

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I- H3-1(36)	1988	22	25

GENERAL NOTES:

1. The alignment of the Haiku Access Road shown is approximate. The Engineer will direct the Contractor as to the line and grade of the Road. Hence, the modifications to the ground system shown on the plan give only a general idea of the location of wires.
2. The Contractor shall schedule, and shall arrange with the Commanding Officer at the Omega Station the arrival & departure of workmen, construction material, & equipment; all subject to the Coast Guard's requirements in this matter.
3. The Contractor shall install the additive radial ground system shown on plans prior to cutting of any portion of the existing radial ground system.
4. Phase I is additive radial ground system. Phase 2 is all work required to accommodate the Access Road and future viaduct footing construction.
5. The Contractor may proceed with any Haiku Access Road construction work that does not require cutting of existing ground radials or subjecting them to accidental damage from the use of heavy machinery, clearing and grubbing of roadway area, or other work.
6. All excavating, clearing, grading, erosion control measures and other Access Road construction works which may advertently or inadvertently result in removal or modification to the existing ground system conductors shall be limited to a maximum area of 50,000 square feet.  
All work areas are to be approved by the Engineer who may approve work areas of larger size if the performance of the antenna system will not be significantly reduced thereby.
7. The Contractor shall plan his work on the Access Road in such a manner that all modifications to the ground system shall be completed in a defined work area before work is initiated in another designated work area.
8. All existing radials, buses and ground rods within the area shown as Area 'A' on the plan shall be removed before excavation of the Knoll area.  
The Contractor shall locate the existing 600' Radius circumferential bus and cut the existing radials approximately 18" outward from the bus. Replacement of radials, buses, & ground rods from Azimuth 47°00'± to Azimuth 78°00'± to be done by Others.
9. When performing blasting operations in the proximity of the Coast Guard's OMEGA Transmitter Facility, the Contractor shall exercise extreme caution in the handling and use of explosives and detonation devices. Refueling of gasoline powered engines is prohibited in the proximity of the OMEGA site.

ESTIMATED QUANTITIES FOR OMEGA STATION WORK			
ITEM NO.	ITEMS	UNIT	QUANTITY
685.01	Modifications to OMEGA Radial Ground System	Lump Sum	See Below
—	#4/O 7 Strand wire or #4/O Solid Copper Wire	—	(11,500 L.F.)
—	#4 Solid Copper Wire	—	(4,000 L.F.)
—	#8 Solid Copper Wire	—	(35,000 L.F.)
—	Ridge Cable	—	( 200 L.F.)
—	#1/O Solid Copper Wire Ground Rods	—	(1,000 L.F.) (300 EA.)
206.85	Structure Excavation for Ground Radials & Buses	C.Y.	3,000 C.Y.

LEGEND

APPROVED:

U.S. Coast Guard

Date

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

GROUND SYSTEM MODIFICATION PLAN

HAIKU OMEGA TRANSMITTER FACILITY

INTERSTATE ROUTE H-3

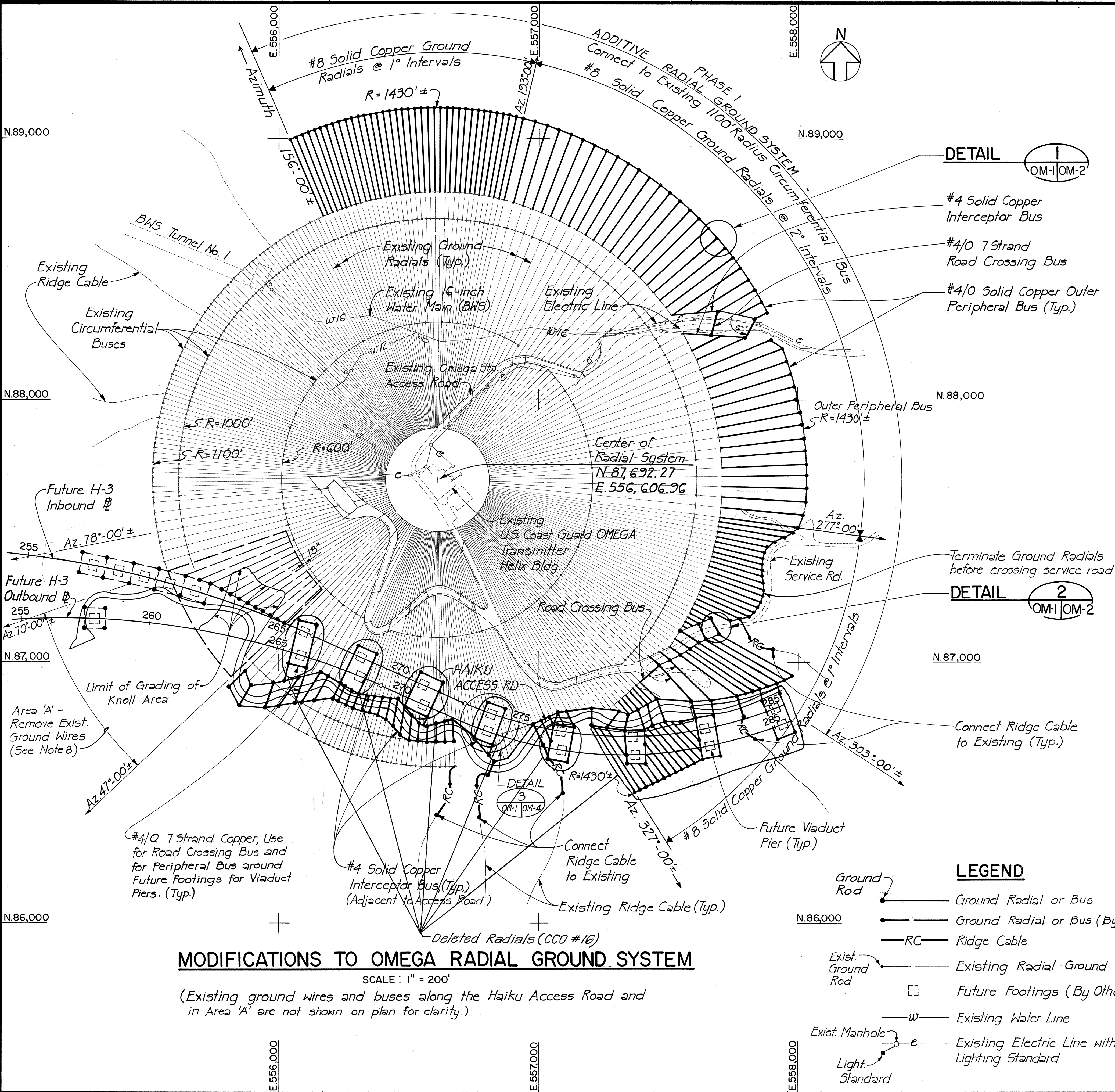
HAIKU ACCESS ROAD

F.A.I. PROJECT NO. I-H3-1(36)

