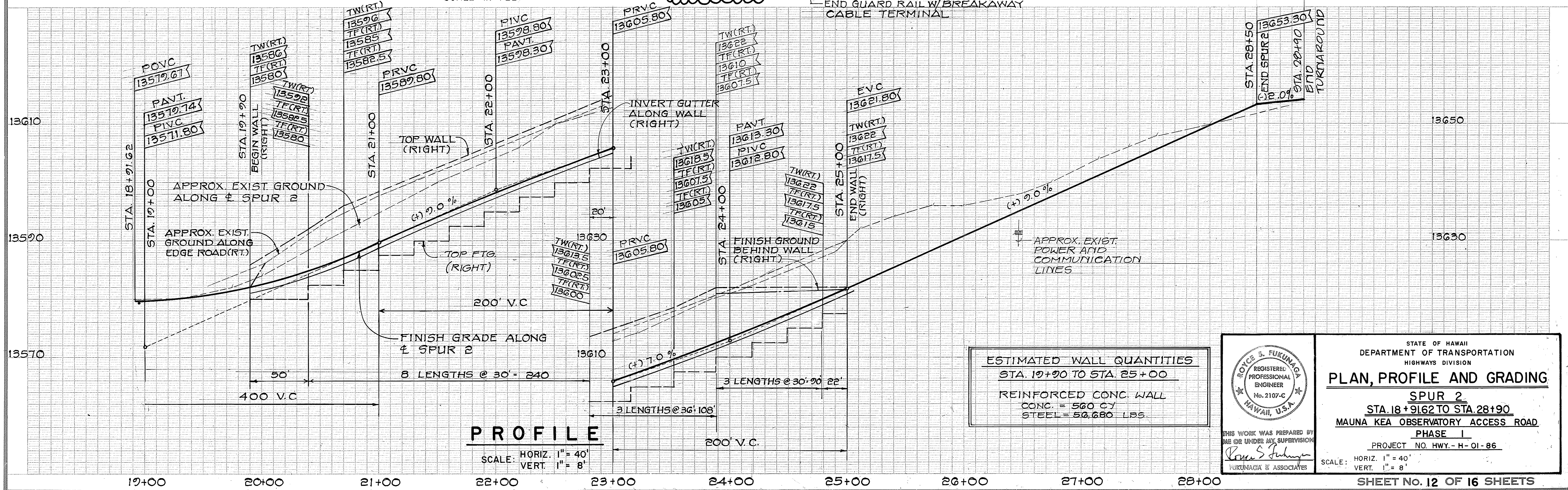
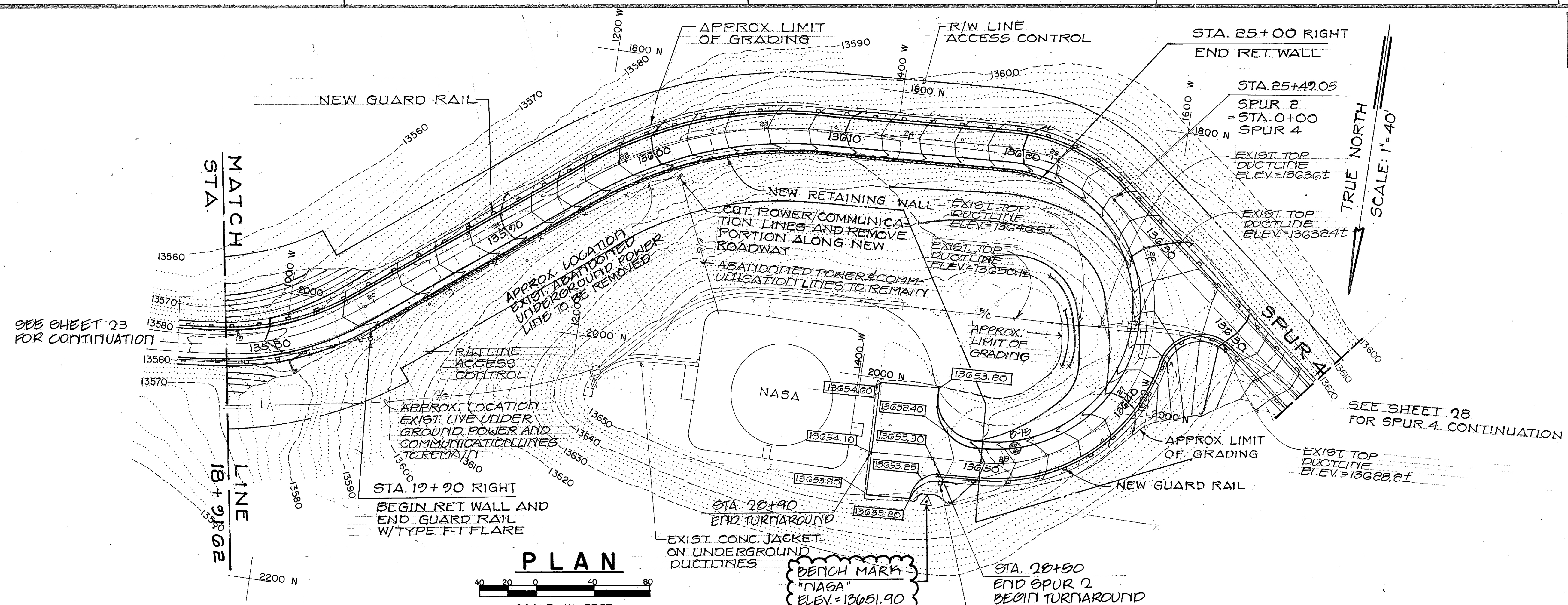
PROJECT NO. HWY. - H-01-86

