

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19K-01-97M	1997	5	10

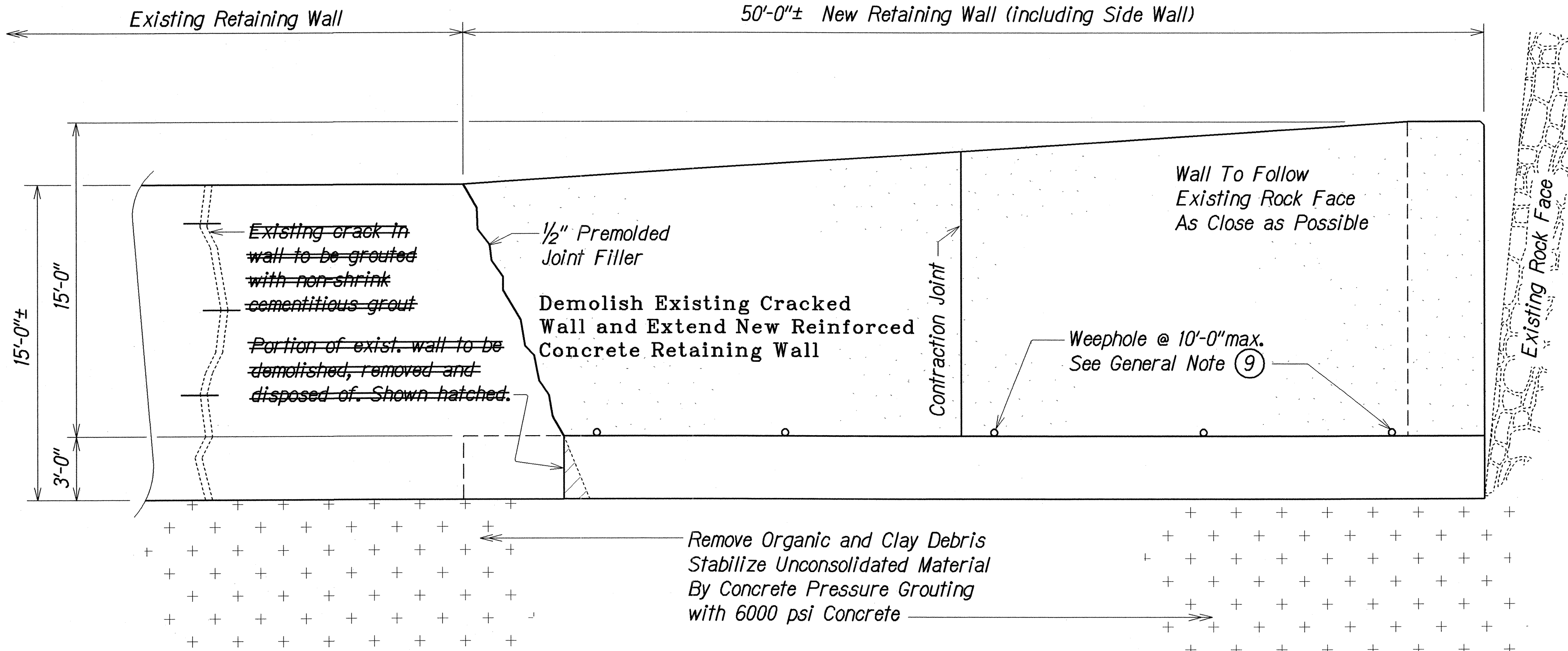
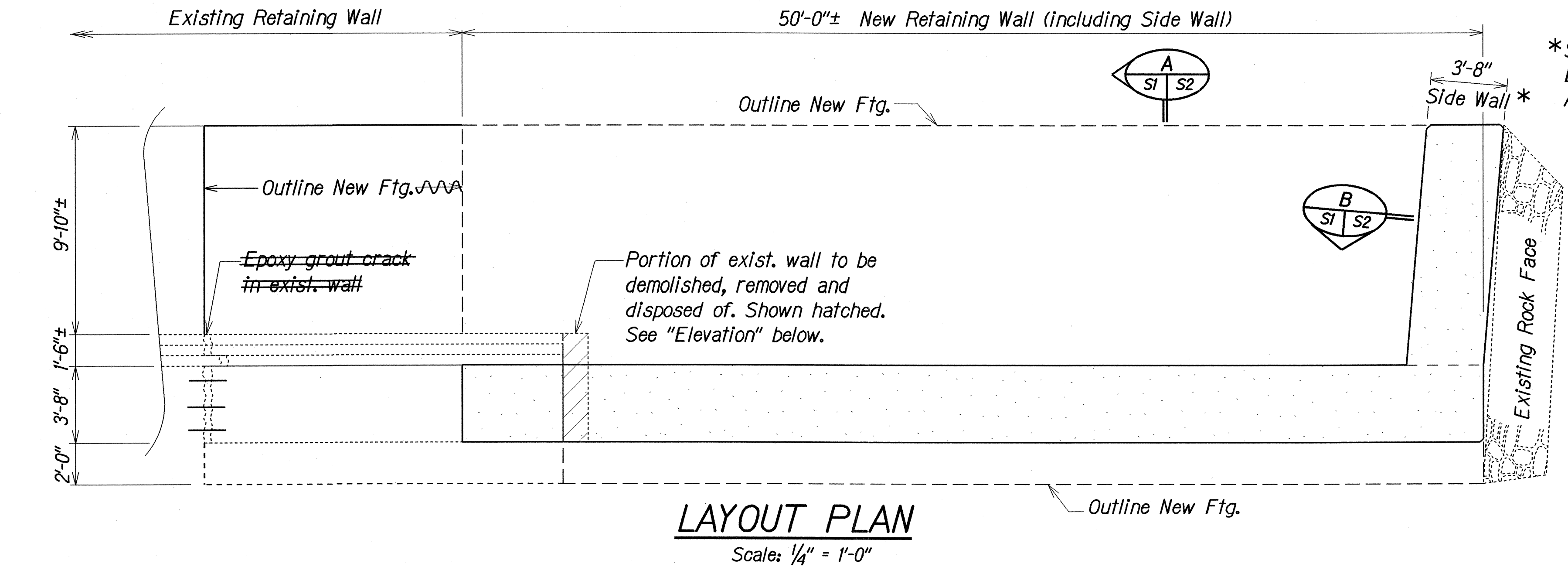
LEGEND FOR AS-BUILT POSTINGS	
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	Double line for as-built deletion
Roadway	Text for as-built posting