SCALE: AS SHOWN

DATE: MAY 1988

SHEET No.OM-1OF 4 SHEETS



MODIFICATIONS TO OMEGA RADIAL GROUND SYSTEM

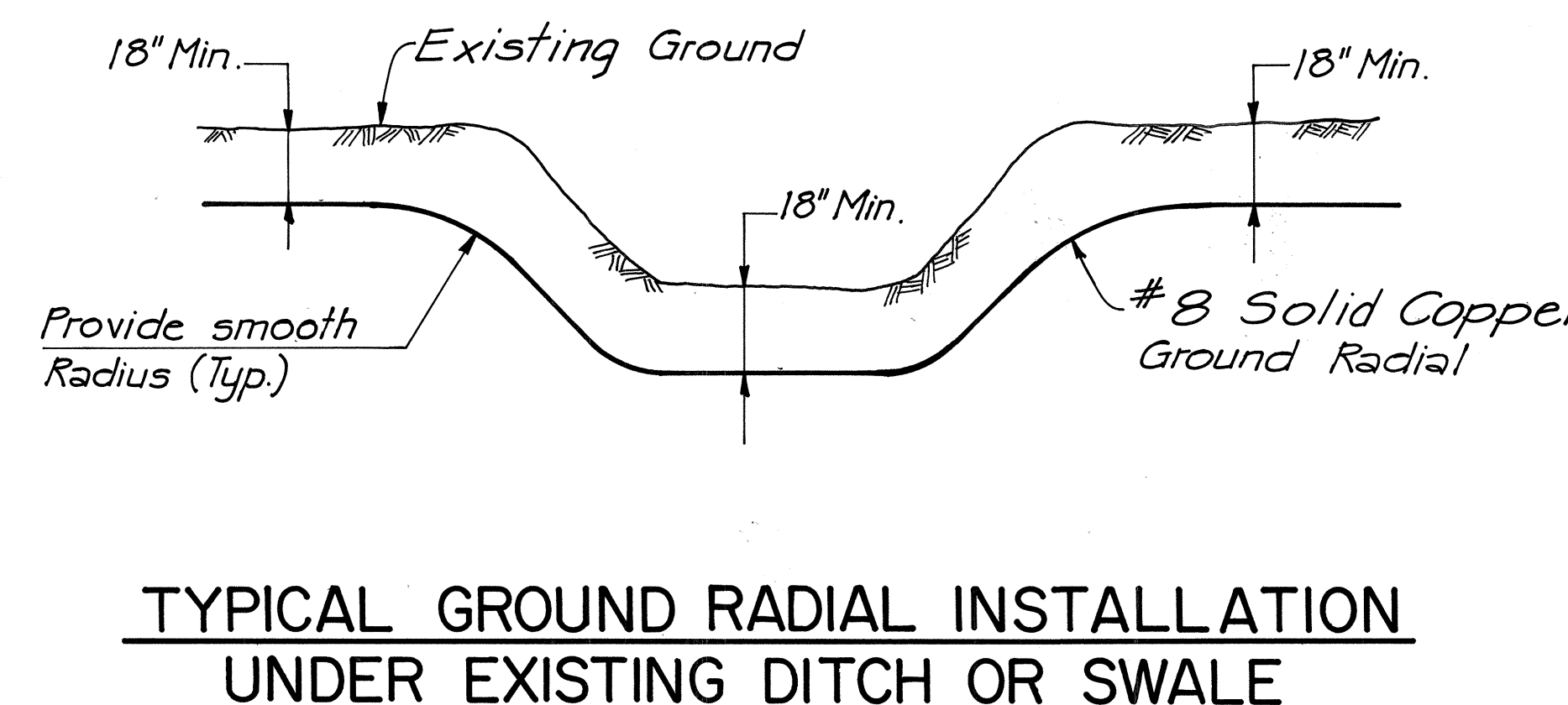