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

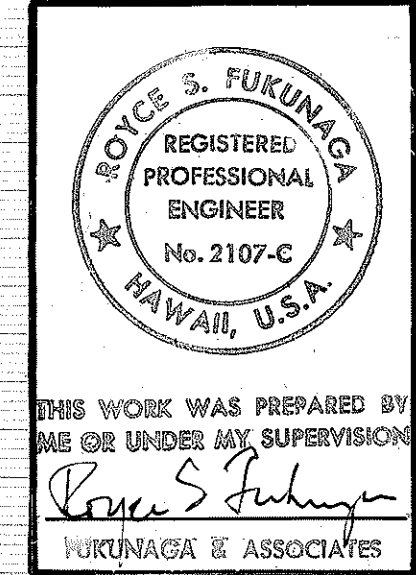
SHEET NO. 11 OF 16 SHEETS

DATE: _____
SURVEY PLOTTED BY: _____
DESIGNED BY: _____
CHECKED BY: _____
NOTE BOOK: _____
NO. _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY. - H-01-86	1987	24	115



ESTIMATED WALL QUANTITIES	
STA. 19+90 TO STA. 25+00	
REINFORCED CONC. WALL	CONC. = 560 CY
	STEEL = 50,680 LBS.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

SPUR 2
STA. 18+91.62 TO STA. 28+90
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

