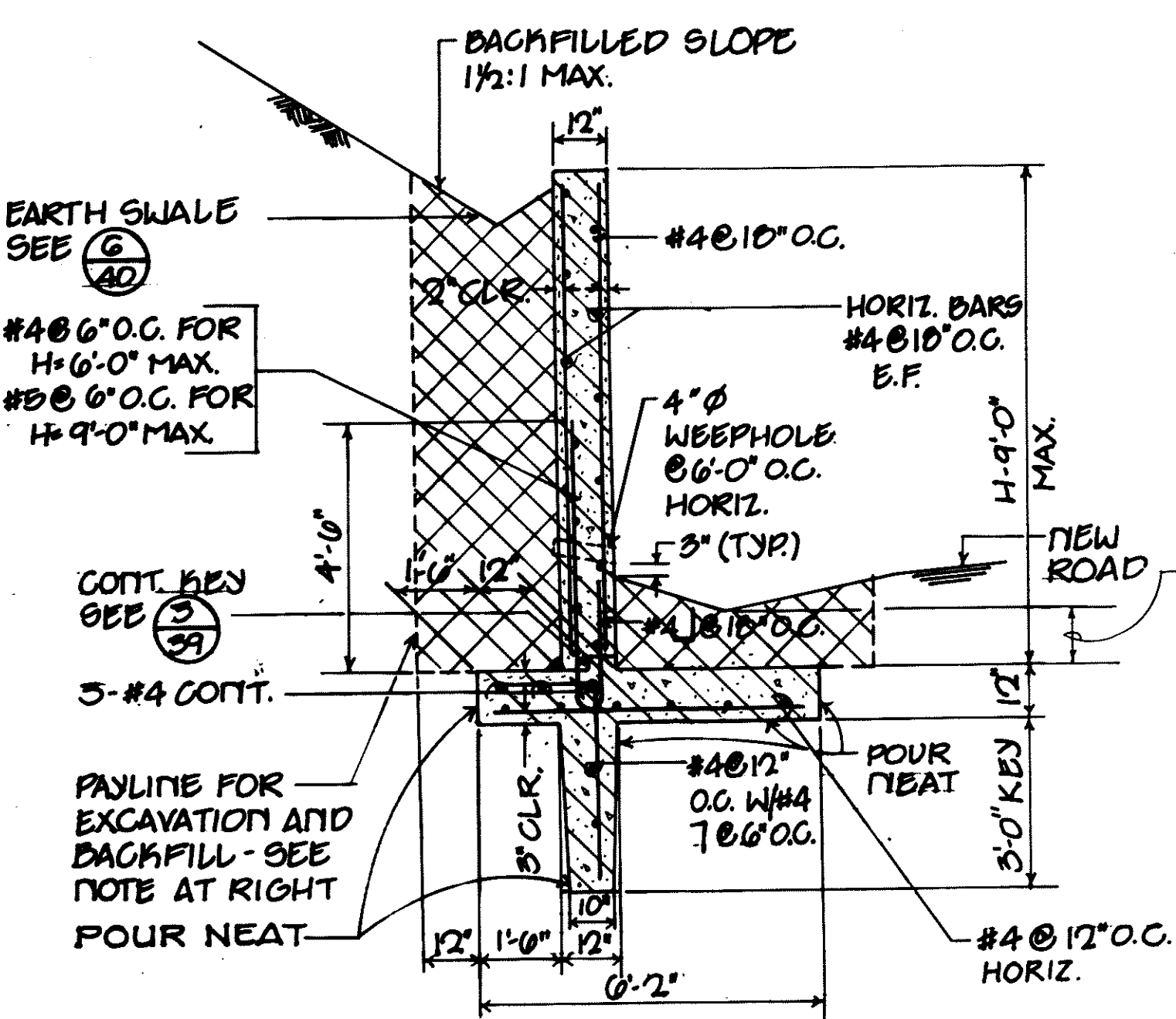
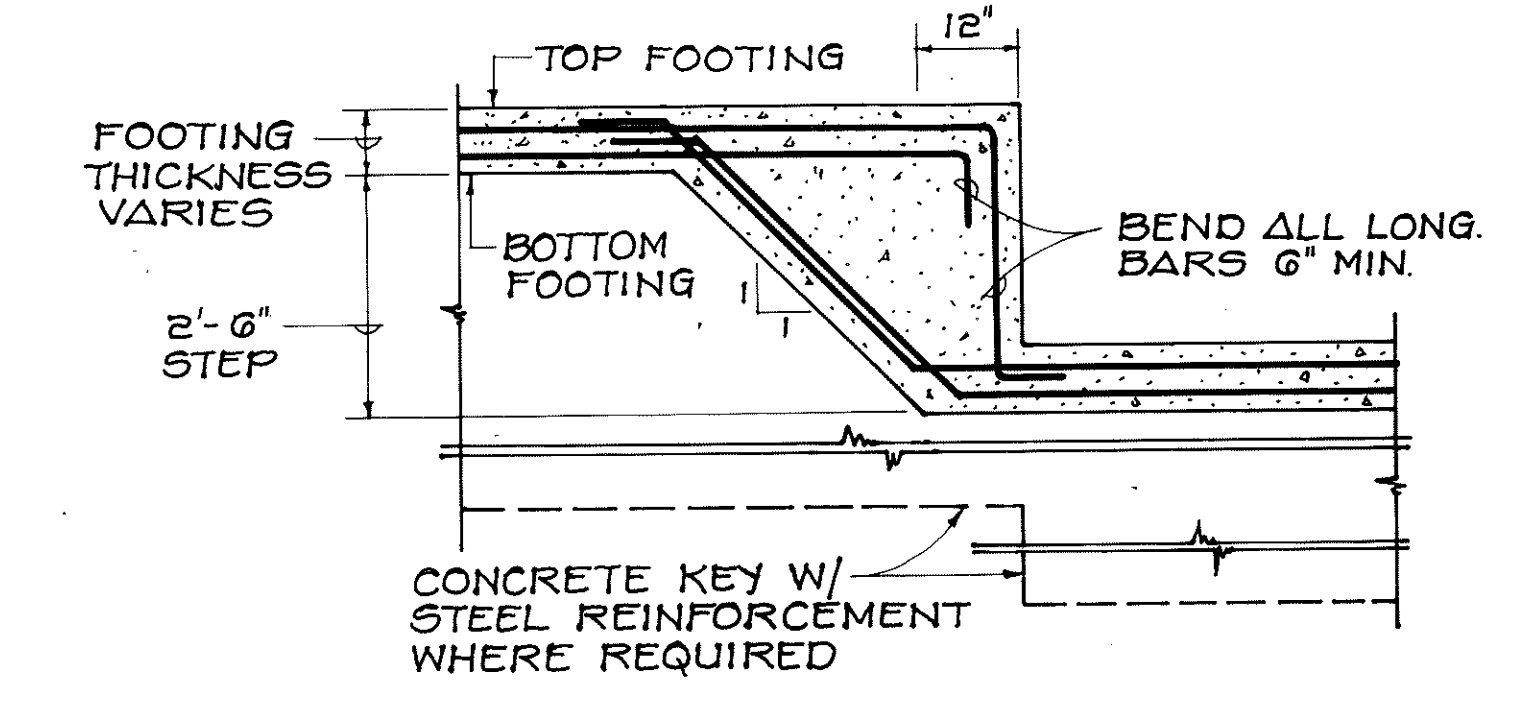


