



**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU, HAWAII**

**SPECIAL PROVISIONS
PROPOSAL
CONTRACT AND BOND**

FOR

HAWAII BELT ROAD

SEISMIC RETROFIT OF KAHOLO STREAM BRIDGE

FEDERAL-AID PROJECT NO. BR-019-2(072)

DISTRICT OF HAMAKUA

ISLAND OF HAWAII

FY 2025

NOTICE TO BIDDERS
Hawaii Revised Statutes (HRS),
Chapter 103D

The receiving of bids for **HAWAII BELT ROAD SEISMIC RETROFIT OF KAHOLO STREAM BRIDGE, DISTRICT OF HAMAKUA, ISLAND OF HAWAII, PROJECT NO. BR-019-2(072)**, will begin as of the HiePRO Release Date. Bidders shall register and submit complete bids through HiePRO only. Refer to the following HiePRO link for important information on Vendor Registration: <https://hiepro.ehawaii.gov/welcome.html>.

The solicitation plans, specifications, proposal, and additional documents designated or incorporated by reference shall be available in HiePRO.

HiePRO OFFER DUE DATE & TIME is November 21, 2024, at 2:00 p.m., Hawaii Standard Time (HST). **Bidders shall submit and upload the complete proposal to HiePRO prior to the offer due date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HiePRO. Bidders shall not include confidential and/or proprietary documents as part of their proposal. The record of each bidder and their respective proposal shall be open to public inspection.**

FAILURE TO UPLOAD THE PROPOSAL TO HiePRO SHALL BE GROUNDS FOR REJECTION.

The scope of work includes the removal of existing vegetation, guardrails, and trees; construction of temporary access roads; construction of structural improvements including bearing pads, soil nails, and micropiles; installation of guardrail; pavement markings and signs; erosion control; and traffic control. The estimated cost of construction is between \$4,000,000 and \$5,000,000.

To be eligible for award, bidders shall possess a valid State of Hawaii General Engineering "A" license **prior to the award of contract.**

A virtual pre-bid conference is scheduled for October 29, 2024, at 10:00 a.m., HST. Interested bidders shall contact Andrew Hirano, Project Manager, directly at andrew.j.hirano@hawaii.gov, no later than five working days prior to the scheduled pre-bid conference to receive the meeting invitation. All prospective bidders and/or their respective representatives are encouraged to attend; however, attendance is not mandatory. All information presented at the pre-bid conference shall be provided for clarification and information only. Any amendments to the solicitation shall be made by formal addendum and posted in HlePRO.

All Request for Information (RFI) questions and Substitution Requests shall be submitted in HlePRO **no later than November 7, 2024, at 2:00 p.m., HST.** RFI questions received after the stated deadline shall not be addressed. Substitution Requests received after the stated deadline shall not be considered. Verbal RFI(s) shall not receive a response. All responses to RFI questions shall be provided for clarification and information only and issued by formal addendum. Any amendments to the solicitation shall be made by formal addendum and posted in HlePRO.

If there is a conflict between the solicitation and information stated in the pre-bid conference, the meeting minutes, and/or the responses to RFI questions, the solicitation shall govern and control, unless as amended by formal addendum.

Campaign contributions by State and County Contractors. Contractors are hereby notified of the applicability of HRS § 11-355 which states that campaign contributions are prohibited from specified State or county government contractors during the term of the contract if the contractors are paid with funds appropriated by a legislative body. For more information, contact the Campaign Spending Commission at (808) 586-0285.

Protests. Any protest of this solicitation shall be submitted in writing to the Director of Transportation, in accordance with HRS § 103D-701 and Hawaii Administrative Rules § 3-126.

The Equal Employment Opportunity Regulations of the Secretary of Labor implementing Executive Order 11246, as amended, shall be complied with on this project.

The U.S. Department of Transportation Regulation entitled “Nondiscrimination in Federally Assisted Programs of the U.S. Department of Transportation”, Title 49, Code of Federal Regulations (CFR), Part 21, is applicable to this project. Bidders are hereby notified that the Department of Transportation shall affirmatively ensure that the contract entered into pursuant to this advertisement shall be awarded to the lowest responsible bidder without discrimination on the grounds of race, color, national origin, or sex (as directed by 23 CFR Part 200).

The U.S. Department of Transportation Regulations entitled "Participation by Disadvantaged Business Enterprise in Department of Transportation Financial Assistance Programs", Title 49, CFR, Part 26, is applicable to this project. Bidders are hereby notified that the Department of Transportation shall strictly enforce full compliance with all the requirements of the Disadvantaged Business Enterprise program with respect to this project.

Bidders shall read the Disadvantaged Business Enterprise Requirements, included in this solicitation, which establishes the program requirements pursuant to Title 49, CFR, Part 26, and includes the requirements of certification, method of award, and evidence of good faith. All Bidders shall email Andrew Hirano, Project Manager, at andrew.j.hirano@hawaii.gov, the following: “Disadvantaged Business Enterprise Contract Goal Verification and Good Faith Efforts Documentation for Construction”; “Disadvantaged Business Enterprise Confirmation and Commitment Agreement – Trucking Company”; and “Disadvantaged Business Enterprise Confirmation and Commitment Agreement – Subcontractor, Manufacturer, or Supplier”, **no later**

than November 26, 2024, at 4:30 p.m., HST. Failure to provide the respective documents shall be grounds for rejection of bid.

Driving While Impaired (DWI) Education. The Hawaii Department of Transportation (HDOT) encourages all organizations contracted with HDOT to have an employee education program preventing DWI. DWI is defined as operating a motor vehicle while impaired by alcohol or other legal or illegal substances. HDOT promotes this type of program to accomplish our mission to provide a safe environment for motorists, bicyclists, and pedestrians utilizing our State highways, and expects its contractors to do so as well.

For additional information, contact Andrew Hirano, Project Manager, by phone at (808) 692-7546, or by email at andrew.j.hirano@hawaii.gov.

The State reserves the right to reject any or all proposals and to waive any defects in said proposals in the best interest of the public.