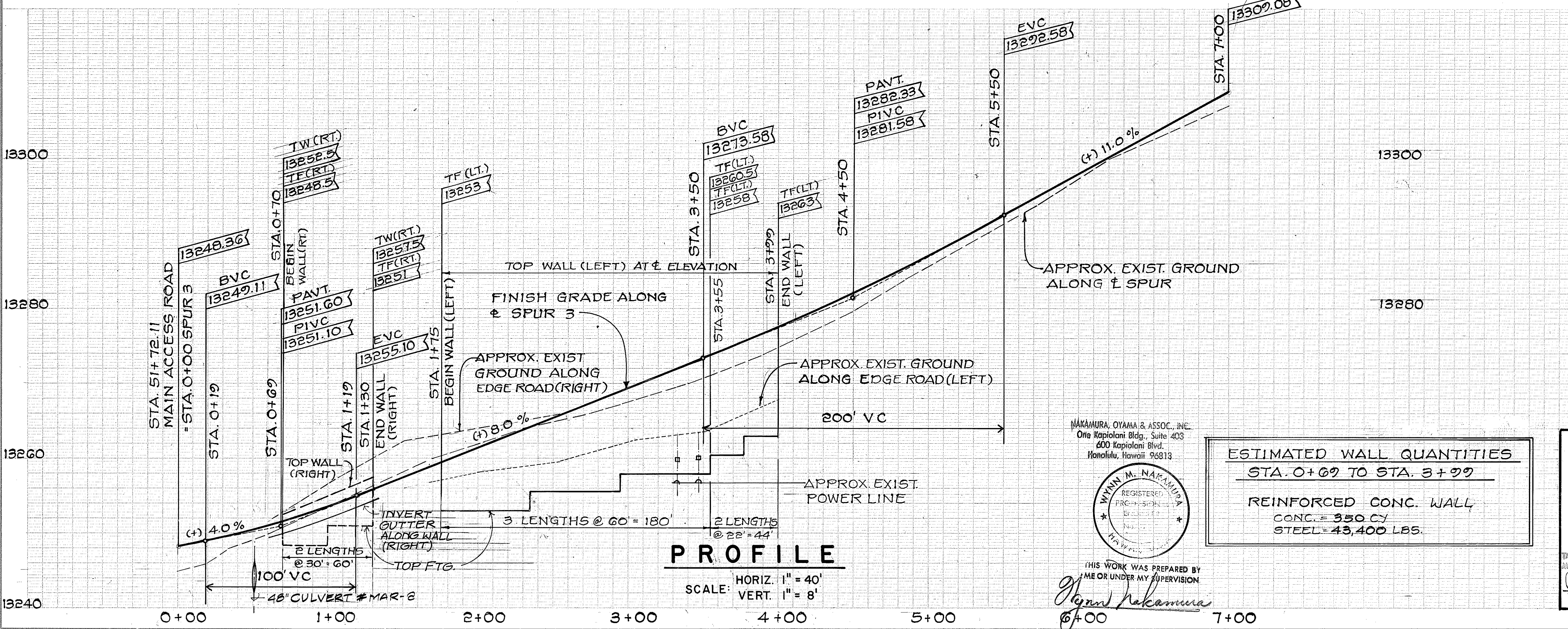
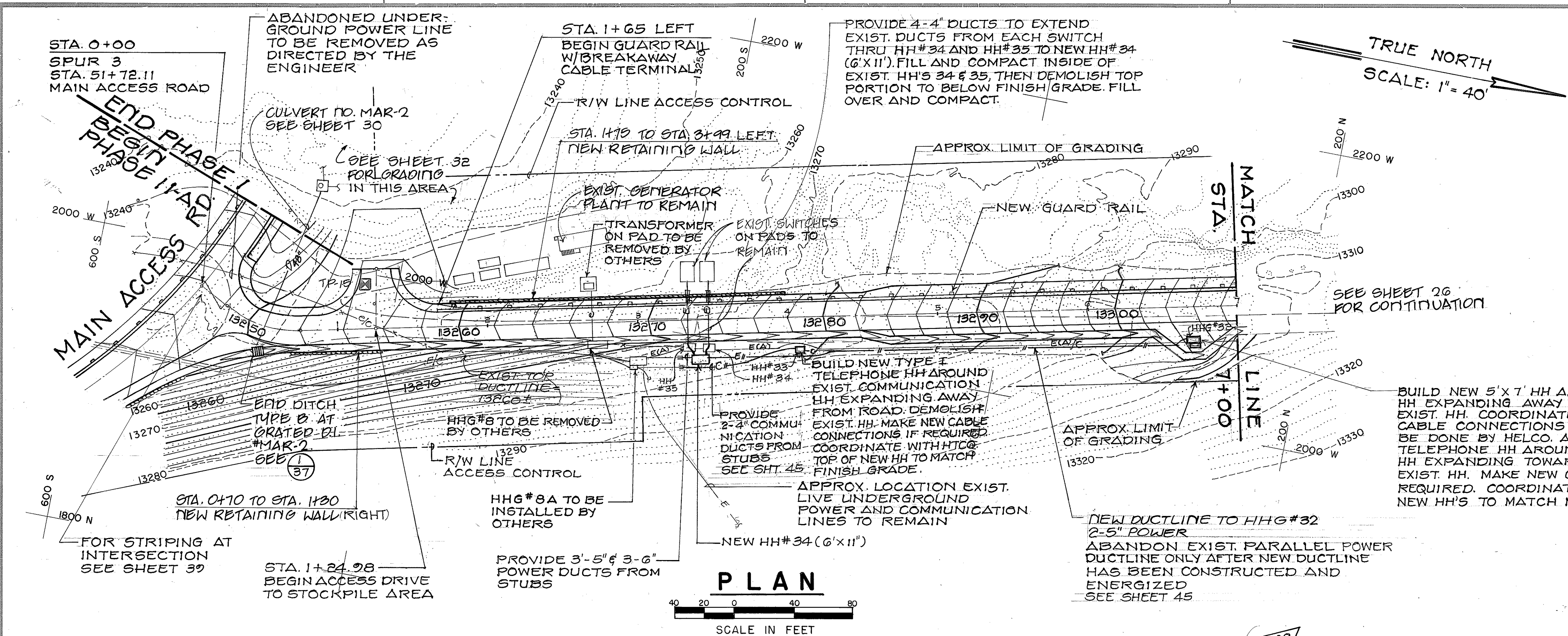
PROJECT NO. HWY. - H-01-86

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

SHEET NO. 12 OF 16 SHEETS

DATE	
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-H-01-86	1987	25	115



DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

NAKAMURA, OYAMA & ASSOC., INC.
One Kapiolani Bldg., Suite 403
600 Kapiolani Blvd.
Honolulu, Hawaii 96813

WILLIAM M. NAKAMURA
REGISTERED PROFESSIONAL ENGINEER
No. 2107-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Wm Nakamura