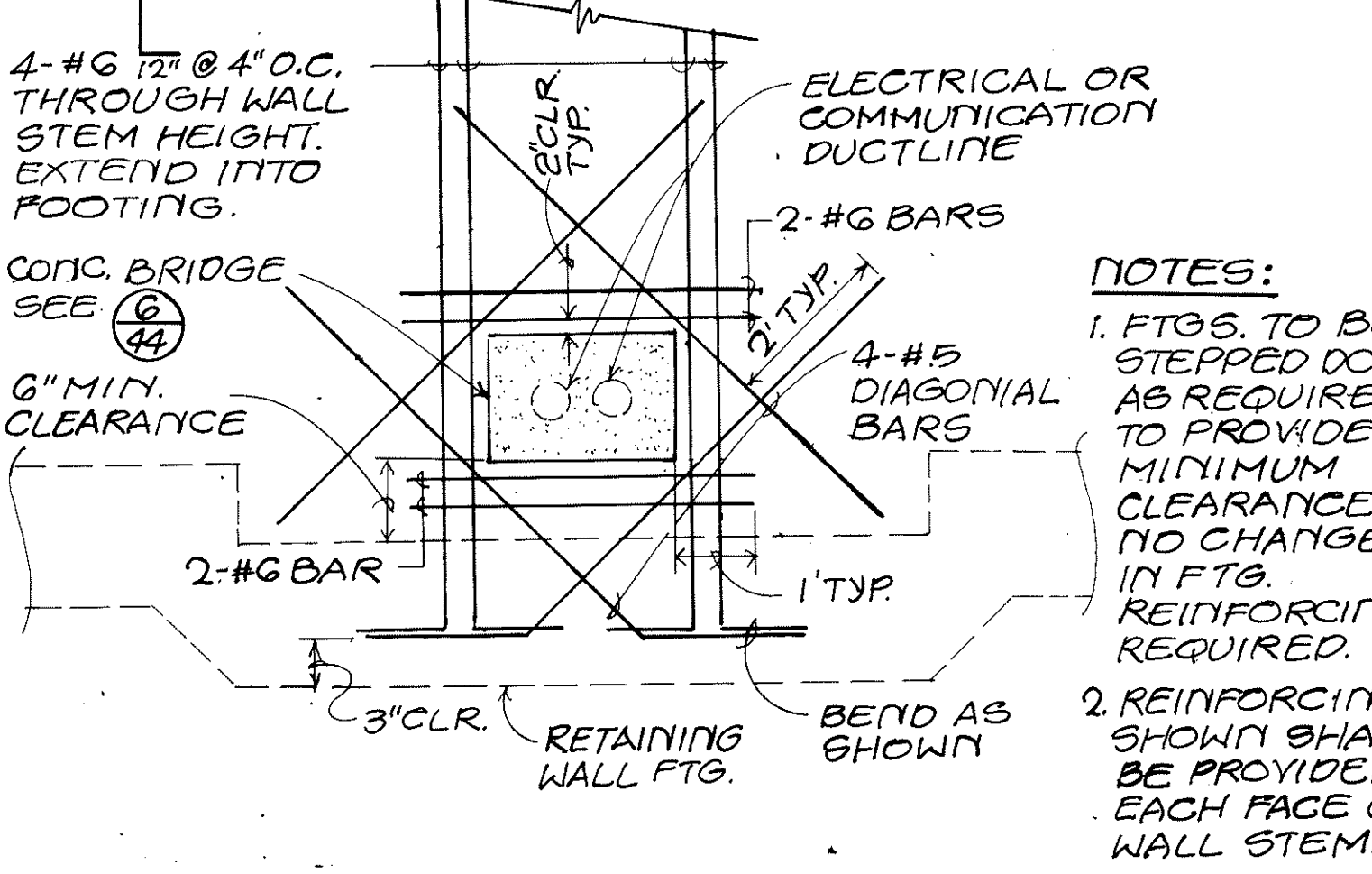
| FED. ROAD DIST. NO. | STATE | PROJ. NO.    | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HWY.-H-01-86 | 1987        | 40        | 115          |