ROBIN K. SHISHIDO
Deputy Director of Transportation for Highways

HIePRO RELEASE DATE: October 18, 2024

TABLE OF CONTENTS

Notice To Bidders

Instructions for Contractor’s Licensing

Notice of Requirement for Affirmative Action to Ensure

Equal Employment Opportunity (Executive Order 11246)

Disadvantaged Business Enterprise (DBE) Requirements

Disadvantaged Business Enterprise (DBE) Contract Goal Verification and Good Faith Efforts (GFE) Documentation For Construction

Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement – Trucking Company

Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement – Subcontractor, Manufacturer, or Supplier

Required Federal-Aid Contract Provisions

Special Provisions Title Page

Special Provisions:

DIVISION 100 - GENERAL PROVISIONS		
Section	Description	Pages
101	Terms, Abbreviations, and Definitions	101-1a – 101-13a
102	Bidding Requirements and Conditions	102-1a – 102-8a
103	Award And Execution of Contract	103-1a – 103-4a
104	Scope of Work	104-1a – 104-2a
105	Control of Work	105-1a – 105-3a
106	Material Restrictions and Requirements	106-1a – 106-2a
107	Legal Relations and Responsibility To Public	107-1a – 107-4a
108	Prosecution And Progress	108-1a – 108-25a
109	Measurement and Payment	109-1a – 109-2a

DIVISION 200 - EARTHWORK		
Section	Description	Pages
202	Removal of Structures and Obstructions	202-1a
203	Excavation and Embankment	203-1a – 203-2a
205	Excavation and Backfill for Bridge and Retaining Structures	205-1a
209	Temporary Water Pollution, Dust, and Erosion Control	209-1a – 209-28a

DIVISION 500 - STRUCTURES		
Section	Description	Pages
503	Concrete Structures	503-1a – 503-39a
512	Micropiles	512-1a – 512-9a
577	Fiber Reinforced Polymer Systems	577-1a – 577-10a

DIVISION 600 - INCIDENTAL CONSTRUCTION		
Section	Description	Pages
601	Structural Concrete	601-1a – 601-15a
602	Reinforcing Steel	602-1a – 602-2a
606	Guardrail	606-1a
607	Chain Link Fences and Gates	607-1a
611	Hand-Laid Riprap	611-1a
628	Shotcrete	628-1a – 628-12a
629	Pavement Markings	629-1a – 629-3a
632	Markers	632-1a
636	E-Construction	636-1a – 636-3a
641	Hydro-Mulch Seeding	641-1a
645	Work Zone Traffic Control	645-1a
651	Portable Concrete Barrier and end Treatment System	651-1a – 651-9a
656	Drilling Holes and Installing Dowel Reinforcing Bars	656-1a
657	Soil Nails	657-1a – 657-17a
670	Glass Fiber Reinforced Polymer Rebar	670-1a – 670-3a

671	Protection of Endangered Species	671-1a – 671-4a
695	Removal and Disposal of Lead-Based Paint	695-1a – 695-5a
699	Mobilization	699-1a

DIVISION 700 - MATERIALS		
Section	Description	Pages
701	Hydraulic Cement	701-1a
719	Macro-Synthetic Fibers for Concrete Reinforcement	719-1a
750	Traffic Control Sign and Marker Materials	750-1a – 750-2a
755	Pavement Marking Materials	755-1a

Requirement of Chapter 104, HRS
Wages and Hours of Employees on Public Works Law

Federal Wage Rates

Proposal Title Page

Proposal P-1 – P-7
Proposal Schedule P-8 - P- 14

Surety Bid Bond

Sample Forms

Contract

Performance Bond (Surety)

Performance Bond

Labor and Material Payment Bond (Surety)

Labor and Material Payment Bond

Disclosure of Lobbying Activities
Standard Form - LLL and LLL-A

Statement of Compliance
Form WH-348

Chapter 104, HRS Compliance Certificate

END OF TABLE OF CONTENTS

INSTRUCTIONS FOR CONTRACTOR'S LICENSING

"A" general engineering contractors and "B" general building contractors are reminded that due to the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Haw. 450 (2002), they are prohibited from undertaking any work, solely or as part of a larger project, which would require the general contractor to act as a specialty contractor in any area where the general contractor has no license. Although the "A" and "B" contractor may still bid on and act as the "prime" contractor on an "A" or "B" project (*See, HRS § 444-7 for the definitions of an "A" and "B" project.*), respectively, the "A" and "B" contractor may only perform work in the areas in which they have the appropriate contractor's license (*An "A" or "B" contractor obtains "C" specialty contractor's licenses either on its own, or automatically under HAR § 16-77-32.*). The remaining work must be performed by appropriately licensed entities. It is the sole responsibility of the contractor to review the requirements of this project and determine the appropriate licenses that are required to complete the project.

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL
EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Bidder's attention is called to the "Equal Opportunity" and the "Specific Equal Employment Opportunity Responsibilities" set forth in the "Required Federal Aid Construction Contract Provisions."

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work on this project are as follows:

CATEGORY	TIMETABLE	GOAL
Female participation in each trade	Indefinite	6.9%
Minority participation in each	None	69.1% (Oahu)
Trade (female included)	None	70.4% (Hawaii, Maui, Kauai)

These goals are applicable to all the Contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or Federally assisted construction contract or subcontract.

The Contractor's compliance with the Executive Order shall be based on its implementation of the Equal Opportunity Clause, and its efforts to meet the goals established for the contract resulting from this solicitation. The hours of female and minority employment and training must be substantially uniform throughout the length of the contract, and in trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract and Executive Order. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Area Director, Hawaii Area Office, Office of Federal Contract Compliance Programs, U.S. Department of Labor, 300 Ala Moana Blvd., P.O. Box 50149, Honolulu, Hawaii 96850, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; and estimated starting and completion dates of the subcontract. The Contractor shall indicate which are minority group subcontractors and the ethnic identity and sex of the owner(s) and policy-making official(s).

DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS

I. GENERAL

This project is subject to Title 49, Code of Federal Regulations, Part 26, entitled "Participation by Disadvantaged Business Enterprise in Department of Transportation Financial Assistance Programs," hereinafter referred to as the ("DBE Regulations") and is incorporated and made a part of this contract herein by this reference. The following shall be incorporated as part of the contract documents for compliance. If any requirements herein are in conflict with the general provisions or special provisions applicable to this project, the requirements herein shall prevail unless specifically superseded or amended in the special provisions or by addendum.