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
FUKUNAGA & ASSOCIATES

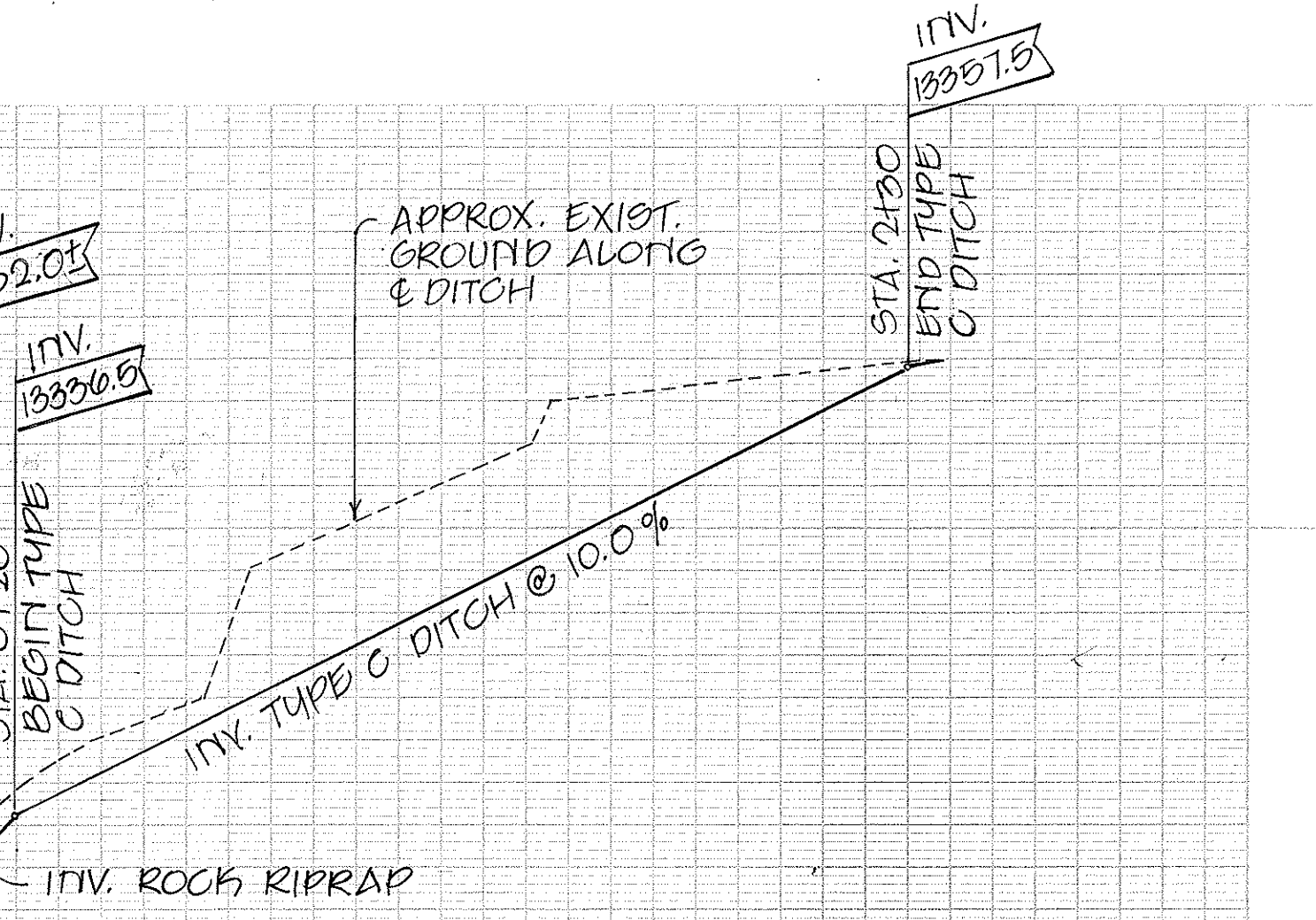
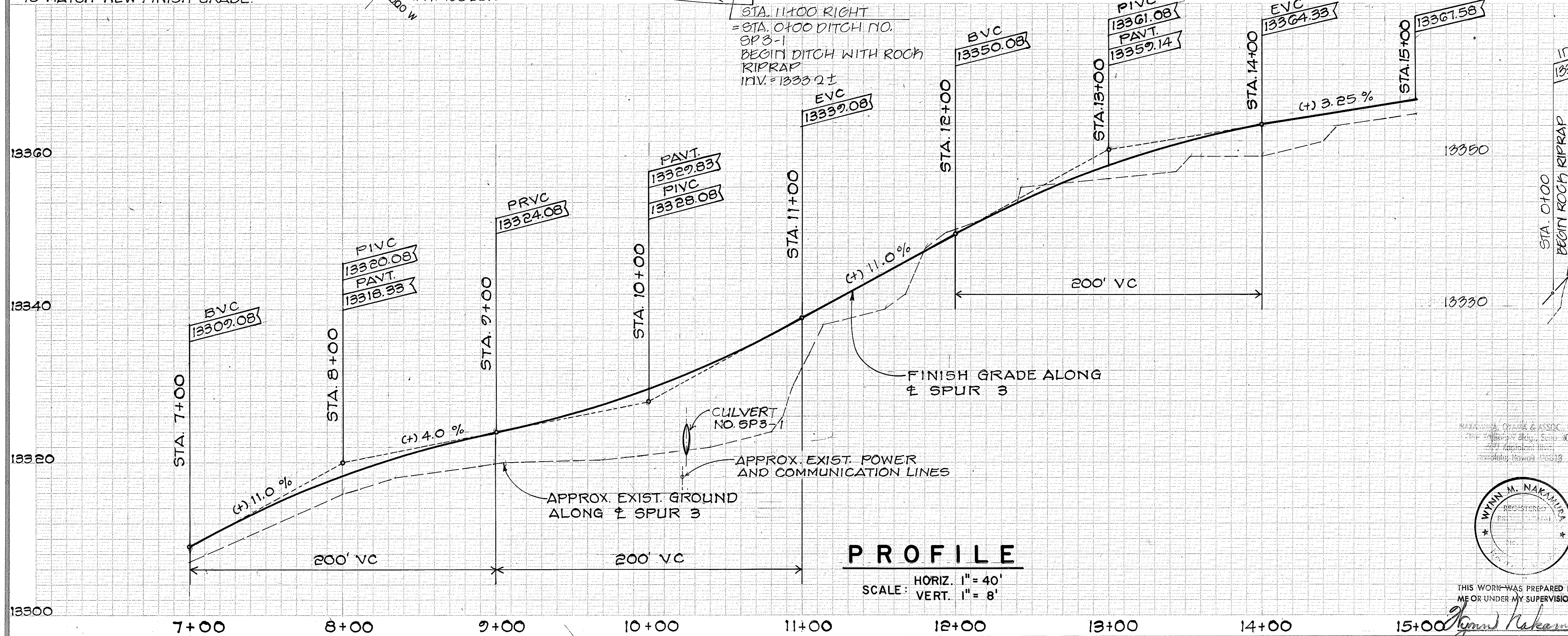
