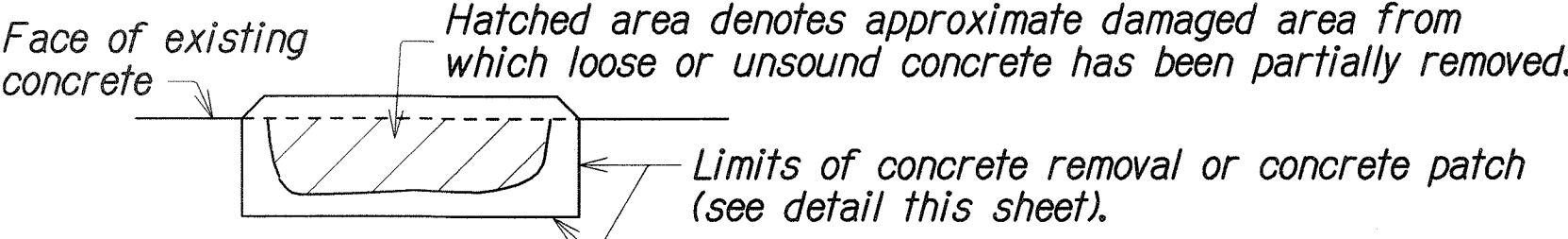


GENERAL NOTES

GENERAL:

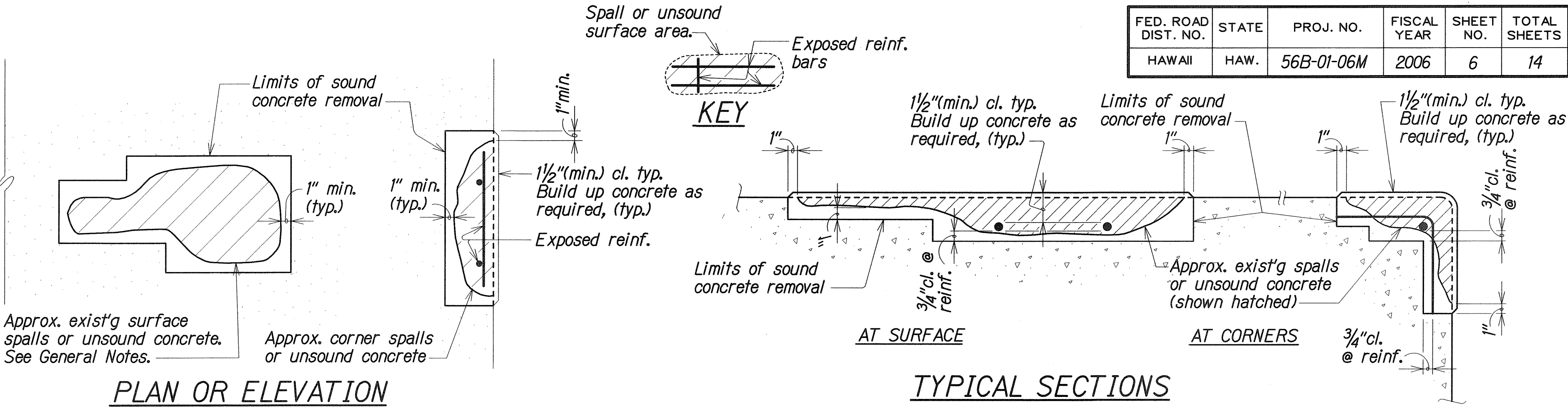
- 1. New reinforcing steel to be ASTM A 615. All welded reinforcing steel to be ASTM A 706.
- 2. All welding shall be done in accordance with the current edition of the Reinforcing Steel Welding Code AWS D1.4.
- 3. Repair material to be compatible with Galvanic Anode System. See Special Provisions.
- 4. Larger spall repairs may be filled with concrete with the approval of the Engineer. Repair concrete shall be 5,000 p.s.i. strength with maximum water/cement ratio of (0.4). Use 3/8" maximum size aggregate. Concrete mix design to be submitted to the Engineer for review/approval 2 weeks prior to starting work.
- 5. Shotcrete shall not be used to make repairs.
- 6. Repair material shall not consist of any concrete bonding agents.
- 7. All work not listed in the Proposal Schedule shall be considered incidental and will not be paid for separately.
- 8. Contractor to complete repairs on deck soffit, superstructure and substructure prior to commencing with work on parapet railing.
- 9. Spall sizes shown on plans are approximate only. Contractor shall keep records of actual square feet of repair for each spall location. See Special Provisions Section 648.
- 10. Contractor to inspect all structures prior to bidding.
- 11. Contractor shall prevent all debris from repair work from falling into Kapaa Stream. Details for debris control scheme shall be submitted to the Engineer for review/approval 2 weeks prior to starting work.