II. POLICY

It is the policy of the U.S. Department of Transportation ("USDOT") and the State of Hawaii, Department of Transportation and its political subdivisions ("Department") that Disadvantaged Business Enterprises ("DBE"), as defined in the DBE Regulations, have an equal opportunity to receive and participate in federally assisted contracts.

III. DBE ASSURANCES

Each contract signed with a prime contractor (and each subcontract the prime contractor signs with a subcontractor) shall include the following assurance:

"The contractor, sub-recipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate which may include, but is not limited to; 1) withholding monthly progress payments; 2) assessing sanctions; 3) liquidated damages; and/or 4) disqualifying the contractor from future bidding as non-responsible."

The prime contractor agrees to include the above statements in any subsequent contracts that it enters into with other contractors and shall require those contractors to include similar statements in further agreements.

IV. BIDDER/OFFEROR RESPONSIBILITIES

All bidders/offerors are required to register with the Department's OCR, DBE Section, using the Bidder Registration Form, which can be downloaded from the Department's website at <http://hidot.hawaii.gov/administration/ocr/dbe/dbe-program-forms/>. Certified DBEs are considered registered with the Department and are not required to submit a

Bidder Registration Form. All other bidders/offerors are required to complete this form which may be faxed to (808) 831-7944, e-mailed to HDOT-DBE@hawaii.gov, or mailed to the HDOT DBE Section at 200 Rodgers Boulevard, Honolulu, Hawaii, 96819. Registered bidders/offerors are posted on the website listed above.

Bidders/offerors, subcontractors, manufacturers, vendors or suppliers, and trucking companies shall fully inform themselves with respect to the requirements of the DBE Regulations. Particular attention is directed to the following matters:

- A. Bidders/offerors shall take all necessary steps to ensure that DBEs have an opportunity to participate in this contract.
- B. DBEs may participate as a consultant, prime contractor, subcontractor, trucking company, or vendor of materials or supplies. DBEs may also team with other DBEs or non-DBE firms as part of a joint venture or partnership.
- C. Agreements between a bidder/offeror and a DBE in which an DBE promises not to provide subcontracting quotations to other bidders/offerors are strictly prohibited.
- D. A DBE shall be certified by the Department under the appropriate North American Industry Classification System (NAICS) code and work in their registered field of work in order for credit to be allowed.
- E. Information regarding the current certification status of DBEs is available on the internet at <https://hdot.dbesystem.com/>.
- F. Commercially Useful Function (“CUF”). An DBE must perform a CUF. This means that an DBE must be responsible for the execution of a distinct element of the work, must carry out its responsibility by actually performing, managing, and supervising at least 30% of the work involved by using its own employees and equipment, must negotiate price, determine quality and quantity, order and install material (when applicable), and must pay for the material itself.¹

To determine whether an DBE is performing a CUF, the Department must evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing, the DBE credit claimed for performance of the work, and other relevant factors. The prime contractor is responsible to ensure that the DBE performs a CUF.

V. PROPOSAL REQUIREMENTS

- A. DBEs must be certified by the bid opening date.

¹ The use of joint checks payable to an DBE subcontractor and supplier may be allowed to purchase materials and supplies under limited circumstances. See VII USE OF JOINT CHECKS UNDER THE DBE PROGRAM

- B. DBE subcontractors, manufacturers, suppliers, trucking companies, and any second tier subcontractors shall be listed on the respective DBE forms as specified below in order to receive credit.
- C. The following forms are due to the Department's Project Manager or designee **by the close of business, 4:30 P.M. Hawaii Standard Time (HST), five (5) days after bid opening:**²
1. DBE Confirmation and Commitment Agreement. This form must be signed by the bidder/offeror and each DBE subcontractor, manufacturer, supplier, or trucking company. Information to be provided on the form shall include, among other things, the project number, the DBE's NAICS codes, description of work, bid items with corresponding price information, prime contractor name and contact information DBE name and contact information and subcontractor name and contact information if the DBE is a second tier subcontractor.
 2. DBE Contract Goal Verification and Good Faith Efforts (GFE) Documentation for Construction. List the dollar amount of all subcontractors, manufacturers, suppliers, and trucking companies (both DBE and non-DBE firms). Bidder/offeror must also list the DBE project goal on this form (See paragraph D below regarding goal calculation). The bidder/offeror must submit documentation demonstrating how the DBE goal was met or how the bidder/offeror attempted to meet the goal if the goal was not met. This documentation shall include quotations for both DBE and non-DBE subcontractors when a non-DBE is selected over a DBE for the project. **Documentation of good faith efforts is required irrespective of whether the bidder/offeror met the DBE project goal.**
- The above forms must be complete and provide the necessary information to properly evaluate bids/proposals. Failure to provide any of the above shall be cause for bid/proposal rejection.**
- D. Calculation of the DBE contract goal for this project is the proportionate contract dollar value of work performed, materials, and goods to be supplied by DBEs. DBE credit shall not be given for mobilization, force account items and allowance items. This DBE contract goal is applicable to all the contract work performed for this project and is calculated as follows:
1. DBE contract goal percentage = Contract Dollar Value of the work to be performed by DBE subcontractors and manufacturers, plus 60% of the contract dollar value of DBE suppliers, divided by the sum of all contract items (sum of all contract items is the total amount for comparison of bids less mobilization, force account items, and allowance items).

² In computing calendar days, the day from which the period begins to run is not counted, and when the last day of the period is a Saturday, Sunday, or Federal or State holiday, the period extends to the next day that is not a Saturday, Sunday, or holiday.

2. The Department shall adjust the bidder's/offeror's DBE contract goal to the amount of the project goal if it finds that the bidder/offeror met the goal but erroneously calculated a lower percentage. If the amount the bidder/offeror submits as its contract goal exceeds the project goal, the bidder/offeror shall be held to the higher goal.