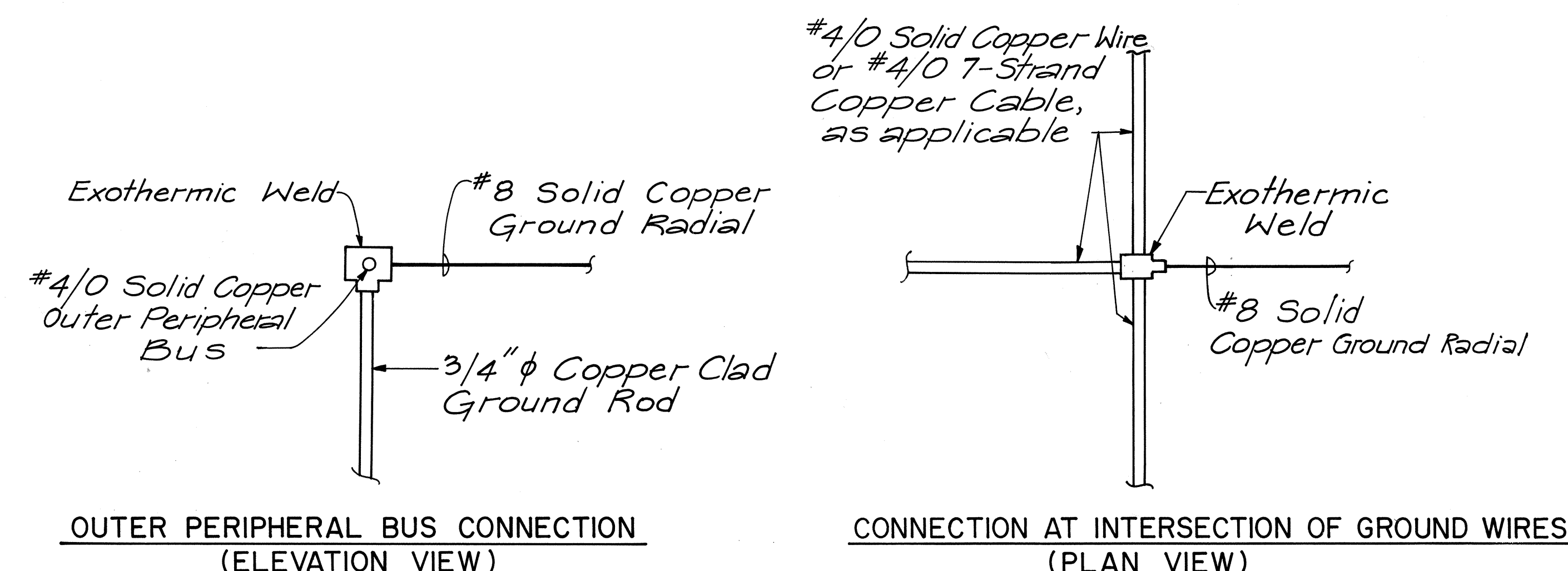
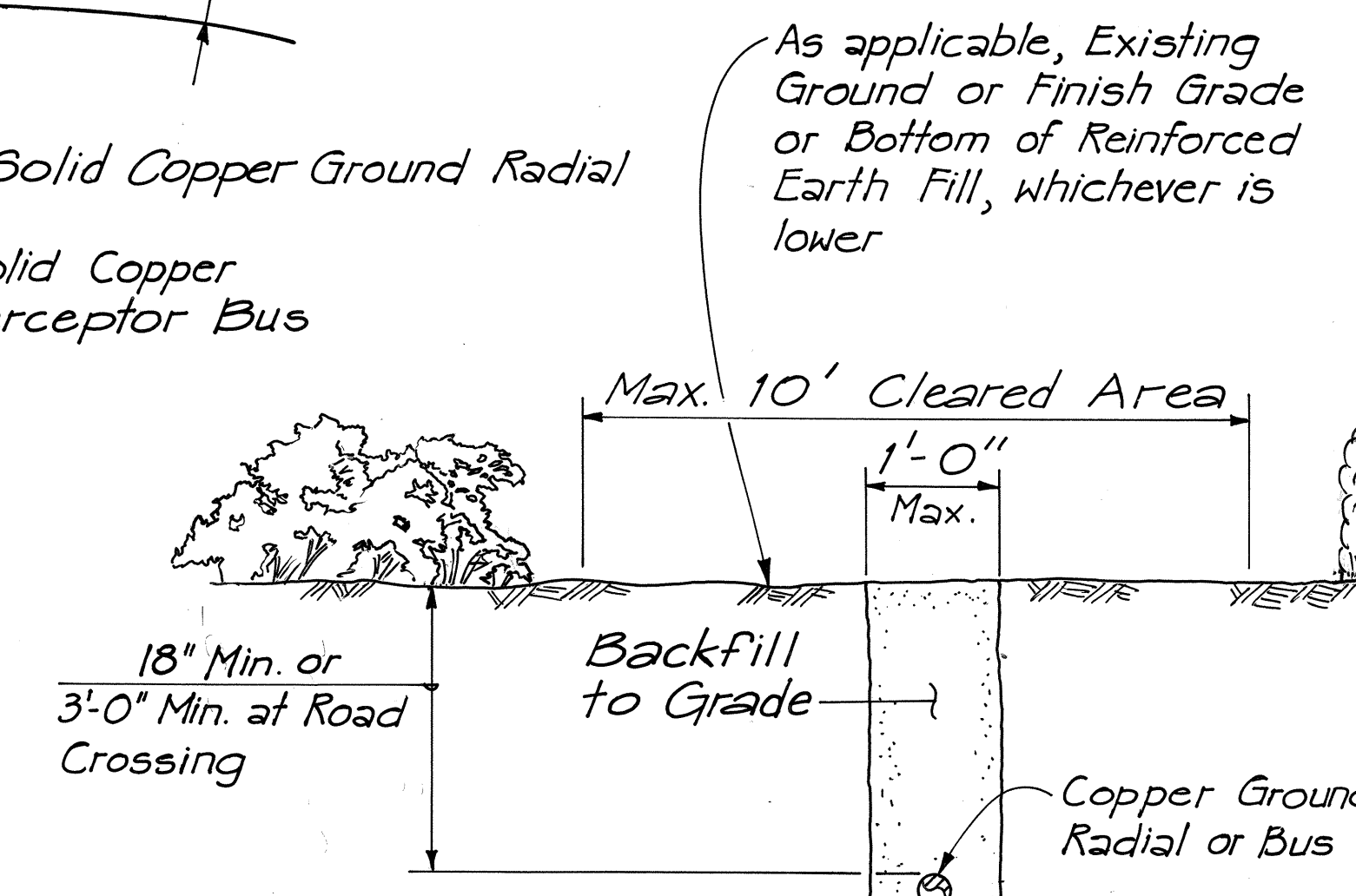
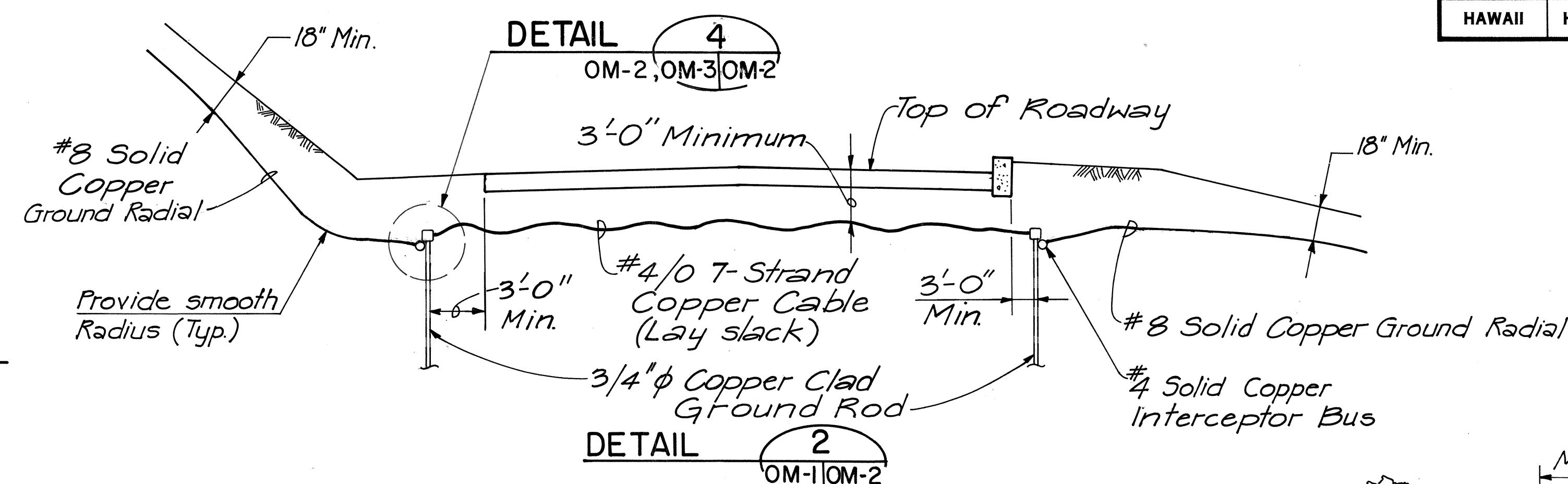
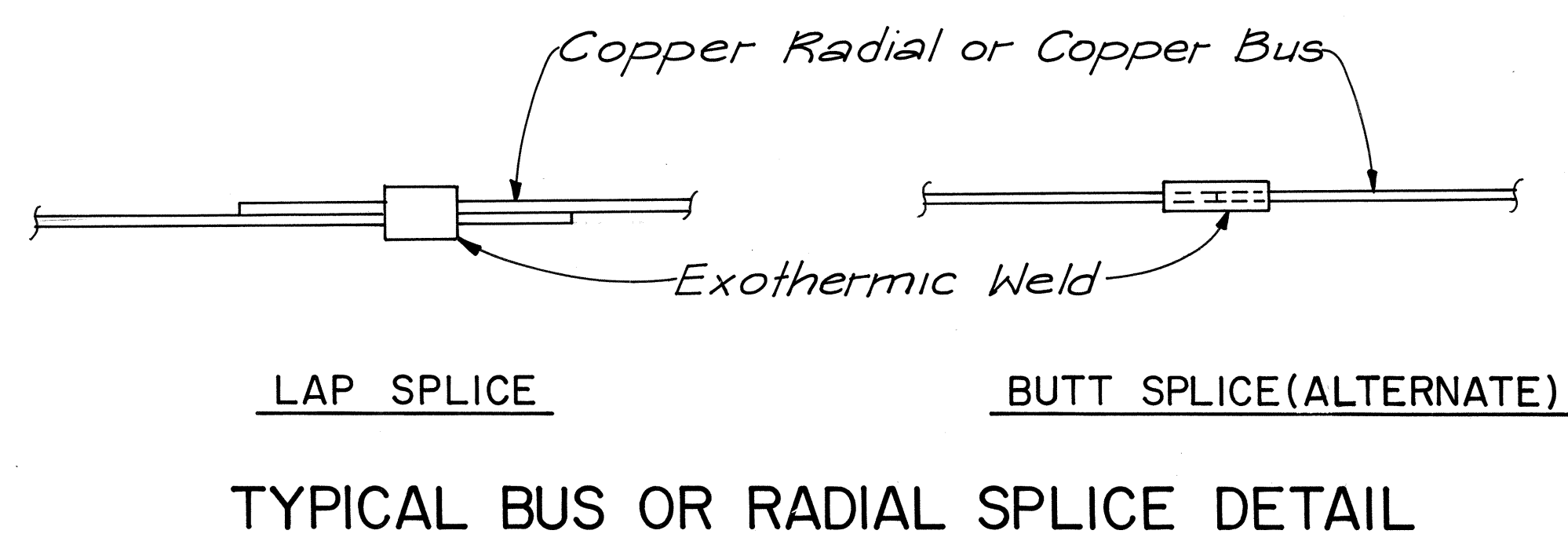
SCALE: 1" = 200'