REPAIR NOTES:

- 1. All deteriorated, damaged, cracked, spalled, honeycombed concrete or concrete over rusted reinforcing bars shall be removed as shown and repaired with an appropriate concrete patch material.  

- 2. Clean reinforcing steel by oil-free abrasive blasting down to sound metal.
- 3. Provide minimum 1 1/2" concrete cover over reinforcement.
- 4. Reinforcing bars that have rusted more than 25% of their original cross sectional area shall be strengthened as shown on "Reinforcing Bar Repair Splice Detail", this sheet.
- 5. Install galvanic anodes at spacing noted on details. Follow all instructions in the Special Provisions and manufacturer's recommendations.
- 6. Prior to placement of the repair mortar, notify the State representative. The State representative will then inspect the surface preparation and anode installation, and will either approve mortar placement, or order that remedial work be performed to the affected area.
- 7. Wet repair surface with water. Use compressed air to remove all surface moisture in the repair location just prior to application of repair material.
- 8. Apply patch material per manufacturer's recommendations and instructions.
- 9. The Contractor shall sound and mark all locations to be repaired. The Contractor shall sound with a hammer or other suitable device and mark the location with paint the exact perimeter of the repairs. The Contractor will measure and the Engineer shall verify the locations prior to starting the work.
- 10. The Contractor shall prevent the contamination of the repair with salt water. Some repairs may require the work to be performed at low tide. If the repair area will be affected by tide or wave action during curing, the repair shall be covered with plywood until the patch material has cured.

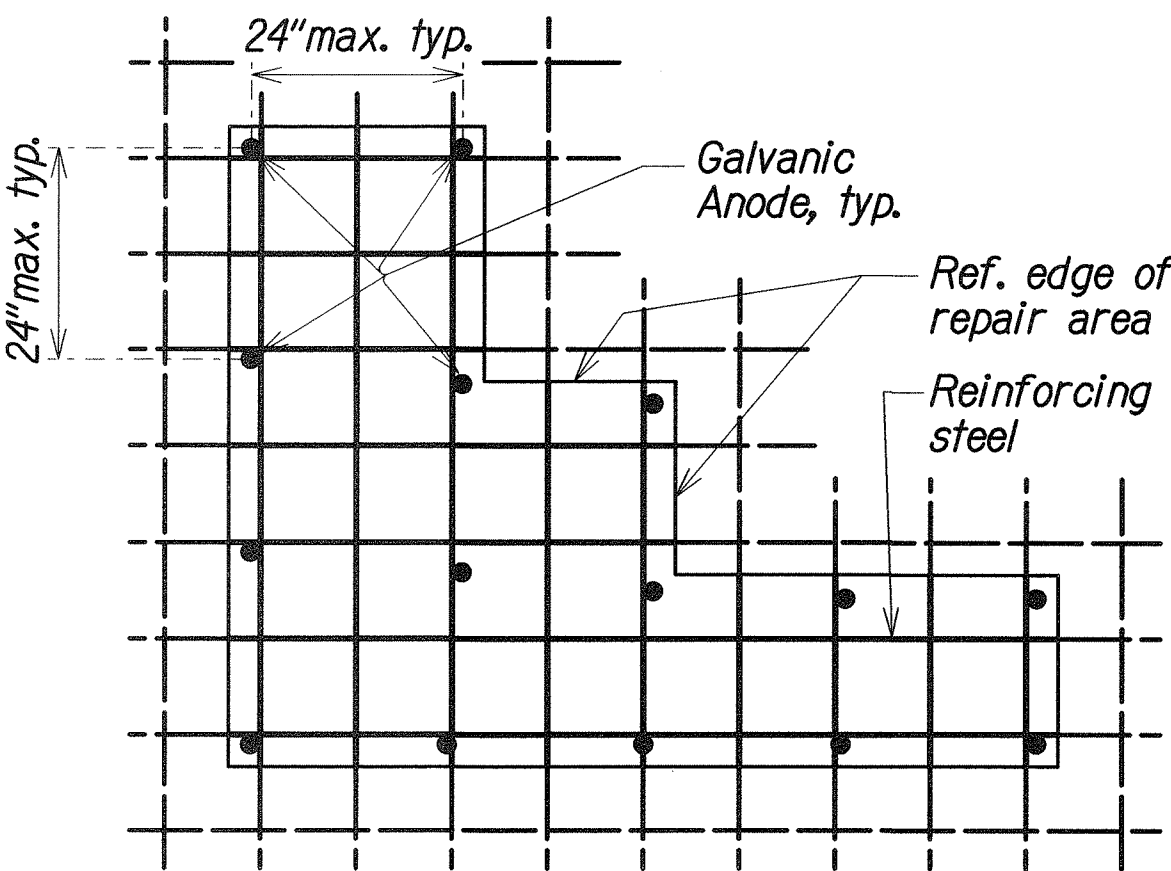
INCIDENTAL ITEMS: The following items shall be considered incidental to the various pay items for repairs and will not be paid for separately:

- 1. Scoring or sawcutting around spalled or unsound concrete to be removed.
- 2. Removal of spalled or unsound concrete material.
- 3. Cleaning of all exposed, corroded reinforcing steel to sound metal.
- 4. Repair of reinforcing bars, including welding and splicing.
- 5. Furnishing and installation of galvanic anodes.
- 6. Build up concrete as required to make flush surfaces conforming to the original structural shape.
- 7. Any barge(s), work platform(s) or scaffolding required for access.
- 8. Any formwork required to place patch materials.
- 9. The Contractor is responsible for any shoring of members. The Contractor shall provide calculations performed by a Hawaii licensed structural engineer for all shoring requirements. See Special Provisions for additional requirements.

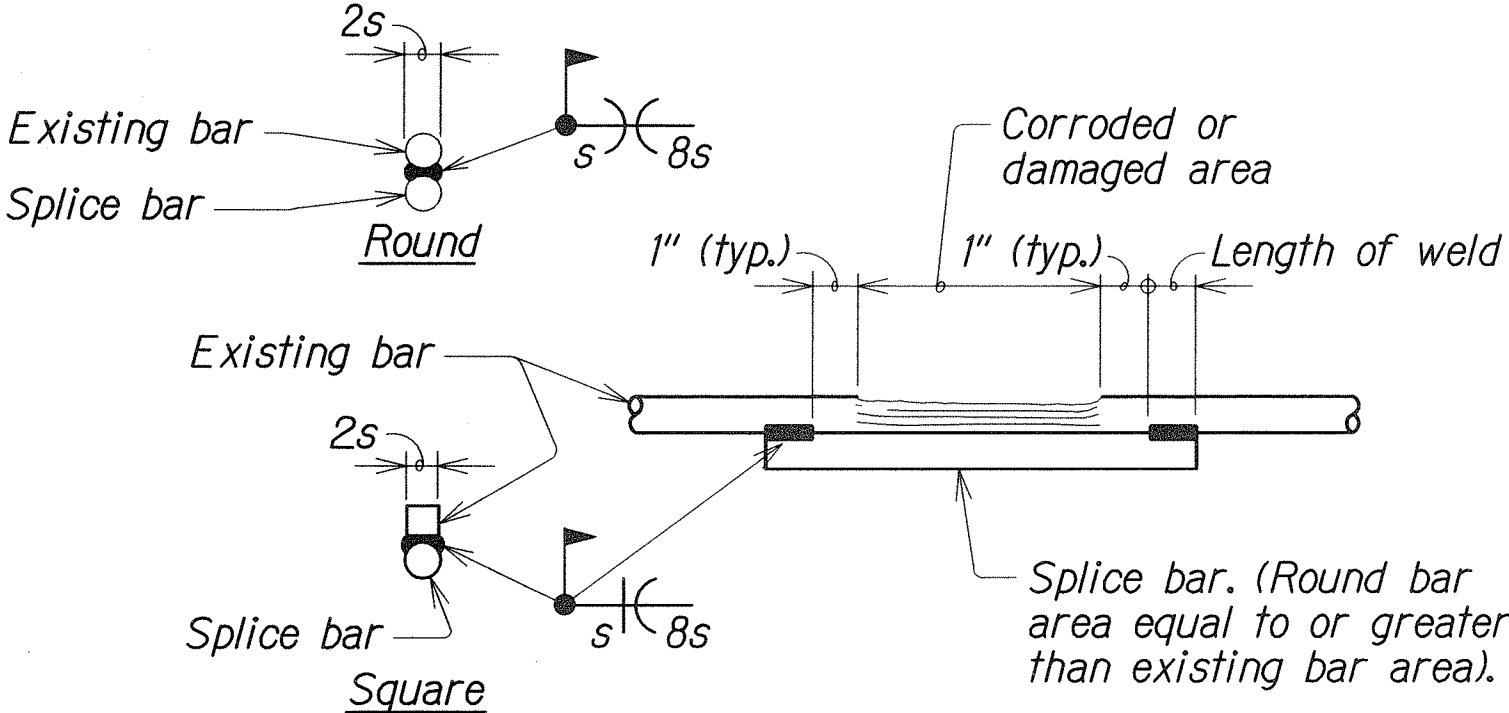


SPALL and CRACK REPAIR DETAILS

Not to Scale

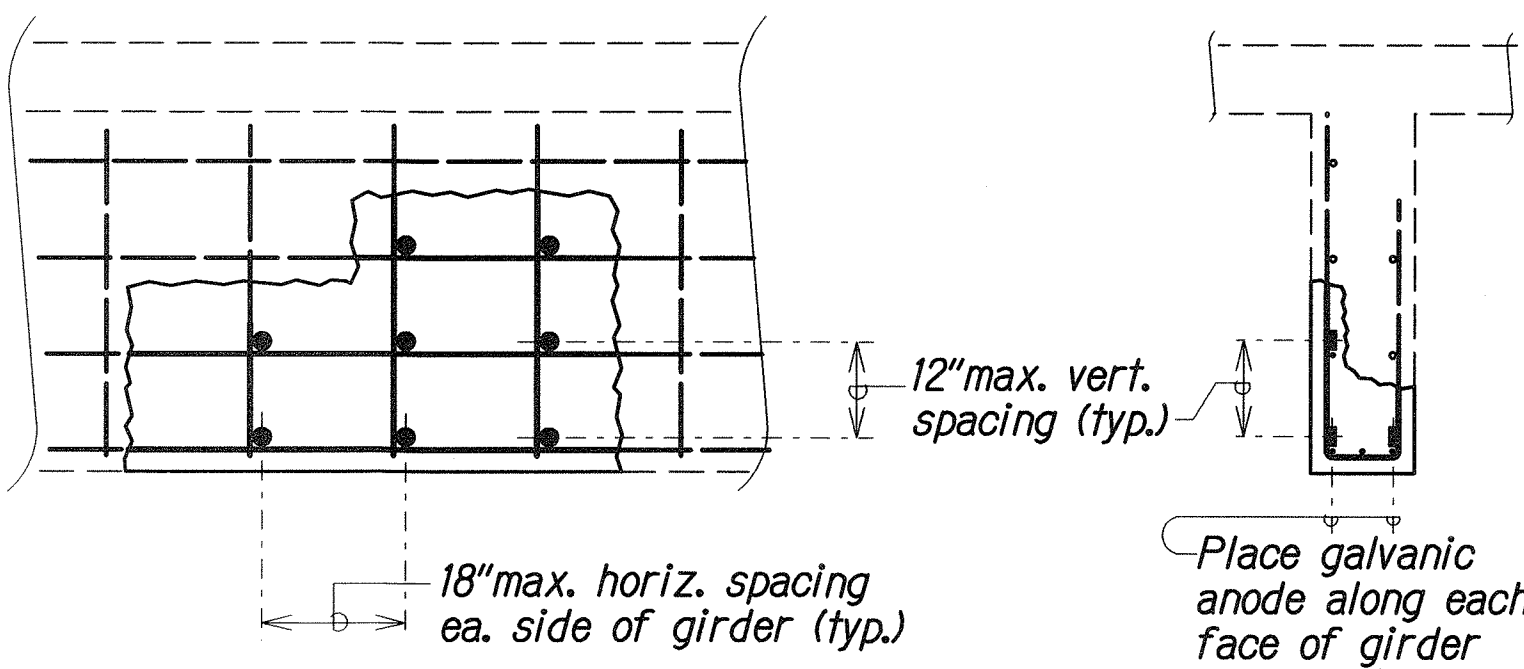


TYPICAL LAYOUT FOR DECK OR WALL



REINFORCING BAR REPAIR SPLICE DETAIL

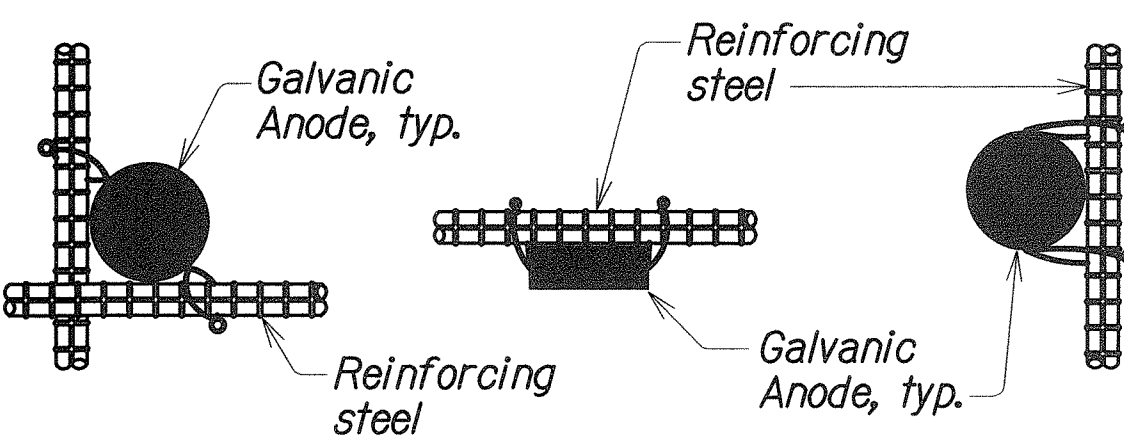
Not to Scale



ELEVATION

TYPICAL SECTION

TYPICAL GIRDER



AT INTERSECTION BELOW BAR BESIDE BAR

NOTE: Removal of additional concrete may be necessary to place galvanic anode

TYPICAL INSTALLATION DETAILS

GALVANIC ANODE INSTALLATION

ESTIMATED QUANTITIES			
ITEM NO.	ITEM	UNIT	QTY
676.1000	Spall Repair - Deck Soffit, Superstructure & Substructure	Sq. Ft.	1365
676.2000	Spall Repair - Parapet Railing	Sq. Ft.	1050

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

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

GENERAL NOTES, ESTIMATED QUANTITIES  
and CONCRETE REPAIR DETAILS

KUHIO HIGHWAY

Spall Repairs at Kapaa Stream Bridge

Project No. 56B-01-06M

Scale: As Noted Date: May 2006