VI. COUNTING DBE PARTICIPATION TOWARDS CONTRACT GOAL

- A. Count the entire amount of the portion of a contract (or other contract not covered by paragraph B below) that is performed by the DBE's own forces. Include the cost of supplies and materials obtained by the DBE for the work on the contract, including supplies purchased or equipment leased by the DBE (except supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate).
- B. Count the entire amount of fees or commissions charged by an DBE firm for providing a bona fide service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a USDOT-assisted contract, toward DBE goals, provided the Department determines the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.
- C. When an DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself an DBE. Work that an DBE subcontracts to a non-DBE firm does not count toward DBE goals.
- D. When an DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces toward DBE goals.
- E. Count expenditures to an DBE contractor toward DBE goals only if the DBE is performing a CUF on that contract.
- F. The following is a list of appropriate DBE credit to be allowed for work to be performed by an DBE subcontractor. Count expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:
 1. If the materials or supplies are obtained from an DBE manufacturer, count 100 percent of the cost of the materials or supplies toward DBE goals;
 2. For purposes of determining DBE goal credit, a manufacturer is a firm that operates or maintains a factory or establishment that produces (on the premises) the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications;

3. If the materials or supplies are purchased from an DBE regular dealer, count 60 percent of the cost of the materials or supplies toward DBE goals;
4. For purposes of determining DBE goal credit, a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business;
5. To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question;
6. A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided in the DBE Regulations, if the person both owns and operates distribution equipment for the products. Any supplementing of a regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis;
7. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers;
8. With respect to materials or supplies purchased from an DBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided that the Department determines the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services. Do not count any portion of the cost of the materials and supplies themselves toward DBE goals; however,
9. If a firm is not currently certified as an DBE in accordance with standards of this part at the time of the execution of the contract, do not count the firm's participation toward any DBE goals, except as provided for in §26.87(i);
10. Do not count the dollar value of work performed under a contract with a firm after it has ceased to be certified toward the Department's overall goal; and
11. Do not count the participation of an DBE subcontractor toward a contractor's final compliance with its DBE obligations on a contract until the amount being counted has actually been paid to the DBE.

G. The following factors are used in counting DBE participation for trucking companies:

1. The DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular

contract, and there cannot be a contrived arrangement for the purpose of meeting DBE goals;

2. The DBE must itself own and operate at least one (1) fully licensed, insured, and operational truck used on the contract;
3. The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs;
4. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract;
5. The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE that leases trucks equipped with drivers from a non-DBE is entitled to credit for the total value of transportation services provided by non-DBE leased trucks equipped with drivers not to exceed the value of transportation services on the contract provided by DBE-owned trucks or leased trucks with DBE employee drivers. Additional participation by non-DBE owned trucks equipped with drivers receives credit only for the fee or commission it receives as a result of the lease arrangement. If a recipient chooses this approach, it must obtain written consent from the appropriate Department operating administration.
EXAMPLE: DBE firm X uses two (2) of its own trucks on a contract, leases two (2) trucks from DBE Firm Y and six (6) trucks from non-DBE Firm Z. DBE credit would be awarded for the total value of transportation services provided by Firm X and Firm Y, and may also be awarded for the total value of transportation services provided by four (4) of the six (6) trucks provided by Firm Z. In all, full credit would be allowed for the participation of eight (8) trucks. With respect to the other two (2) trucks provided by Firm Z, DBE credit could be awarded only for the fees or commissions pertaining to those trucks Firm X receives as a result of the lease with Firm Z;
6. The DBE may lease trucks without drivers from a non-DBE truck leasing company. If the DBE leases trucks from a non-DBE truck leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.
EXAMPLE: DBE Firm X uses two (2) of its own trucks on a contract. It leases two (2) additional trucks from non-DBE Firm Z. Firm X uses its own employees to drive the trucks leased from Firm Z. DBE credit would be awarded for the total value of the transportation services provided by all four (4) trucks; and
7. For purposes of determining whether a trucking firm performs a CUF, a lease must indicate that the DBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

- H. The bidder/offeror may be a joint venture or partnership that has a certified DBE as a partner. A “Joint Venture” means an association between an DBE firm and one (1) or more other firms to carry out a single, for-profit, business enterprise for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract, and whose share in the capital contribution, control, management, risks and profits are commensurate with its ownership interest.
- I. Effects of a Summary Suspension of an DBE. When an DBE’s certification is suspended, the DBE may not be considered to meet a contract goal on a new contract and any work it does on a contract received during the suspension shall not be counted towards the overall goal. The DBE may continue to perform work under an existing contract executed before the DBE received a Notice of Suspension and may be counted towards the contract goal during the period of suspension as long as the DBE is performing a CUF under the existing contract.
- J. Effects of Decertification of an DBE. Should an DBE become decertified during the term of the subcontract for reasons beyond the control of and with no fault or negligence on the part of the contractor, the work remaining under the subcontract may be credited towards the contract goal, but are not included in the overall accomplishments.

Should the DBE be decertified after contract award and before notice to proceed, the contractor must still meet the DBE goal by either: a) withdrawing the subcontract from the DBE and expending good faith efforts to replace it with an DBE that is currently certified for that same work; or b) continuing with the subcontract with the decertified firm and expending good faith efforts to find other work not already subcontracted out to DBEs in an amount to meet the DBE goal either by; 1) increasing the participation of other DBEs on the project; 2) documenting good faith efforts; or 3) by a combination of the above.

VII. USE OF JOINT CHECKS UNDER THE DBE PROGRAM

- A. The following guidelines apply to the use of joint checks:
 - 1. The second party (typically the prime contractor) acts solely as a guarantor;
 - 2. The DBE must release the check to the supplier;
 - 3. The use of joint checks is a commonly recognized business practice;
 - 4. The Department must approve the use of joint checks prior to use by contractors and/or DBEs. As part of this approval process the Department will analyze industry practice to confirm that the use of joint checks is commonly employed outside of the DBE program for non-DBE subcontractors on both federal and state funded contracts. Using joint checks shall not be approved if it conflicts with other aspects of the DBE Regulations regarding CUF; and
 - 5. The Department will monitor the use of joint checks closely to avoid abuse.