(Existing ground wires and buses along the Haiku Access Road and in Area 'A' are not shown on plan for clarity.)

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

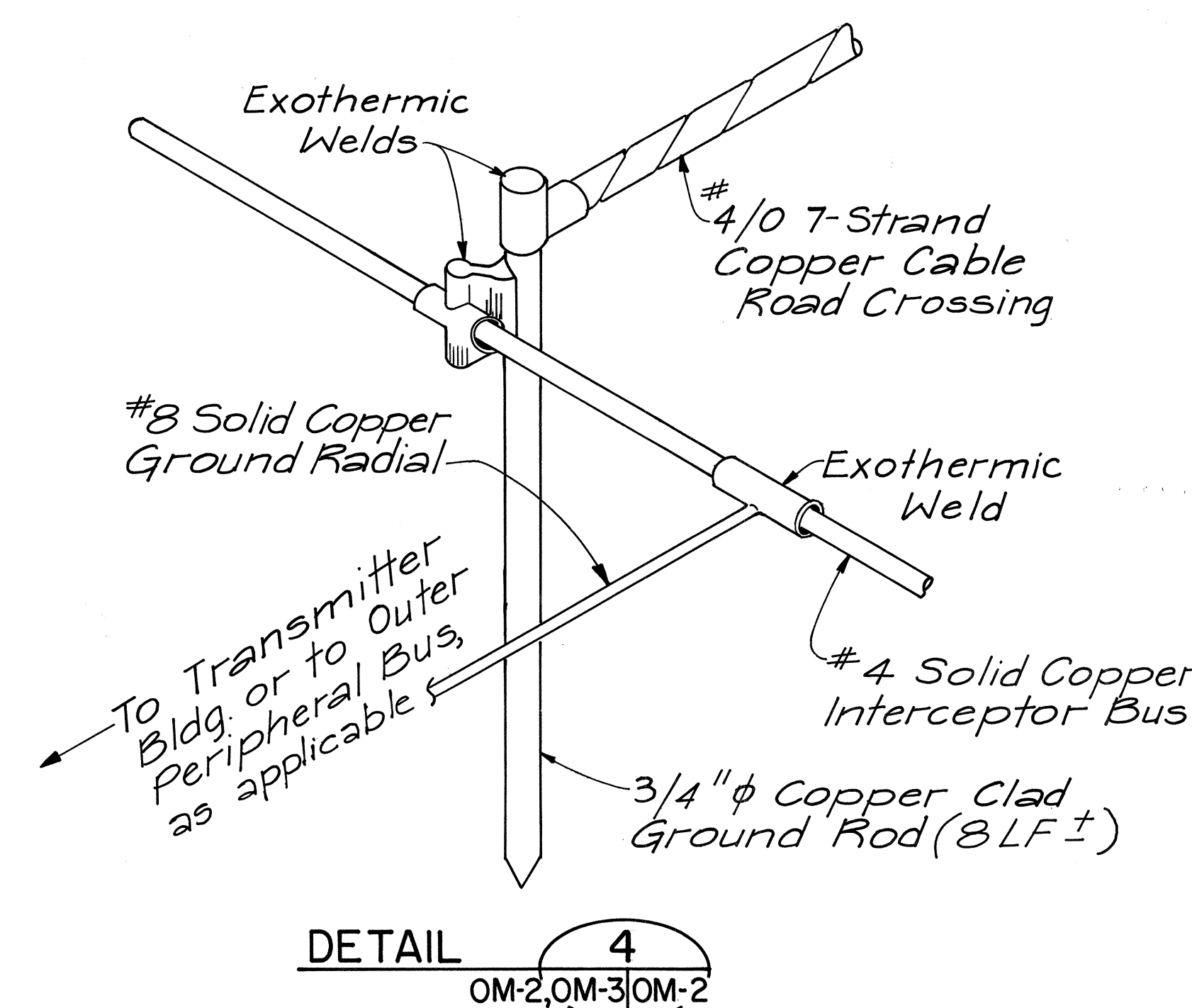
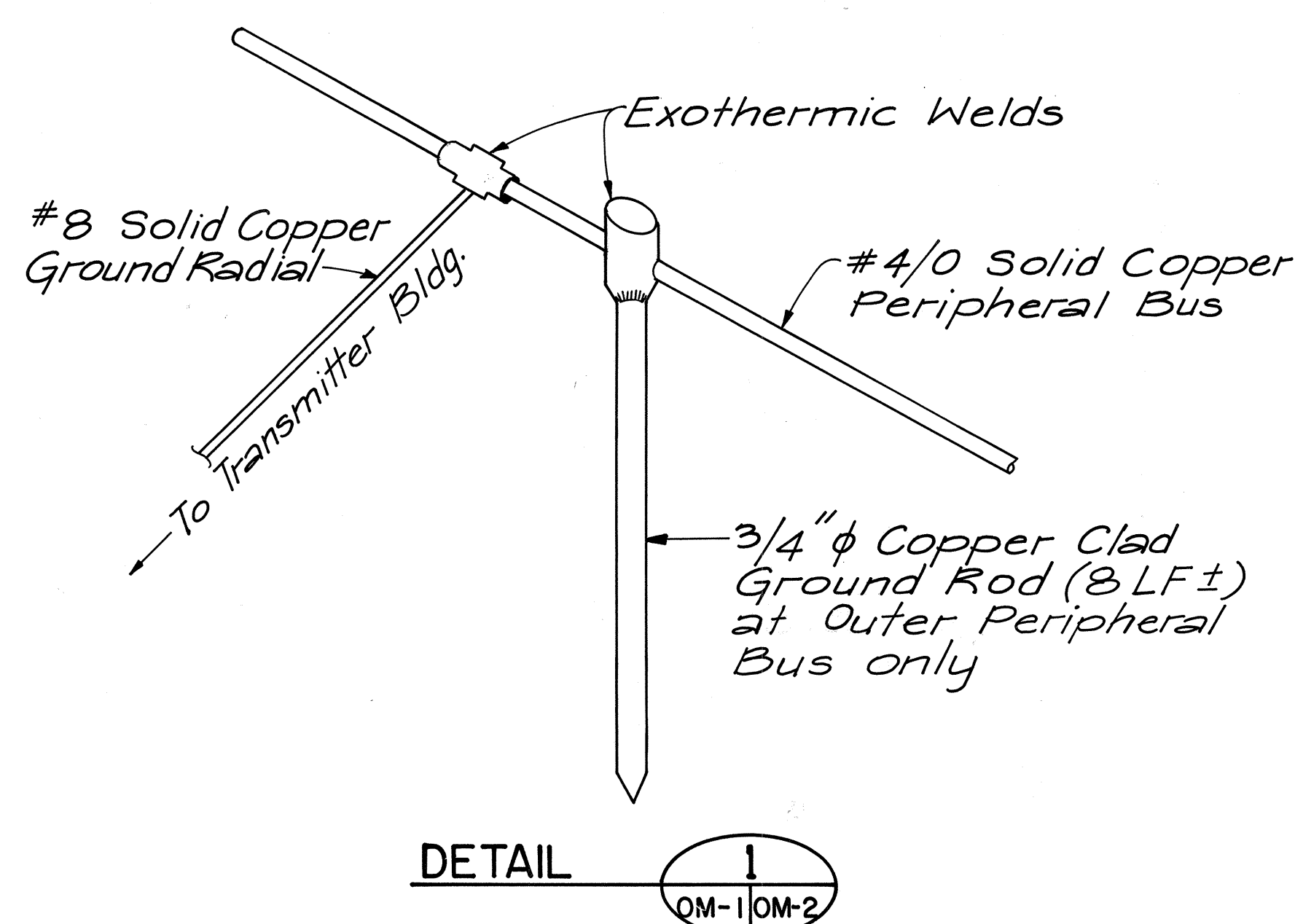


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(36)	1988	23	25



#### GROUND SYSTEM INSTALLATION NOTES FOR SHEETS OM-2 & OM-3

1. All ground system wire, cables and ground rods shall be connected by exothermic welding.
2. The Contractor shall have the option of furnishing and installing #4/0 7-strand copper cable in lieu of #4/0 solid copper wire.
3. Change in direction of copper cables or wires shall be accomplished by using a smooth radius bend.
4. Ground system shall be placed with a minimum of 18 inches cover unless otherwise directed by the Engineer or shown on plans. The Engineer may direct the Contractor to install ridge cables on top of the ground in lieu of ground radials.