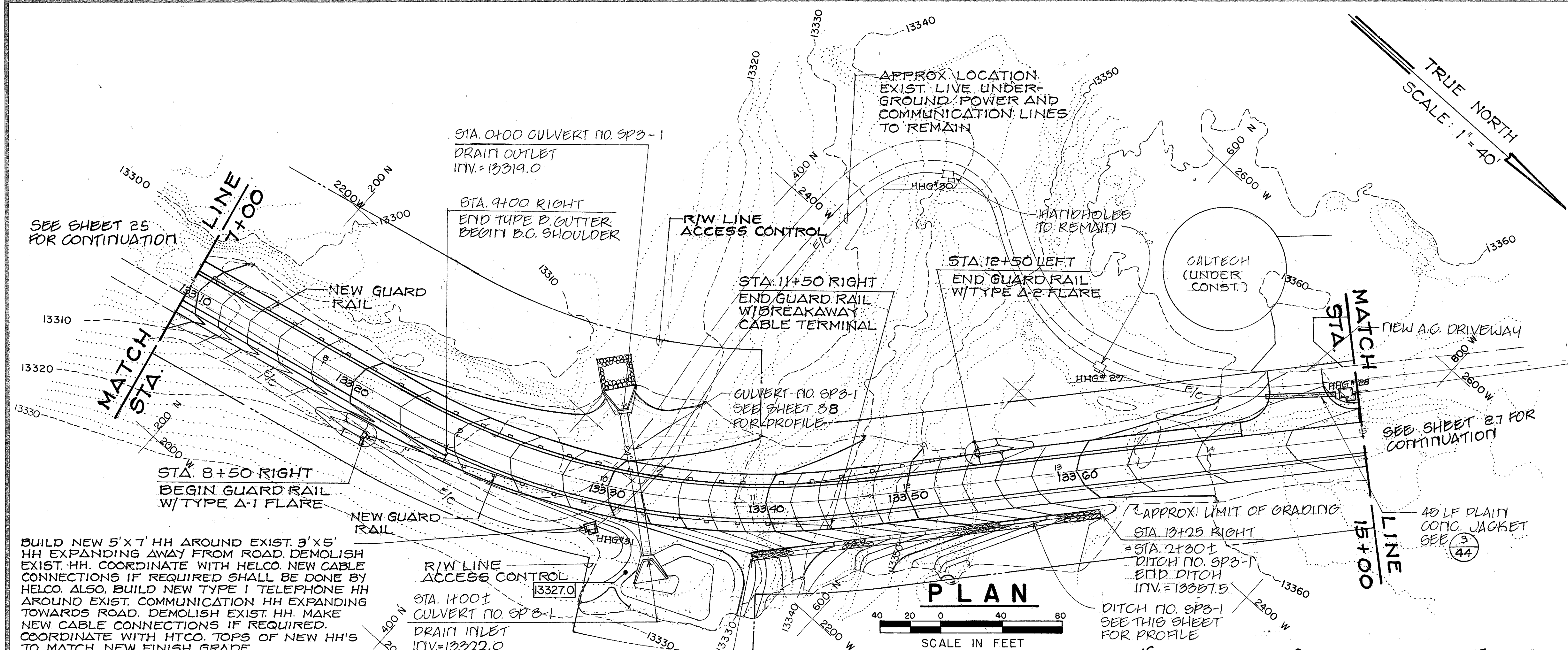
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING
SPUR 3
STA. 0+00 TO STA. 7+00
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