- B. Contractors and DBEs should review the following general guidelines when determining whether to use joint checks closely to avoid abuse:
1. That standard industry practice applies to all contractors (federal and state contracts);
 2. Use of joint checks must be available to all subcontractors;
 3. Material industry sets the standard industry practice, not prime contractors;
 4. Short term, not to exceed reasonable time (i.e., one (1) year, two (2) years) to establish/increase a credit line with the material supplier;
 5. No exclusive arrangement between one (1) prime and one (1) DBE in the use of joint checks that might bring the independence of the DBE into question;
 6. Non-proportionate ratio of DBE's normal capacity to size of contract and quantity of material to be provided under the contract;
 7. The DBE is normally responsible to install and furnish the work item; and
 8. The DBE must be more than an extra participant in releasing the check to the material supplier.
- C. The Department shall allow the use of joint checks if the following general conditions are met:
1. DBE submits request to the Department for action;
 2. There is a formalized agreement between all parties that specify the conditions under which the arrangement shall be permitted;
 3. There is a full and prompt disclosure of the expected use of joint checks;
 4. The Department will provide prior approval;
 5. DBE remains responsible for all other elements of 49 CFR 26.55(c)(1);
 6. The agreement states clearly and determines that independence is not threatened because the DBE retains final decision making responsibility;
 7. The Department will determine that the request is not an attempt to artificially inflate DBE participation;
 8. Standard industry practice is only one (1) factor;
 9. The Department will monitor and maintain oversight of the arrangement by reviewing cancelled checks and/or certification statement of payment; and
 10. The Department will verify there is no requirement by prime contractor that the DBE is to use a specific supplier nor the prime contractor's negotiated unit price.

VIII. DEMONSTRATION OF GOOD FAITH EFFORTS FOR CONTRACT AWARD

- A. When a project goal is not met, the Department shall conduct the initial review of GFE submitted by the bidder/offeror and shall determine whether the bidder/offeror has performed the quality, quantity, and intensity of efforts that demonstrate a reasonably active and aggressive attempt to meet the contract goal in accordance with 49 CFR Part 26, Appendix A.

- B. The bidder/offeror bears the responsibility of demonstrating that it met the contract goal, or if the contract goal was not met, by documenting the GFE it made in an attempt to meet the goal. It is the sole responsibility of the bidder/offeror to submit any and all documents, logs, correspondence, and any other records or information to the Department that will demonstrate that the bidder/offeror made good faith efforts to meet the DBE goal.
- C. In its good faith evaluation, the Department shall perform the following as part of its evaluation: a) compare the bidder's/offeror's bid against the bids/offers of other bidders/offerors, and compare the DBEs and DBE work areas utilized by the bidder/offeror with the DBEs listed in other bids/offers submitted for this contract (If other bidders obtained DBEs in a particular work area in which the low bidder did not, the Department shall take this into consideration in its evaluation); b) verify contacts by bidders/offerors with DBEs; and c) compare the DBE and the categories of DBE work targeted by the bidder/offeror for participation in the contract, with the total pool of available DBEs ready, willing and able to perform work on each particular subcontract targeted by the bidder/offeror.
- D. Actions on the part of the bidder/offeror that will be considered demonstrative of good faith efforts include, but are not limited to, the following:
1. Whether the bidder/offeror submitted the required information (i.e., DBE name, address, NAICS code, description of work, project name, and number), and dollar amounts for all subcontractors, within five (5) days of bid opening;
 2. Whether the bidder/offeror solicited through all reasonable and available means (e.g., attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform part or all of the work to be included under the contract. The Department will also consider whether the bidder/offeror solicited the participation of potential DBEs as early in the procurement process as practicable, and allowed sufficient time for the DBEs to properly inquire about the project and respond to the solicitation. The Department will also review whether the bidder/offeror took appropriate steps to follow up with interested DBEs in a timely manner to facilitate participation by DBEs in this project;
 3. Whether the bidder/offeror identified and broke up portions of work that can be performed by DBEs in order to increase the likelihood that an DBE will be able to participate, and that the DBE goal could be achieved (e.g., breaking out contract items into economically feasible units to facilitate DBE participation even when the bidder/offeror might otherwise prefer to self-perform these work items with its own forces);
 4. Whether the bidder/offeror made available or provided interested DBEs with adequate information about the plans, specifications, and requirements of the project in a timely manner, and assisted them in responding to the bidder's/offeror's solicitation;

5. Whether the bidder/offeror negotiated in good faith with interested DBEs. Evidence of such negotiations includes documenting: a) the names, addresses and telephone numbers of DBEs that were contacted; b) a description of the information that was provided to DBEs regarding the plans and specifications; and c) detailed explanation for not utilizing individual DBEs on the project;
6. Whether the bidder/offeror solely relied on price in determining whether to use an DBE. The fact that there may be additional or higher costs associated with finding and utilizing DBEs are not, by itself, sufficient reasons for a bidder's/offeror's refusal to utilize an DBE, or the failure to meet the DBE goal, provided that such additional costs are not unreasonable. Also, the ability or desire of a bidder/offeror to perform a portion of the work with its own forces, that could have been undertaken by an available DBE, does not relieve the bidder/offeror of the responsibility to make good faith efforts to meet the DBE goal, and to make available and solicit DBE participation in other areas of the project to meet the DBE goal;
7. Whether the bidder/offeror rejected DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The DBEs standing within the industry, membership in specific groups, organizations or associations, and political or social affiliation are not legitimate basis for the rejection or non-solicitation of bids from particular DBEs;
8. Whether the bidder/offeror made efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance;
9. Whether the bidder/offeror made efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services;
10. Whether the bidder/offeror effectively used the services of available minority/women community organizations, minority/women business groups, contractors' groups, and local, state and federal minority/women business assistance offices or other organizations to provide assistance in recruitment and placement of DBEs;
11. Whether the bidder/offeror, who selects a non-DBE over an DBE subcontractor, has quotes of each DBE and non-DBE subcontractor submitted to the bidder for work on the contract; and for each DBE that was contacted but not utilized by the bidder/offeror for a contract, the bidder/offeror has a detailed written explanation for each DBE detailing the reasons for the bidder's/offeror's failure or inability to utilize, or to allow the DBE to participate in the contract; and
12. Whether other bidders/offerors met the goal and whether the apparent successful bidder/offeror could have met the goal with additional efforts. The Department may determine that an apparent successful bidder/offeror who fell short of meeting the goal, made good faith efforts when it met or exceeded the average DBE participation obtained by other bidders/offerors.