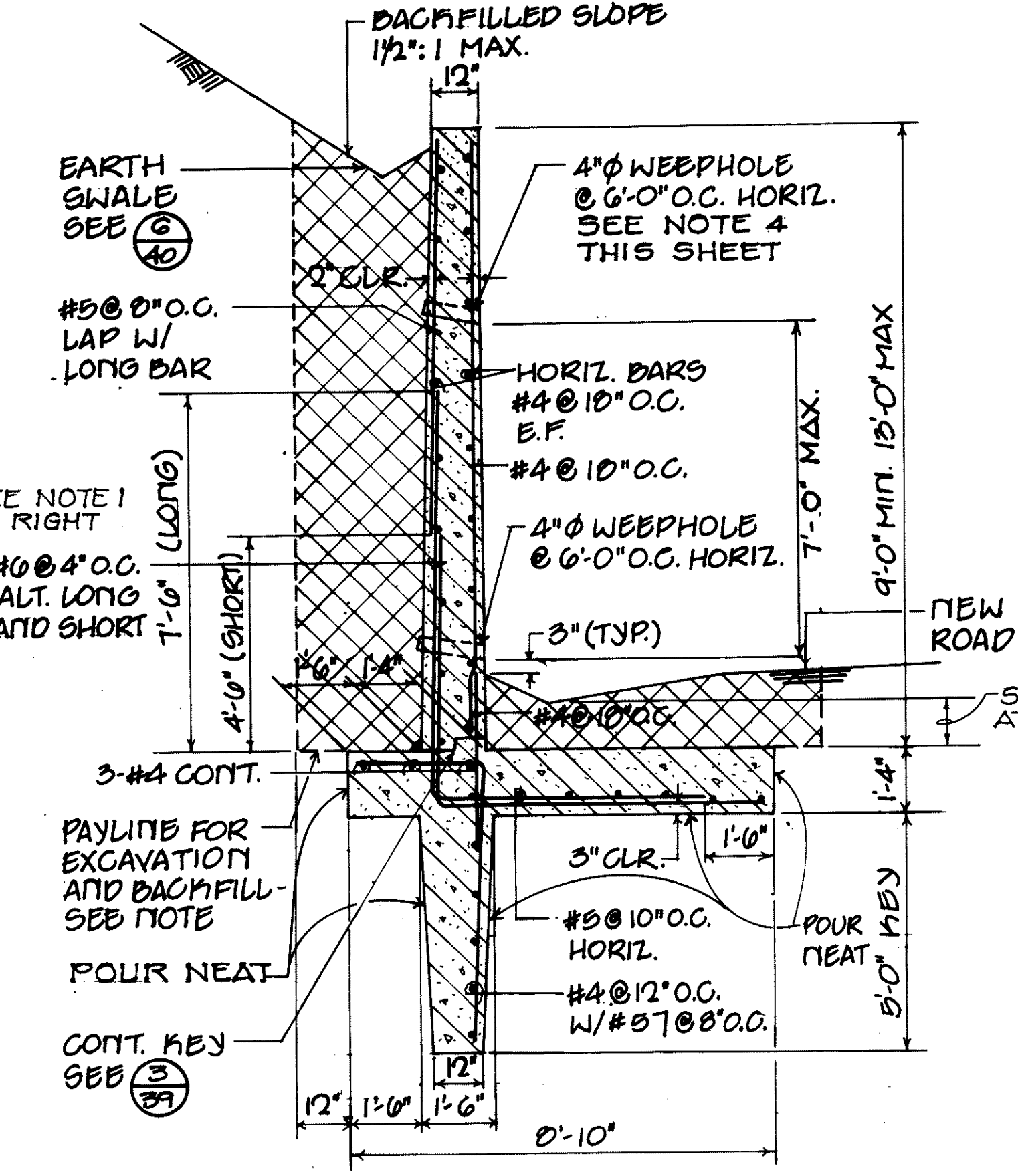
**1 40 0-9' REINFORCED CONCRETE RETAINING WALL - UPSLOPE**  
SCALE: 3/8" = 1'-0"