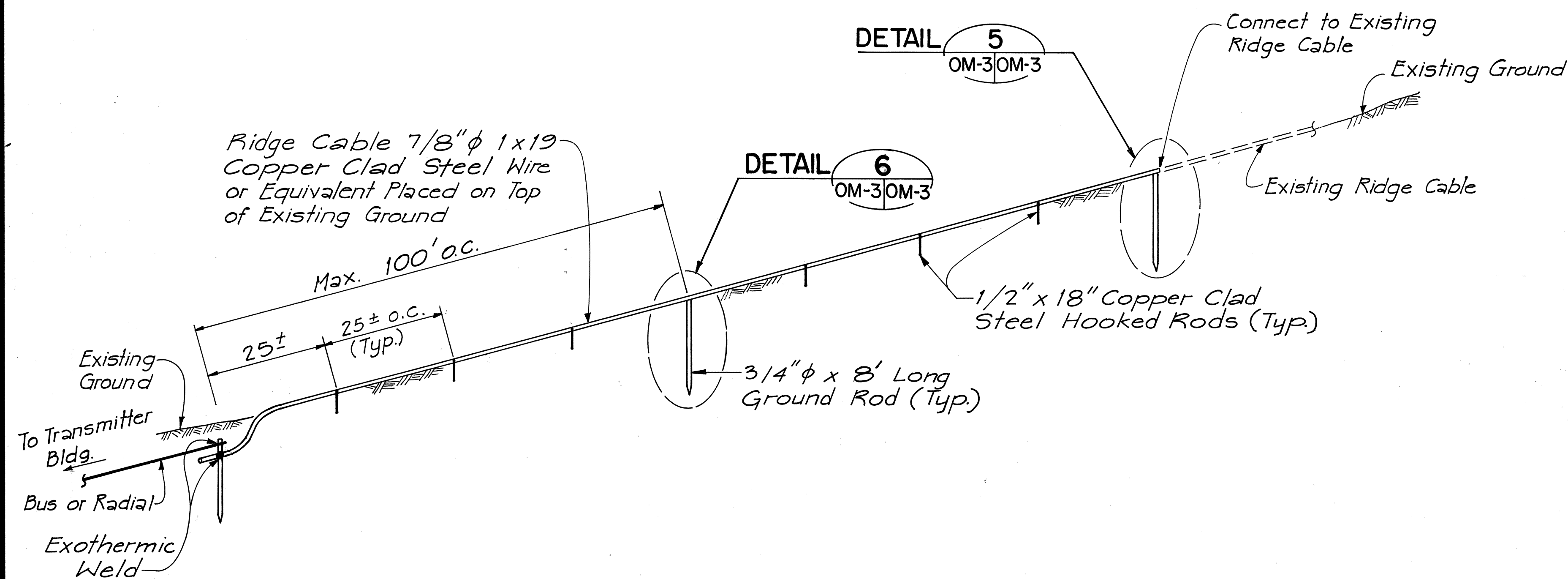
APPROVED:

U.S. Coast Guard

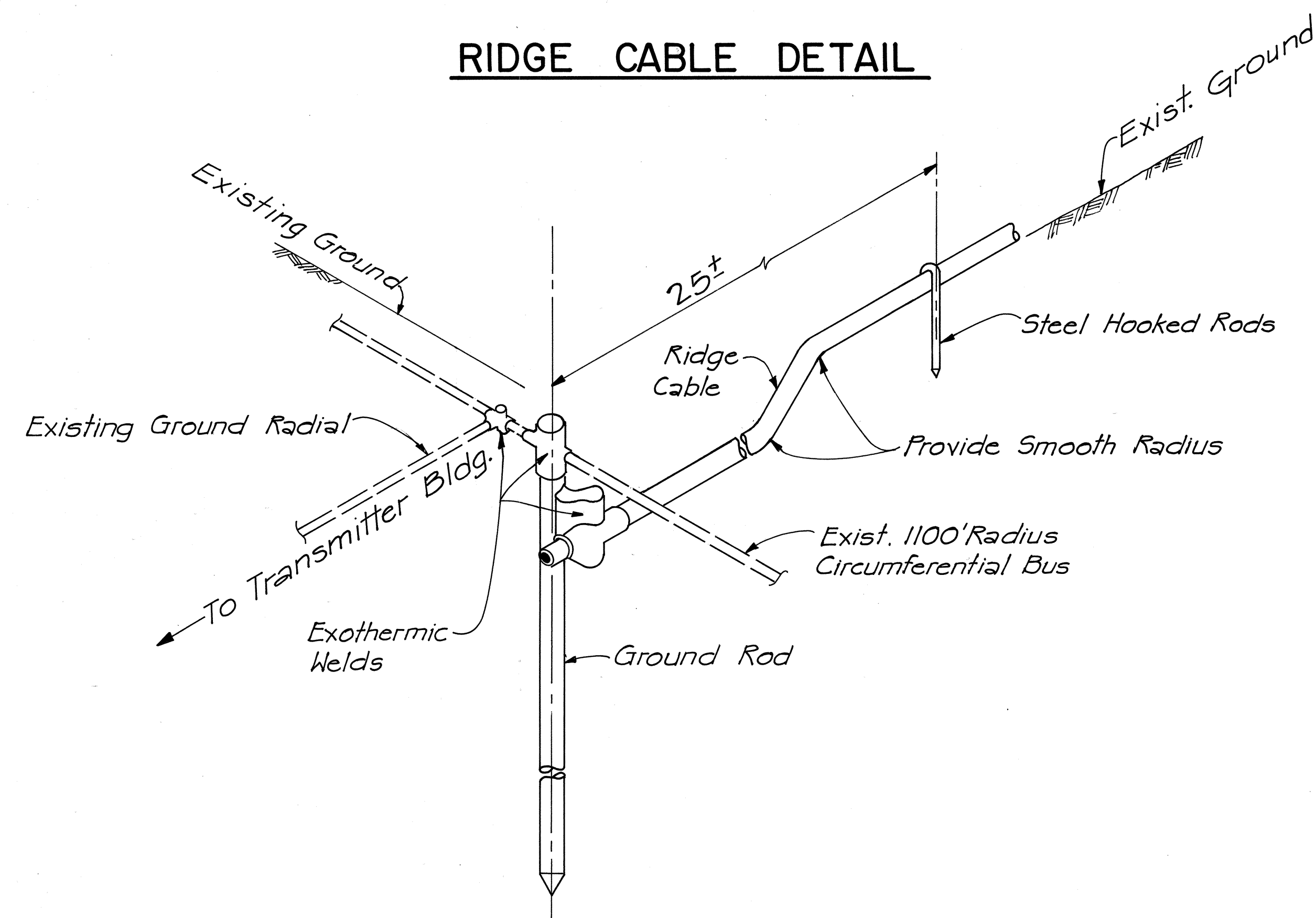
Date

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<b>GROUND SYSTEM MODIFICATION DETAILS</b>	
HAIKU OMEGA TRANSMITTER FACILITY	
INTERSTATE ROUTE H-3 HAIKU ACCESS ROAD	
F.A.I. PROJECT NO. I-H3-1(36)	
SCALE: NOT TO SCALE	DATE: MAY 1988
SHEET No. OM-2 OF 4 SHEETS	