IX. ADMINISTRATIVE RECONSIDERATION.

If it is determined by the Department that the apparent successful bidder/offeror has failed to meet the provisions of 49 CFR Section 26.53(a), the bidder/offeror may submit a request for administrative reconsideration. If under the provisions of 49 CFR, Section 26.53(d), it is determined by the Department that the apparent successful bidder/offeror has failed to meet the provisions of this subsection, the bidder/offeror may submit a written request for administrative reconsideration.

- A. Within five (5) working days of being informed in writing by the Department that the bidder/offeror has not documented sufficient GFE, a bidder/offeror may request administrative reconsideration. Bidders/offerors should make this request in writing to the following official:

Director of Transportation
Hawaii Department of Transportation
869 Punchbowl Street, Room 509
Honolulu, Hawaii 96813

- B. The reconsideration official, or his or her designee (referred to as “reconsideration official”), shall not have played any role in the original determination that the bidder/offeror failed to meet the goal or make adequate good faith efforts to do so.
- C. As part of this reconsideration, the bidder/offeror will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate GFE to do so. The bidder/offeror will have the opportunity to meet in person with the reconsideration official to discuss the issue of whether it met the goal or made adequate GFE to do so.
- D. In an administrative reconsideration, the reconsideration official will review all previously submitted documents, oral and written arguments, and other evidence presented in the reconsideration, in making the decision.
- E. The Department shall inform the bidder/offeror of the decision within thirty (30) days of the proceeding. The decision will state the Department’s findings, and explain the basis of those findings, with respect to whether or not the bidder/offeror met the contract goal, or whether or not the bidder/offeror made adequate GFE to achieve the contract goal.
- F. The reconsideration decision is not administratively appealable to USDOT but is appealable under HRS 103D-709.

X. AWARD OF CONTRACT

- A. In a sealed bid procurement, the Department reserves the right to reject any or all bids. The award of contract, if it is awarded, will be to the lowest responsive and responsible bidder who meets or exceeds the DBE project goal, or who makes

good faith efforts to meet or exceed the DBE project goal, as determined by the Department.

- B. If the lowest responsible bidder does not meet the DBE project goal and does not demonstrate to the satisfaction of the Department that it made good faith efforts to meet the DBE project goal, such bid shall be rejected as non-responsive. The Department will then consider the next lowest responsive and responsible bidder for award in accordance with paragraph A above.

XI. REPLACEMENT OF AN DBE ON A PROJECT WITH A CONTRACT GOAL

Under this contract, the prime contractor shall utilize the specific DBE listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent from the Department to replace an DBE. If the Department's consent is not provided, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE. The Department reserves the right to request copies of all DBE subcontracts.

The Department will require a contractor to make good faith efforts to replace an DBE that is terminated or has otherwise failed to complete its work on a contract with another certified DBE, to the extent needed to meet the contract goal. A prime contractor's inability to find a replacement DBE at the original price is not sufficient to demonstrate that good faith efforts have been made to replace the original DBE. The fact that the contractor has the ability and/or desire to perform the contract work with its own forces does not relieve the contractor of the obligation to make good faith efforts to find a replacement DBE, and it is not a sound basis for rejecting a prospective replacement DBE's reasonable quote.

The Department will require the prime contractor to promptly provide written notice to the project manager of the DBE's inability or unwillingness to perform and provide reasonable documentation.

The written notice by the contractor must include the following:

1. The date the contractor determined the certified DBE to be unwilling, unable or ineligible to perform work on the contract;
2. The projected date that the contractor shall require a substitution or replacement DBE to commence work if consent is granted by the Department;
3. Documentation of facts that describe and cite specific actions or inactions on the part of the affected DBE that led to the contractor's conclusion that the DBE is unwilling, unable, or ineligible to perform work on the contract;
4. A brief statement of the affected DBE's capacity and ability or inability to perform the work as determined by the contractor;
5. Documentation of contractor's good faith efforts to enable affected DBE to perform the work;
6. The current percentage of work completed on each bid item by the affected DBE;

7. The total dollar amount currently paid per bid item for work performed by the affected DBE;
8. The total dollar amount per bid item remaining to be paid to the DBE for work completed but for which the DBE has not received payment, and with which the contractor has no dispute; and
9. The total dollar amount per bid item remaining to be paid to the DBE for work completed, for which the DBE has not received payment, and with which the contractor and DBE have a dispute.

The prime contractor shall send a copy of the written notice to replace a certified DBE on a contract to the affected DBE. The affected DBE may submit a written response within five (5) calendar days to the Department to explain its position on its performance on the committed work. The Department shall consider both the prime contractor's request and DBE's stated position before approving the termination or substitution request, or determining if any action shall be taken against the contractor.

There shall be no substitution or termination of an DBE subcontractor at any time without the prior written consent of the Department. The Department will provide written consent only if the contractor has good cause, as determined by the Department, to terminate the DBE. Good cause may include, but is not limited to the following circumstances:

1. The DBE subcontractor fails or refuses to execute a written contract;
2. The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards;
3. The listed DBE subcontractor fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond requirements;
4. The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
5. The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR Parts 180, 215 and 1200 or applicable state law;
6. The Department has determined that the listed DBE subcontractor is not a responsible contractor;
7. The listed DBE subcontractor voluntarily withdraws from the project and provides to the Department written notice of its withdrawal;
8. The listed DBE is ineligible to receive DBE credit for the type of work required; and
9. An DBE owner dies or becomes disabled with the result that the listed DBE contractor is unable to complete its work on the contract.

Upon approval from the Department to replace an DBE, the contractor's good faith efforts shall be documented and submitted to the Department within seven (7) calendar days. This time period may be extended for another seven (7) calendar days upon request by the prime contractor.