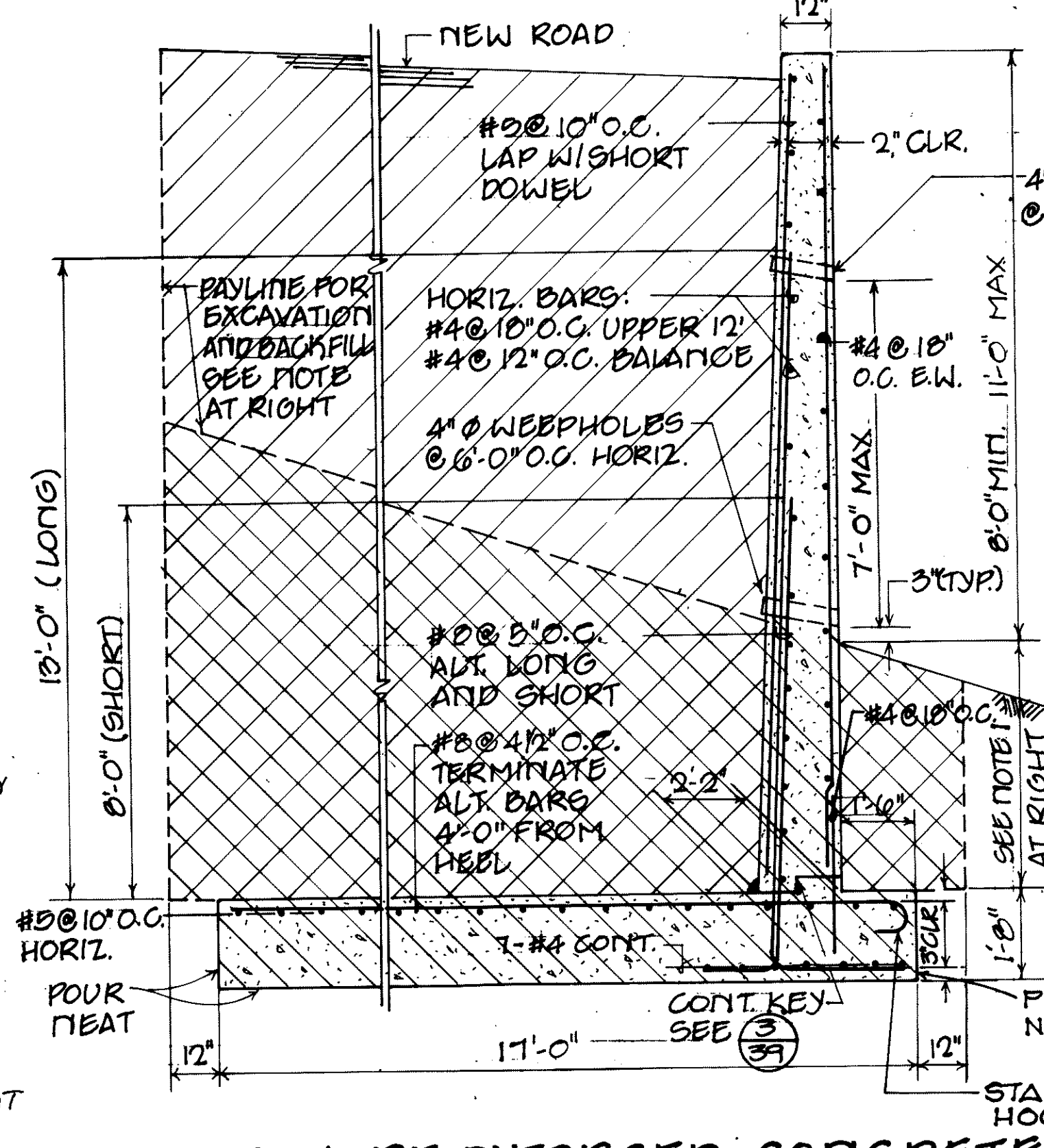
**7 40 STEP FOOTING DETAIL**  
SCALE: 1/2" = 1'-0"