STRUCTURAL NOTES:
DESIGN CRITERIA

- DESIGN SPECIFICATIONS
 - Hawaii Department of Transportation "Standard Specifications for Road and Bridge Construction" 1994; together with Special Provisions prepared for this Contract.
 - AASHTO "Standard Specifications For Highway Bridges" Sixteenth Edition 1996, with Interim Supplements and Modifications of the State of Hawaii Department of Transportation.
- DESIGN LOADS
 - RETAINING WALL IS A TEMPORARY STRUCTURE AND IS NOT DESIGNED FOR SEISMIC LOADS.
 - Internal Angle of Friction of Backfill Material = 37.5°
 - Unit Weight of Concrete = 160 pcf
 - Unit Weight of Backfill = 120 pcf
 - Friction Coefficient of Mass Pour Concrete with Base Rock = 0.7
- ALLOWABLE DESIGN STRESSES
 - Reinforced Concrete $f_c = 0.4f'_c$
 - Reinforced Steel $f_s = 24,000$ psi for Grade 60
- MATERIALS
 - Concrete
 - Concrete in Retaining Wall: 6,000 psi
 - Non-shrink Cementitious Grout in Pressure Grouting: 6,000 psi
 - Non-shrink Cementitious Grout for crack in existing wall, such as "Concrete Products Grout 747", "SikagROUT 212", "Master Builders Set" or equivalent as approved by the Engineer.
 - Reinforcing Steel: Per ASTM A 615, Grade 60

REINFORCMENT NOTES

- MINIMUM BAR COVER
 - Concrete cast against and permanently exposed to earth: 4"
 - Concrete exposed to seawater or on seaward face of wall: 4"
 - Other concrete surfaces: 2"
- Reinforcing bars shall be detailed in accordance with the latest edition of the ACI "Manual of Standard Practice for Detailing Reinforced Concrete Highway Bridge Structures" unless noted otherwise.
- Minimum clear spacing between parallel bars shall be 1/2 times the diameter of bars (for non-bundled bars), but in no case shall the clear distance between the bars be less than 1/2 times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing bars (e.g. spacing, etc.) are to the centers of the bars unless noted otherwise. Minimum cover distances are measured to the outside of the bar.
- Reinforcing bars shall be securely tied at all intersections and lap splices, except where the spacing of intersections is less than one foot in either direction, in which case alternate intersections shall be tied.
- Where spliced bars are shown, continuous bars may be used. ADDITIONAL SPLICES SHALL ONLY BE ALLOWED AS APPROVED BY THE ENGINEER.



GENERAL NOTES

- All items noted incidental will not be paid for separately.
- The Contractor shall verify the location of existing utilities and notify their respective owners prior to commencing any work.
- The Contractor shall verify all grades and dimensions in the field before commencing any work.
- The Contractor shall be solely responsible for the protection of adjacent property, utilities, existing and new structures from damage due to construction, and repair any damage at the Contractor's own expense, to the satisfaction of the Engineer. The Contractor shall conduct work in such a manner and provide such temporary shoring or other measures as may be necessary to insure safety of all concerned.
- Excavation for all footings and stems shall be accomplished by maintaining as near a vertical cut as possible.
- In the event of over-excavation, the space between the footing and the ground shall be filled with a minimum of Class A concrete at the Contractor's expense and as directed by the Engineer.

- The crack in the existing retaining wall will be repaired with non-shrink Cementitious grout and the existing wall surface shall be prepared as recommended by the manufacturer. All costs of this repair shall be included in, and is considered incidental to Item No. 503.5000, Concrete in Retaining Walls.
- The ground atop which the new wall and footing is to be placed shall be prepared by removing loose rocks and boulders. The ground under the existing wall shall be stabilized by pressure grouting with 6,000 psi grout to fill in all holes and to consolidate all loose rocks. Clay and organic material under the existing wall shall be removed prior to grouting. All costs of ground preparation shall be included in, and is considered incidental to Item No. 503.5000, Concrete in Retaining Walls.
- Weepholes shall be provided to drain backfill material and shall consist of 4" diameter PVC pipes at a maximum of ten (10) feet spacing o.c., with sufficient strength to resist excessive deformation due to construction loads.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
REPAIR TO WALL AND EMBANKMENT
LAYOUT PLAN AND ELEVATION
GENERAL AND STRUCTURAL NOTES
HAWAII BELT ROAD
Emergency Repair To Seawall And Embankment
Vicinity Of Kalalau Stream
Project No. 19K-01-97M
Scale: As Noted Date: May, 1997
SHEET No. 51 OF 4 SHEETS

"AS-BUILT"