If an DBE subcontractor is unable to perform work under the contract, and is to be

replaced, the contractor's failure to obtain a substitute certified DBE or to make good faith efforts to obtain such a substitute DBE subcontractor to perform said work, may constitute a breach of this contract for which the Department may terminate the contract or pursue such remedy as deemed appropriate by the Department.

XII. CONTRACT COMPLIANCE

This contract is subject to contract compliance tracking, and the prime contractor and all subcontractors are required to report payments electronically in the HDOT online Certification and Contract Compliance Management System (hereafter referred to as "online tracking system"). The prime contractor shall report the date payment was made by the Department and shall report payment to all subcontractors for the audit period. The prime contractor and all subcontractors are responsible for responding by any noted response date or due date to any instructions or request for information, and to check the online tracking system on a regular basis to manage contact information and contract records.

The prime contractor is responsible for ensuring all subcontractors have completed all requested items and that their contact information is accurate and up-to-date. HDOT may require additional information related to the contract to be provided electronically through the online tracking system at any time before, during, or after contract award. Information related to contractor access of the online tracking system will be provided to designated point of contact with each contractor upon award of the contract. The online tracking system is web-based and can be accessed at the following Internet address: <https://hdot.dbesystem.com/>.

XIII. PAYMENT

- A. The Department will make an estimate in writing each month based on the items of work performed and materials incorporated in the work and the value therefore at the unit prices or lump sum prices set forth in the contract. All progress estimates and payments will be approximate only and shall be subject to correction at any time prior to or in the final estimate and payment. The Department will not withhold any amount from any payment to the contractor, including retainage.
- B. The contractor shall pay all subcontractors within ten (10) calendar days after receipt of any progress payments from the Department. This clause applies to both DBE and non-DBE subcontractors, and all tiers of subcontracts.
- C. The contractor will verify that payment or retainage has been released to the subcontractors or its suppliers within the specified time through entries in the Department's online tracking system during the corresponding monthly audits. Prompt payment will be monitored and enforced through the contractor's reporting of payments to its subcontractors and suppliers in the online tracking system.

Subcontractors, including lower tier subcontractors and/or suppliers will confirm the timeliness and the payment amounts received utilizing the online tracking system. Discrepancies will be investigated by the DBE Program Office and the project engineer. Payments to the subcontractors, including lower tier subcontractors, and including retainage released after the subcontractor or lower tier subcontractor's work has been completed to the Department's satisfaction, will be reported by the Contractor or the subcontractor.

- D. When any subcontractor has satisfactorily completed its work as specified in the subcontract, and there are no bona fide disputes, the contractor shall make prompt and full payment to the subcontractor of all monies due, including retainage, within ten (10) calendar days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented, as required by the Department. The contractor must obtain the prior written approval from the Department before it can continue to withhold retainage from any subcontractor who has completed its portion of the work. This clause applies to both DBE and non-DBE subcontractors, and all tiers of subcontracts.

XIV. RECORDS

The contractor shall maintain and keep all records necessary for the Department to determine compliance with the contractor's DBE obligations. The records shall be available at reasonable times and places for inspection by the Department and appropriate Federal agencies. The records to be kept by the contractor shall include:

1. The names, race/ethnicity, gender, address, phone number, and contact person of all DBE and non-DBE consultants, subcontractors, manufacturers, suppliers, truckers and vendors identified as DBEs;
2. The nature of work of each DBE and non-DBE consultant, subcontractor, manufacturer, supplier, trucker and vendor;
3. The dollar amount contracted with each DBE and non-DBE consultant, subcontractor, manufacturer, supplier, trucker and vendor; and
4. Cumulative dollar amount of all change orders to the subcontract.

XV. FAILURE TO COMPLY WITH DBE REQUIREMENTS

The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT assisted contracts. All contractors, subcontractors, manufacturers and suppliers are hereby advised that failure to carry out all DBE requirements specified herein shall constitute a material breach of contract that may result in termination of the contract or such other remedy as deemed appropriate by the Department including but not limited to: 1) withholding monthly progress payments; 2) assessing sanctions; 3) liquidated damages; and/or 4) disqualifying the contractor from future bidding as non-responsible.



Disadvantaged Business Enterprise (DBE) Contract Goal Verification and Good Faith Efforts (GFE) Documentation For Construction

Project #:	County:
DBE Project Goal:	Prime Contractor:

As required by the specifications “*Disadvantaged Business Enterprise Requirements*,” the dollar amount of each subcontract (both DBE and non-DBE firms) for all subcontractors, manufacturers, suppliers, and trucking companies is due by the close of business, 4:30 P.M. Hawaii Standard Time (HST) five (5) days after bid opening. **Failure to provide required information sufficient to evaluate the bid/proposal shall be cause for bid/proposal rejection.**

Calculation of the DBE contract goal for this project is the proportionate contract dollar value of work performed, materials, and goods to be supplied by DBEs. DBE credit shall not be given for mobilization, force account items, and allowance items. This DBE contract goal is applicable to all the contract work performed for this project and is calculated as follows:

1. DBE contract goal percentage = Contract Dollar Value of the work to be performed by DBE subcontractors and manufacturers, plus 60% of the contract dollar value of DBE suppliers, divided by the sum of all contract items (sum of all contract items is the total amount for comparison of bids less mobilization, force account items, and allowance items).

2. The Department shall adjust the bidder’s/offeror’s DBE contract goal to the amount of the project goal if it finds that the bidder/offeror met the goal but erroneously calculated a lower percentage. If the amount the bidder/offeror submits as its contract goal exceeds the project goal, the bidder/offeror shall be held to the higher goal.