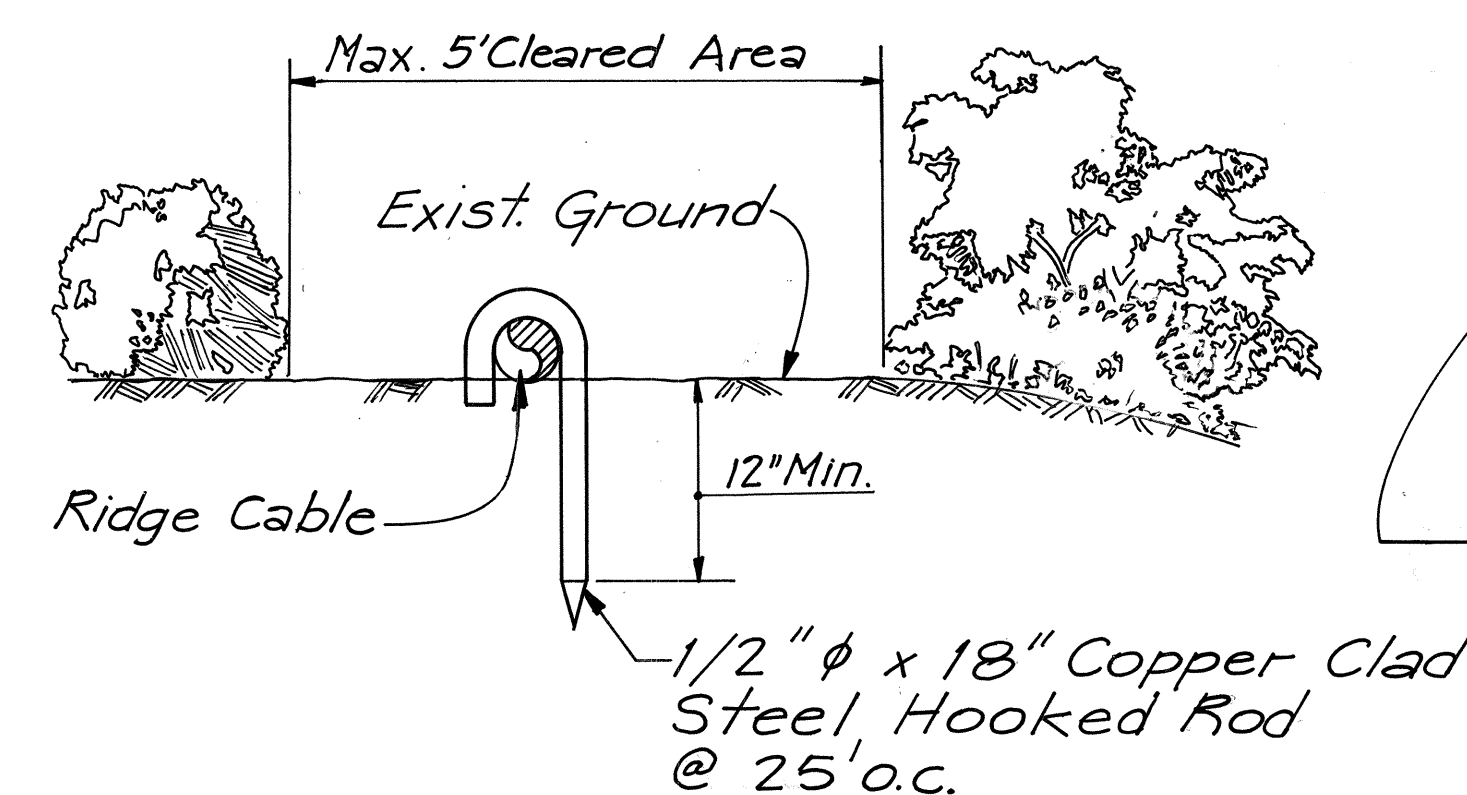
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(36)	1988	24	25