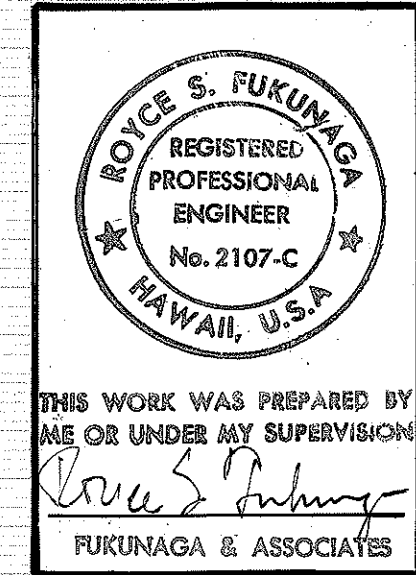
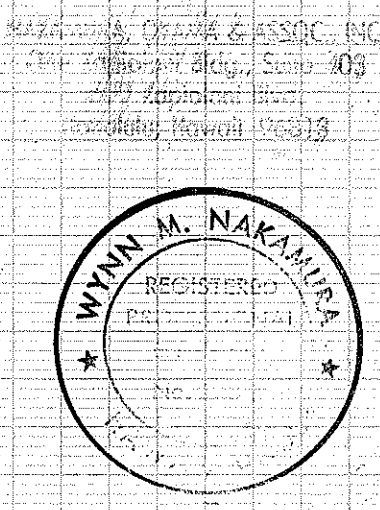
PROJECT NO. HWY-H-01-86
SCALE: HORIZ. 1" = 40'
VERT. 1" = 8'

SHEET No. 13 OF 16 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY. - H-01-86	1987	26	115