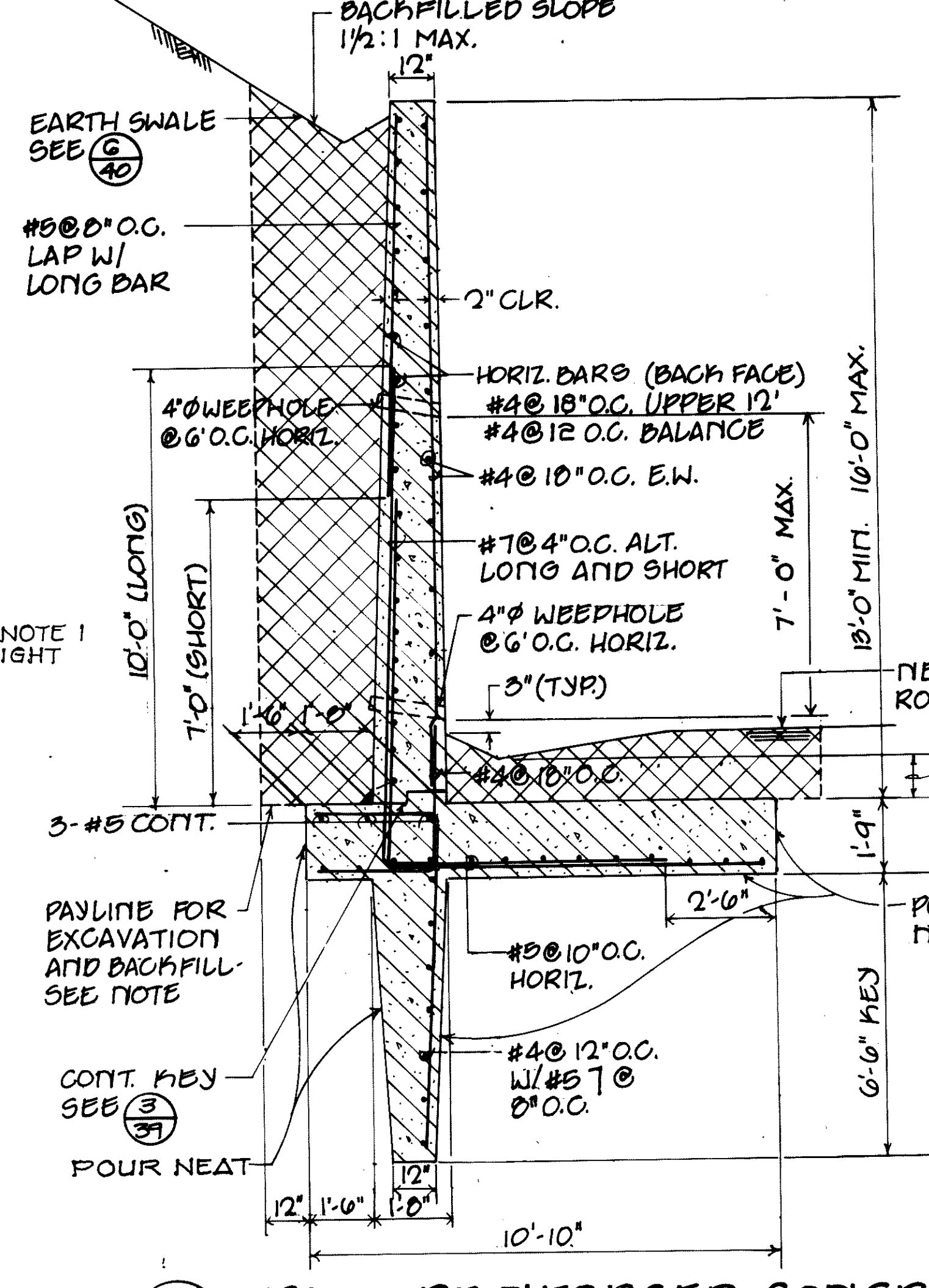
**6 40 ADDITIONAL REINFORCING AT DUCTLINE CROSSINGS**  
NOT TO SCALE