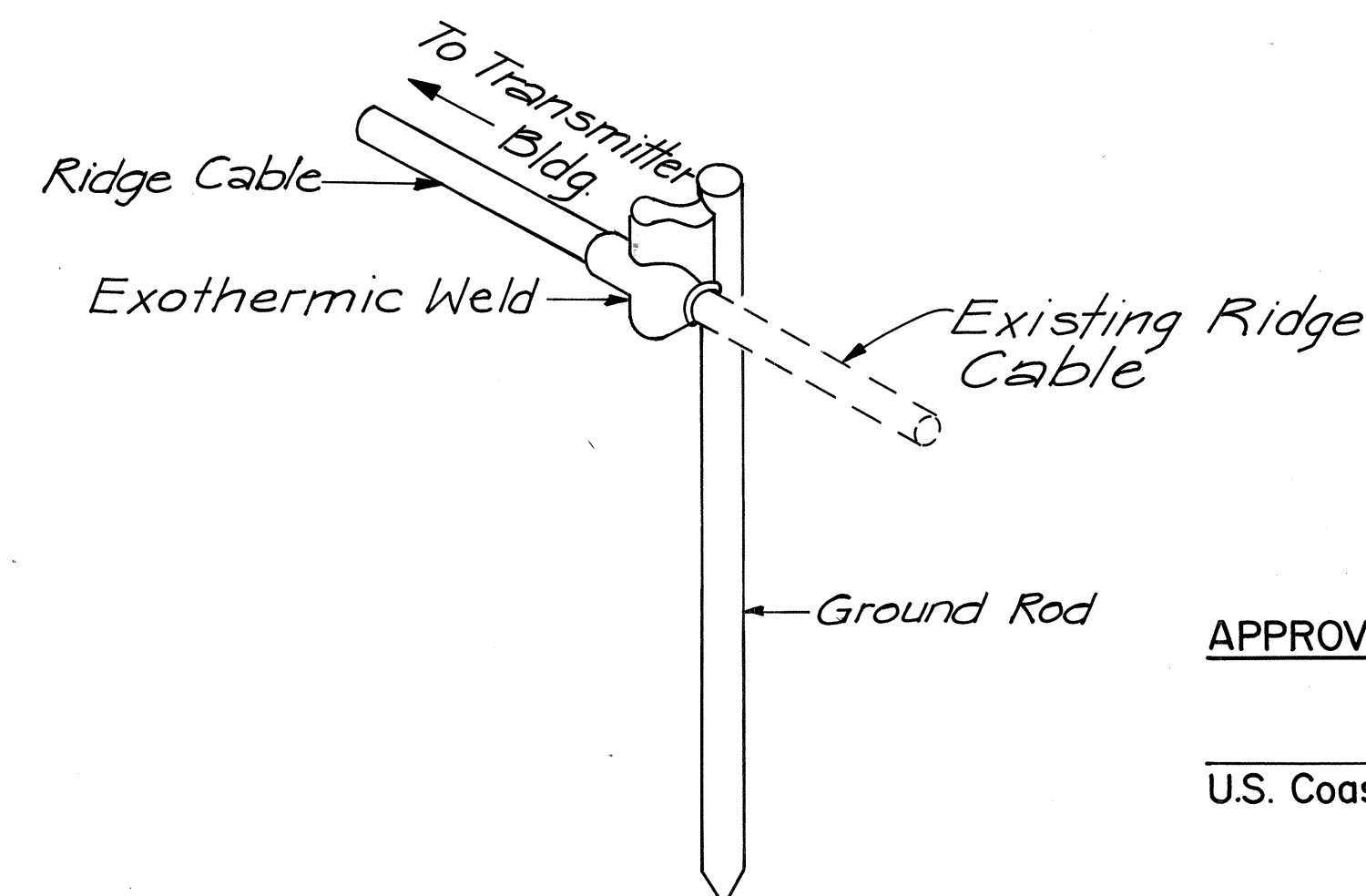
**RIDGE CABLE DETAIL**



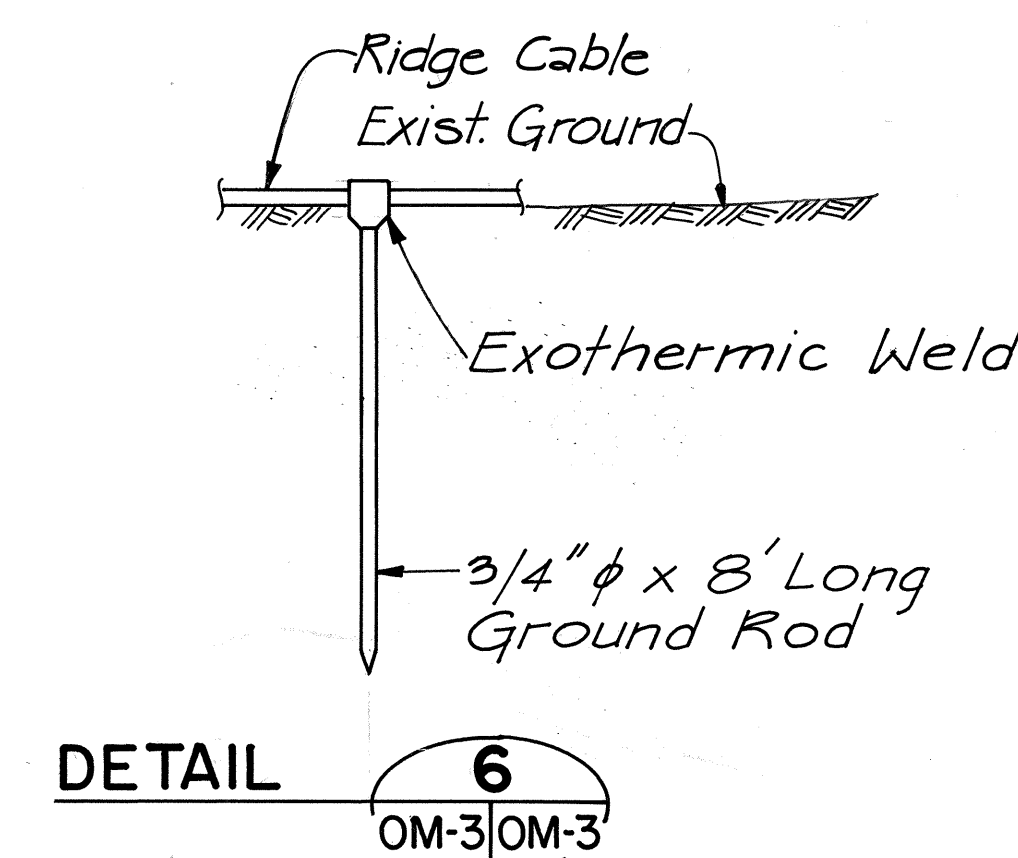
**RIDGE CABLE & CIRCUMFERENTIAL BUS CONNECTION**