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

SPUR 3
STA. 7+00 TO STA. 15+00
MAUNA KEA OBSERVATORY ACCESS ROAD
PHASE I

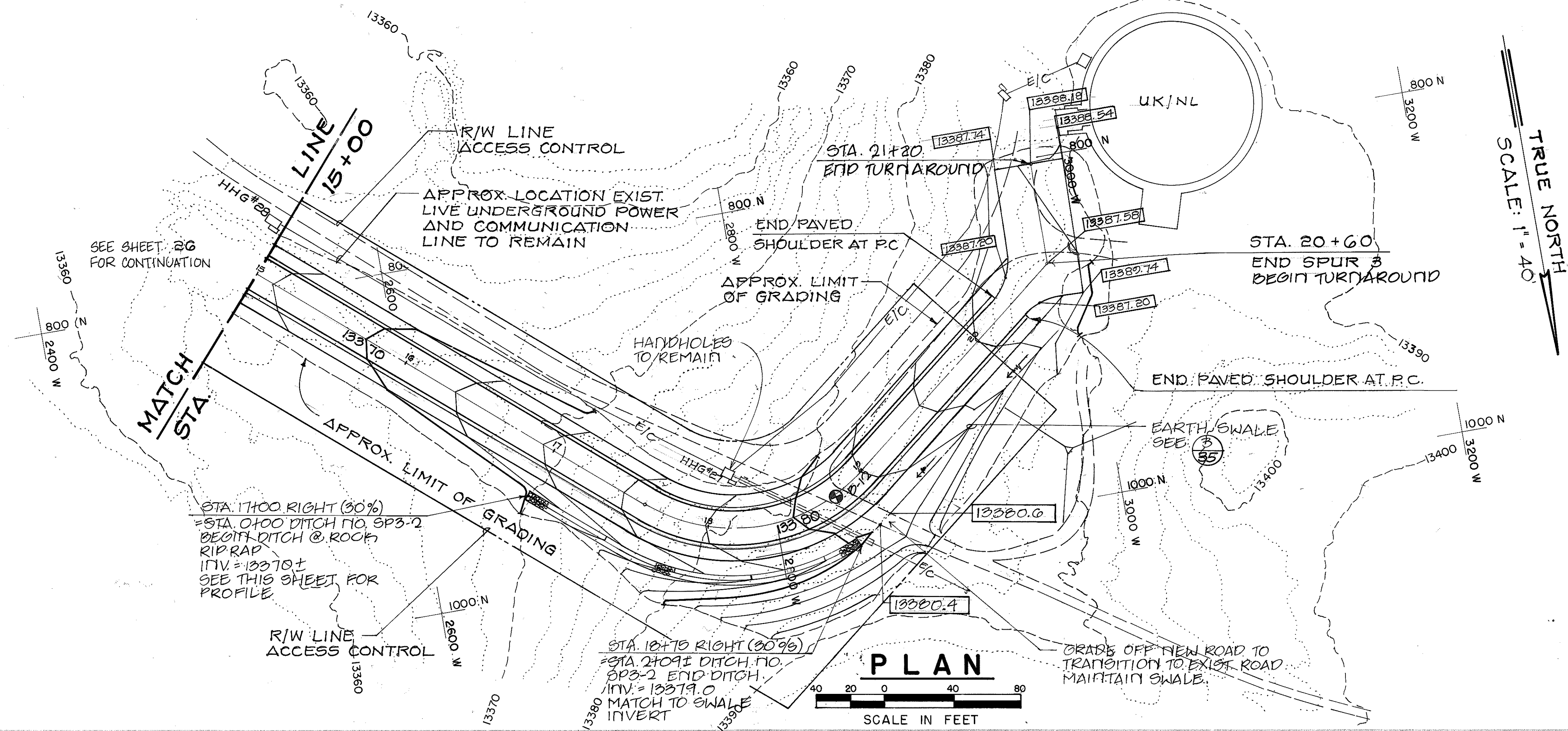
PROJECT NO. HWY. - H-01-86

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

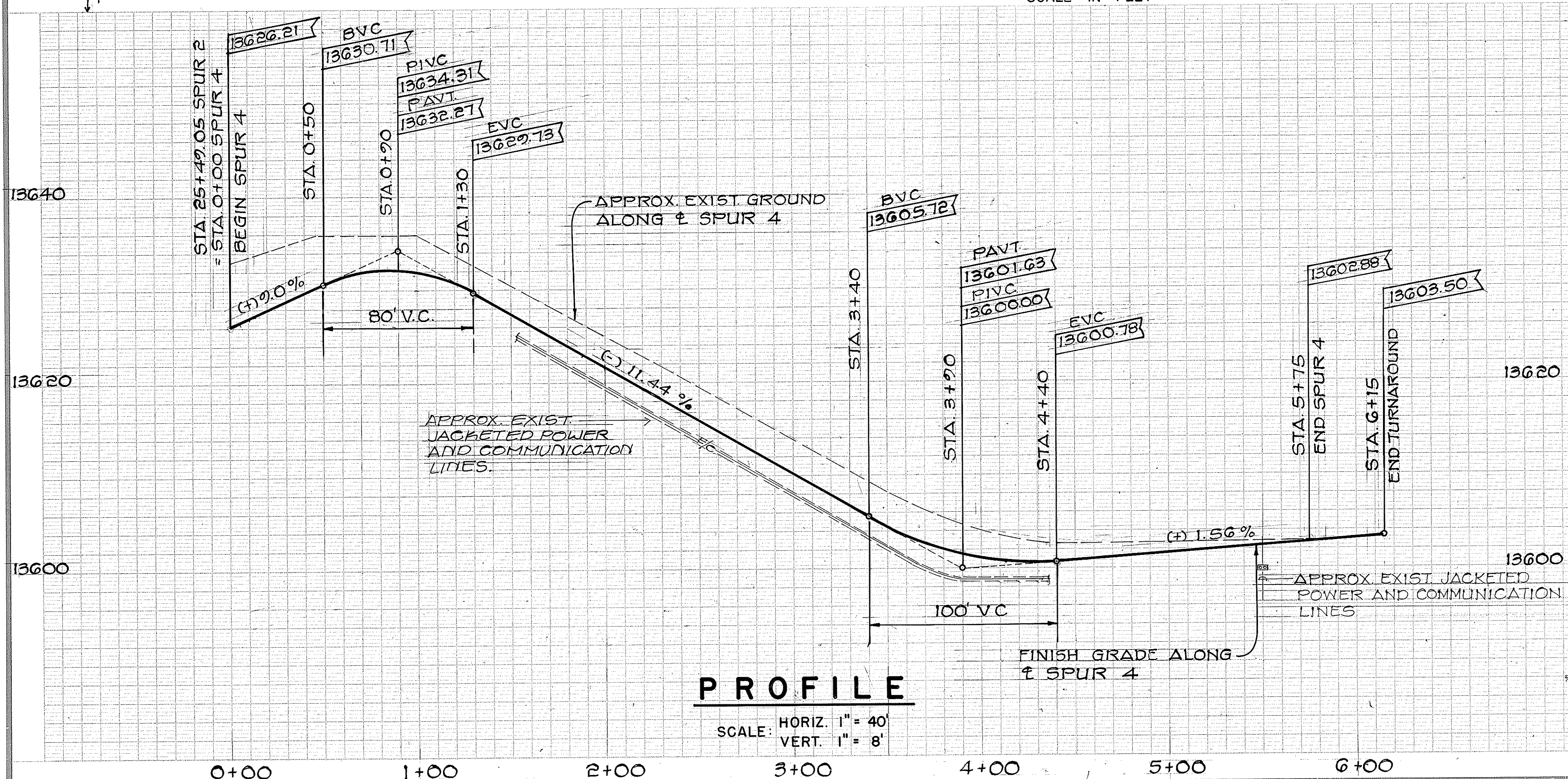
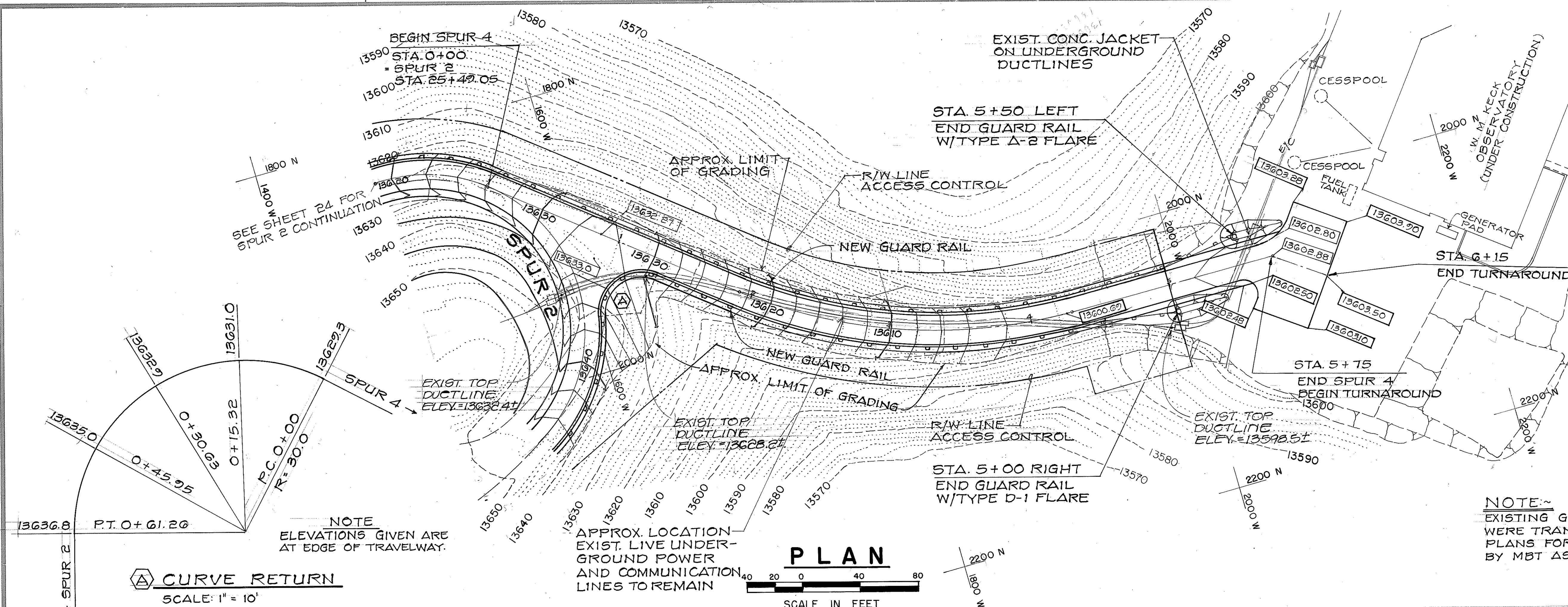
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

FUKUNAGA & ASSOCIATES

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY. - H-01-86	1987	27	115



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY.-H-01-86	1987	28	115



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN, PROFILE AND GRADING

SPUR 4

STA. 0+00 TO STA. 6+15

MAUNA KEA OBSERVATORY ACCESS ROAD

PHASE I

PROJECT NO. HWY.-H-01-86

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

SHEET NO. 16 OF 16 SHEETS

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Royce S. Fukunaga
FUKUNAGA & ASSOCIATES