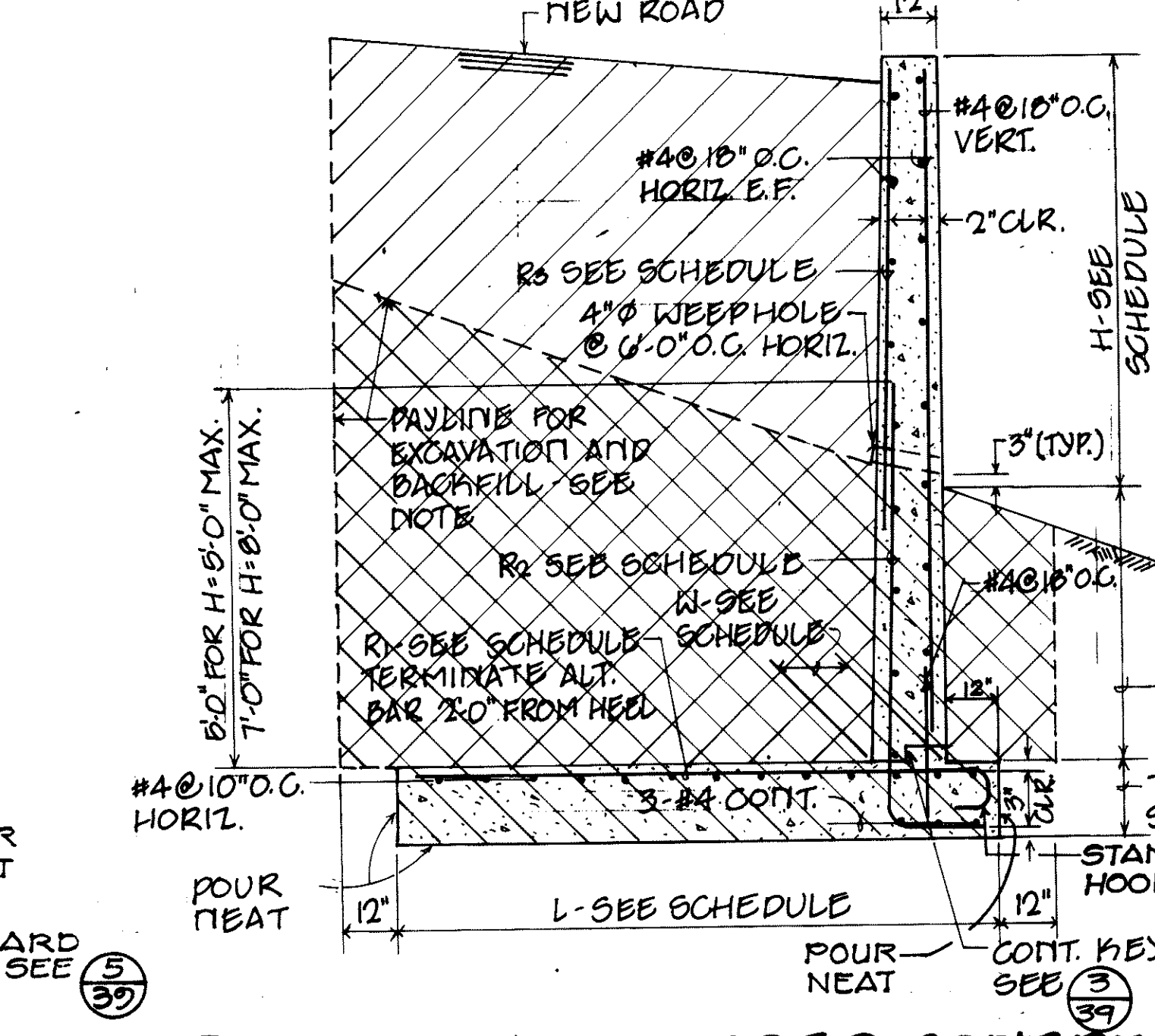
**2 40 9'-13' REINFORCED CONCRETE RETAINING WALL - UPSLOPE**  
SCALE: 3/8" = 1'-0"



