

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-04-14M	2014	14	67

GENERAL

1. Workmanship and materials shall conform to the Hawaii Standard Specifications for Road & Bridge Construction (2005 Edition) & Special Provisions. However, where reference is made to performance conforming to other standards the more stringent shall apply.
2. The Contractor shall compare all the contract documents with each other and report in writing to the Engineer all inconsistencies and omissions.
3. The Contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions with the drawings before commencing work. Report in writing to the Engineer all inconsistencies and omissions.
4. The Contractor shall be responsible for methods of construction, workmanship and job safety. The Contactor shall provide temporary shoring and bracing as required for stability of structural members and systems.
5. The Contractor shall be responsible for protection of the adjacent properties, structures, streets, and utilities during the construction period.
6. Details noted as typical on the Structural drawings shall apply in all conditions unless specifically shown or noted.
7. The General Contractor and his subcontractors must submit in writing any requests for modifications to the plans and specifications.

CONCRETE

1. Concrete construction workmanship & materials shall conform to the Hawaii Standard Specifications for Road & Bridge Construction (2005 Edition) & Special Provisions.
2. Concrete shall be regular weight hard rock concrete and shall have the following minimum 28 day compressive strengths, unless noted otherwise:
  - a. All Concrete \_\_\_\_\_ 3,000 psi
3. Concrete delivery tickets shall record all free water in the mix: at batching by plant, for consistency by driver, and any additional request by Contractor if permitted by the mix design.
4. All inserts, anchor bolts, plates, and other items to be cast in the concrete shall be hot-dipped galvanized unless otherwise noted.
5. Reinforcing bars, anchor bolts, inserts, and other items to be cast in the concrete shall be secured in position prior to placement of concrete.
6. The Contractor shall locate construction joints so as not to impair the strength of the structure and to minimize shrinkage stresses. Submit location of construction joints to the Engineer for approval, unless otherwise noted.
7. The Engineer shall be notified at least 3 working days prior to any concrete pour. No concrete shall be poured prior to observation by the Engineer or his representative.

REINFORCING STEEL

1. Reinforcing Steel shall be deformed bars conforming to ASTM A615, Grade 60.
2. Welded wire fabric shall conform to ASTM A185, Galvanized.
3. Clear concrete cover for reinforcing bars shall be as follows, unless otherwise noted:
  - a. All Concrete
    1. Faces exposed to earth or weather— 2"
4. Reinforcing Steel shall be spliced where indicated on plans. Provide lap splice length per typical details and schedule, unless otherwise noted.
5. Bar laps shall be made away from points of maximum stress. Unless noted otherwise, splices, laps, dowel extensions and embedments shall be 48 bar diameters, but not less than 24 inches. Splices shall be staggered where possible.
6. Unless otherwise noted, all horizontal reinforcing steel at wall and wall footing corners and intersections shall extend to the far face of the corner and hooked a length of 48 bar diameters, but not less than 24 inches, around the corner.
7. Welded wire fabric shall be lapped 8 inches or one full mesh plus 2 inches, whichever is greater.
8. Bar bends and hooks shall be "Standard Hooks" in accordance with AASHTO LRFD Bridge Design Specifications, Second Edition, Article 5.10.2- Hooks and Bends. See Detail 1 on Sheet EC-10.
9. Only flat sheets of welded wire fabric reinforcement shall be used. No rolled welded wire fabric reinforcement will be allowed.

EPOXIED ANCHOR INSTALLATIONS

1. Epoxy used for anchoring threaded rods and reinforcing steel into existing concrete shall be Hilti HIT HY-RE-500-SD, Simpson SET-XP, Powers PE100+ system or approved equal, and shall be installed per manufacturer's recommendations.
2. Anchors shall be installed with the minimum embedment requirements as indicated on the drawings.

STRUCTURAL STEEL

1. Fabrication and erection of structural steel shall conform to the American Institute of Steel Construction Manual of Steel Construction, Thirteenth Edition.
2. Structural Steel shall conform to ASTM A36 unless otherwise noted.
3. All steel shall be hot-dipped galvanized.

SPECIAL INSPECTION

1. The Contractor shall be responsible for ensuring that special inspection of portions of the work as made at the appropriate time. The Contractor shall give timely notice of when and where inspections are to be made and provide access for the Inspector. The Contractor shall correct defective work at no additional cost to the owner.
2. The following Structural work requires Special Inspection:
  - a. Concrete
  - b. Reinforcing steel
  - c. Drilled and epoxied bars into concrete

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTE BOOK	DRAWN BY _____	
	DESIGNED BY _____	
	CHECKED BY _____	
	IN _____	

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RON E. IWAMOTO

LICENSED PROFESSIONAL ENGINEER

No. 8871-S

HAWAII, USA

4/30/14

EXP. DATE

*Ron E. Iwamoto*

This work was prepared by me or under my supervision.

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

**STRUCTURAL**

**NOTES - PID 207**

**KANEHOE WATERSHED STORM WATER**

**BEST MANAGEMENT PRACTICES ON OAHU**

**Project No. HWY-O-04-14M**

Scale: None

Date: March 2014

SHEET No. N-10 OF 10 SHEETS