**STEEL HOOKED RODS**

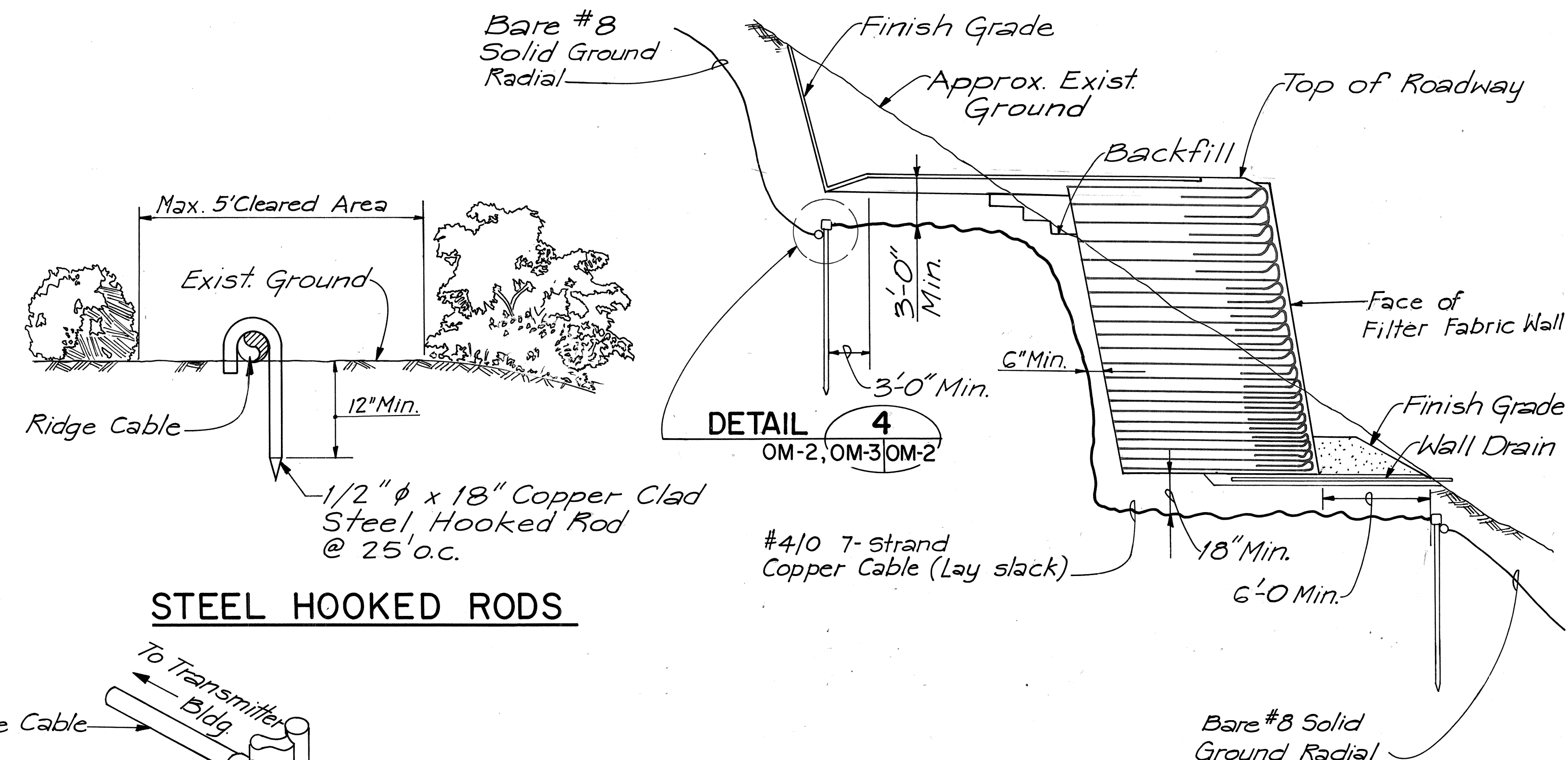


**DETAIL 5 OM-3|OM-3**



**DETAIL 6 OM-3|OM-3**

**NOTE:**  
See Sheet OM-2 for Ground System Installation Notes.



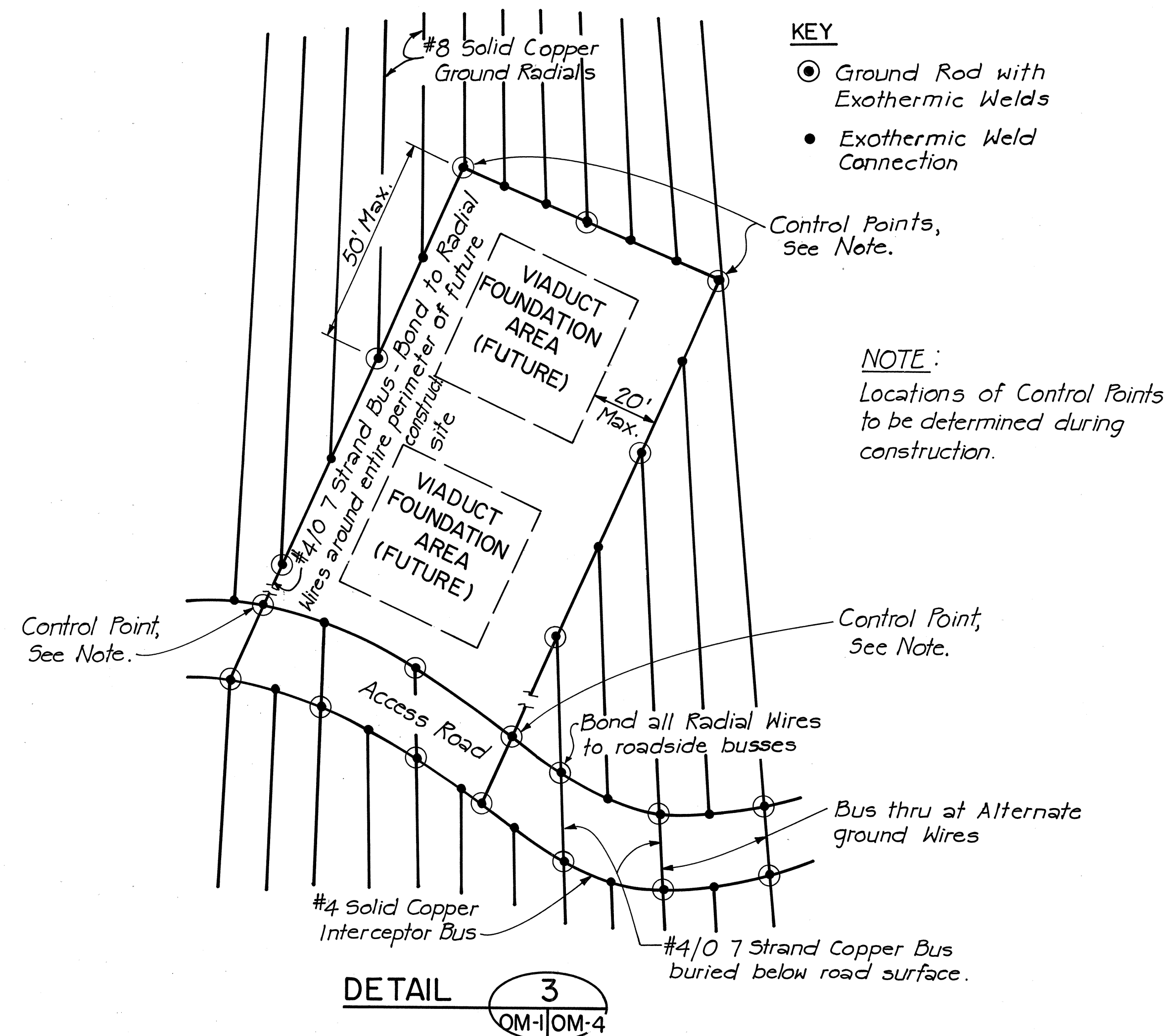
**TYPICAL GROUND CABLE INSTALLATION UNDER RETAINING WALLS**

APPROVED:

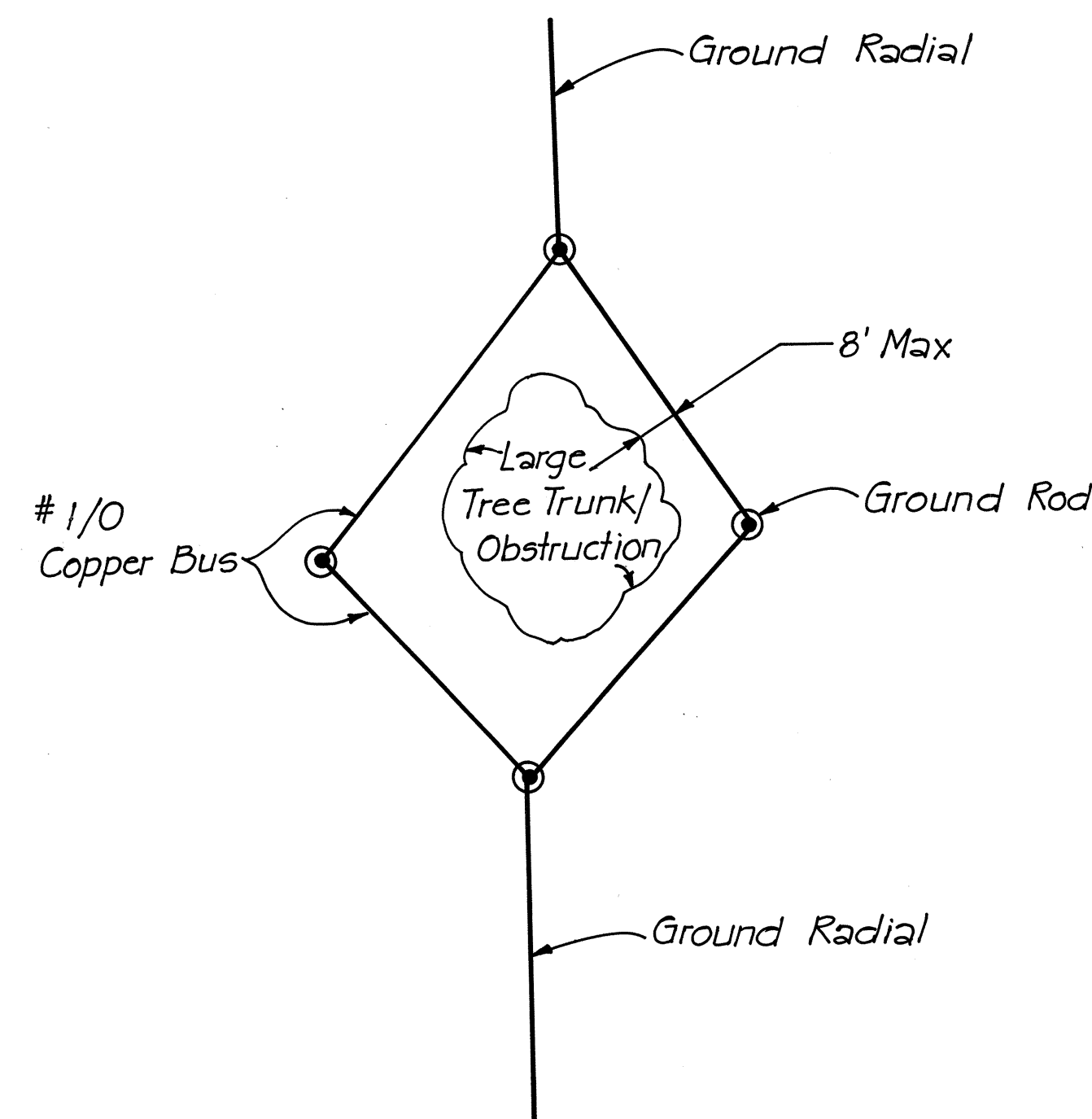
U.S. Coast Guard Date

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**GROUND SYSTEM  
MODIFICATION DETAILS**  
HAIKU OMEGA TRANSMITTER FACILITY  
INTERSTATE ROUTE H-3  
HAIKU ACCESS ROAD  
F.A.I. PROJECT NO. I-H3-1(36)  
SCALE: NOT TO SCALE DATE: MAY 1988  
SHEET No. OM-3 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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**TYPICAL GROUND SYSTEM CONFIGURATION  
AROUND PIER FOUNDATION**



**TYPICAL GROUND SYSTEM CONFIGURATION  
AROUND LARGE TREE/OBSTRUCTION**

APPROVED:

U.S. Coast Guard

Date

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**GROUND SYSTEM  
MODIFICATION DETAILS**

HAIKU OMEGA TRANSMITTER FACILITY

INTERSTATE ROUTE H-3  
HAIKU ACCESS ROAD  
FAI PROJECT NO I-H3-1(36)

SCALE: NOT TO SCALE DATE: MAY 1988

SHEET No.OM-4OF 4 SHEETS