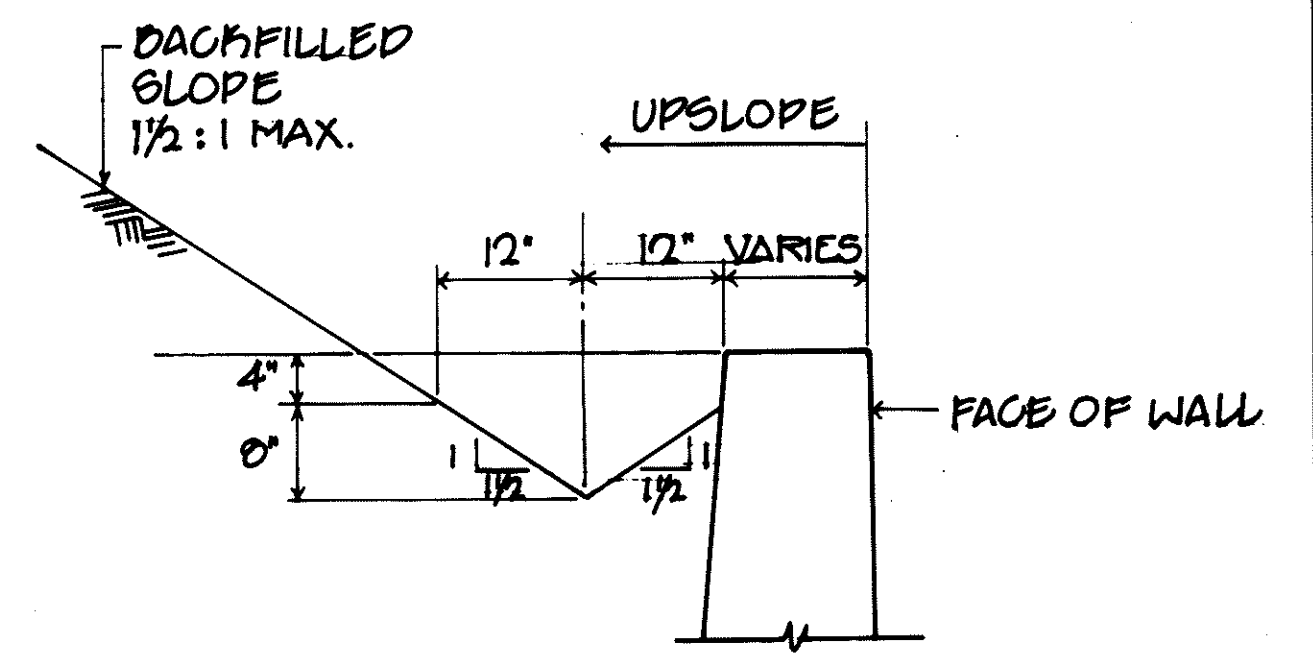
**4 40 8'-11' REINFORCED CONCRETE RETAINING WALL - DOWNSLOPE**  
SCALE: 3/8" = 1'-0"



**3 40 13'-16' REINFORCED CONCRETE RETAINING WALL - UPSLOPE**  
SCALE: 3/8" = 1'-0"



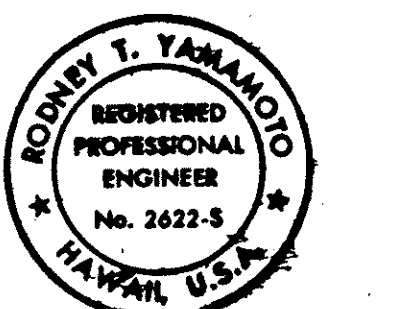
**5 40 0'-8' REINFORCED CONCRETE RETAINING WALL - DOWNSLOPE**  
SCALE: 3/8" = 1'-0"



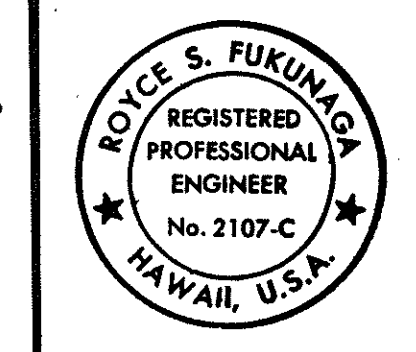
**6 40 EARTH SWALE ALONG UPSLOPE WALLS**  
SCALE: 3/4" = 1'-0"

- NOTES:**
1. TOP FOOTING ELEVATIONS FOR WALLS ARE SHOWN ON PLAN, PROFILE AND GRADING SHEETS (SHEET NOS. 13-28).
  2. HATCH AREA SHOWN DENOTES LIMITS OF STRUCTURE EXCAVATION. HATCH AREA SHOWN DENOTES LIMITS OF STRUCTURE BACKFILL.
  3. ALL WALLS SHALL HAVE IMPERVIOUS MATERIAL AND FILTER MATERIAL IN BACKFILL BEHIND WALL SEE (39).
  4. WEEPHOLES SHALL BE MADE FLUSH WITH EXPOSED FACE OF WALLS.
  5. REBARS SHALL BE GRADE 40. FOR TYPICAL REBAR BENDING DETAIL, SEE (39).
  6. JOINTS FOR REINFORCED CONCRETE WALL SHALL BE REQUIRED AS FOLLOWS:  
CONTRACTION JOINTS @ 30' O.C. MAX;  
EXPANSION JOINTS @ 90' O.C. MAX;  
CONSTRUCTION JOINTS AS REQUIRED.  
FOR JOINT DETAILS, SEE (39).

| SCHEDULE |        |       |     |               |               |
|----------|--------|-------|-----|---------------|---------------|
| H(MAX)   | L      | T     | W   | R1            | R2            |
| 5'-0"    | 5'-4"  | 1'-2" | 14" | #10 @ 8' O.C. | #10 @ 8' O.C. |
| 5'-0"    | 14'-0" | 1'-1" | 10" | #10 @ 8' O.C. | #10 @ 8' O.C. |



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
*Rodney T. Yamamoto*  
SHIGEMURA, YAMAMOTO, LAU & ASSOC., INC.



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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**REINFORCED CONCRETE WALL  
TYPICAL SECTIONS**

MAUNA KEA OBSERVATORY ACCESS ROAD  
PHASE I  
PROJECT NO. HWY.-H-01-86  
SCALE: AS SHOWN

SHEET NO. 1 OF 1 SHEETS

| DATE | BY | DATE | BY |
|------|----|------|----|
|      |    |      |    |
|      |    |      |    |
|      |    |      |    |