Name of Subcontractor, Supplier, Manufacturer, and Trucking Company	DBE (Y/N)	Bid Item Number and Description	Approx. Quantity/Hours	Unit	Unit Price/Rate	Dollar Amount

A. Dollar amount of the work to be performed by DBE subcontractors, manufacturers, and trucking companies, plus 60% of the dollar amount of DBE suppliers	
B. Sum of all work items less mobilization, force account items, allowance items	
A/B = DBE contract goal	

NAME and SIGNATURE of AUTHORIZED REPRESENTATIVE of PRIME CONTRACTOR: _____ DATE: _____

Summary of Good Faith Efforts (GFE)

As required by the specifications “*Disadvantaged Business Enterprise Requirements*,” documentation of GFE shall be submitted by the close of business, 4:30 P.M. HST five (5) days of bid opening. **The bidder/offeror shall respond to the following questions and describe efforts to obtain DBE participation whether or not the DBE project goal is met.** Responses must be sufficient to properly evaluate the bidder’s/offeror’s good faith efforts. Copies of correspondence return receipts, telephone logs, or other documentation will be required to support GFE. Attach additional sheets, if necessary. Based on responses given, HDOT shall make a determination of the bidders’ GFE. **Failure to provide required information sufficient to evaluate the bid/proposal shall be cause for bid/proposal rejection.**

1. Did you submit the required information by the close of business, 4:30 P.M. HST, five (5) days after bid opening (i.e. DBE name, address, NAICS code, description of work, project name, and number)?
2. Explain your GFE if any, to solicit through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform part or all of the work to be included under the contract.
 - a. Explain your GFE if any, to solicit the participation of potential DBEs as early in the procurement process as practicable.
 - b. Explain your GFE if any, to allow sufficient time for the DBEs to properly inquire about the project and respond to the solicitation.
 - c. Explain your GFE if any, to take appropriate steps to follow up with interested DBEs in a timely manner to facilitate participation by DBEs in this project.
3. Explain your GFE if any, to identify and break up portions of work that can be performed by DBEs in order to increase the likelihood that a DBE will be able to participate, and that the DBE goal could be achieved (e.g. breaking out contract items into economically feasible units to facilitate DBE participation even when you might otherwise prefer to self-perform these work items).
4. Explain your GFE if any, to make available or provide interested DBEs with adequate information about the plans, specifications, and requirements of the project in a timely manner, and assist them in responding to your solicitation.
5. Explain your GFE if any, to negotiate in good faith with interested DBEs. Evidence of such negotiations includes documenting:
 - a) the names, addresses and telephone numbers of DBEs that were contacted; b) a description of the information that was provided to DBEs regarding the plans and specifications; and c) detailed explanation for not utilizing individual DBEs on the project.
6. Did you solely rely on price in determining whether to use a DBE? If yes please explain. The fact that there may be additional or higher costs associated with finding and utilizing DBEs are not, by themselves, sufficient reasons for your refusal to utilize a DBE or

NAME and SIGNATURE of AUTHORIZED REPRESENTATIVE of PRIME CONTRACTOR:

DATE:

failure to meet the DBE goal, provided that such additional costs are not unreasonable. Also, the ability or desire to perform a portion of the work with your own forces, that could have been undertaken by an available DBE, does not relieve you of the responsibility to make good faith efforts to meet the DBE goal, and to make available and solicit DBE participation in other areas of the project to meet the DBE goal.

7. Did you reject DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities? If yes, please explain. The DBEs standing within the industry, membership in specific groups, organizations or associates, and political or social affiliation are not legitimate basis for the rejection or non-solicitation of bids from particular DBEs.
8. Explain your GFE to assist interested DBEs in obtaining bonding, lines of credit, or insurance.
9. Explain your GFE if any, to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services.
10. If you selected a non-DBE over a DBE subcontractor, please provide the quotes of each DBE and non-DBE subcontractor submitted to you for work on the contract; and for each DBE that was contacted but not utilized for a contract, provide a detailed written explanation for each DBE detailing the reasons for not utilizing or allowing the DBE to participate in the contract.
11. Explain your GFE if any, to effectively use the services of available minority/women community organizations, minority/women business groups, contractors' groups, and local, state and federal minority/women business assistance offices or other organizations to provide assistance in recruitment and placement of DBEs.

NAME and SIGNATURE of AUTHORIZED REPRESENTATIVE of PRIME CONTRACTOR:

DATE:



**Disadvantaged Business Enterprise (DBE)
Contract Goal Verification and Good Faith Efforts (GFE)
Documentation For Construction
INSTRUCTIONS**

Project #	Self-explanatory
County	County where project is located
DBE Project Goal	Indicate DBE goal listed in the proposal on P-1
Prime Contractor	Name of prime contractor
Name of Subcontractor, Supplier, Manufacturer, and Trucking Company	Company name of subcontractor, supplier, manufacturer, or trucking firm
DBE (Y/N)	Y for yes and N for no
Bid Item Number and Description	Pay item and description
Approx. Quantity/ Hours	Self-explanatory
Unit	Unit of measure
Unit Price/ Rate	Self-explanatory
Dollar Amount	Total dollar amount committed to subcontractor, supplier, manufacturer, or trucking firm
A. Dollar amount of the work to be performed by DBE subcontractors, manufacturers, and trucking companies, plus 60% of the dollar amount of DBE suppliers	Total amount of DBE participation
B. Sum of all work items less mobilization, force account items, allowance items	List total of work items minus mobilization, force accounts and allowances. DBE credit shall not be given for mobilization, force account items, and allowance items.
A/B = DBE contract goal	Self-explanatory
Name and Signature of Authorized Representative of Prime Contractor	Self-explanatory (Note: bidder must sign and date every page of form.)
Date	Date form is signed
Summary of Good Faith Efforts (GFE)	Complete by answering questions in detail and providing documentation to support how bidder demonstrated good faith efforts to meet the goal, irrespective of whether or not the goal was met.



Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement Trucking Company

This commitment is subject to the award and receipt of a signed contract from the Hawaii Department of Transportation (HDOT) for the subject project. DBEs must be certified by the bid opening date.

Project #:	County:
NAICS CODE/DESCRIPTION OF WORK:	SECONDARY NAICS CODE:

*All quantities and units should match the bid tab item whenever possible.

The prime contractor shall inform HDOT the dates when the trucking firm starts and completes all work under the subcontract.

Estimated Beginning Date (Month/Year):	Estimated Completion Date (Month/Year):
---	--

TRUCKING COMPANY:	Item No.	Item Description	Unit	Unit Price / Rate	Amount
				\$	\$
				\$	\$
				\$	\$
TOTAL COMMITMENT AMOUNT					\$

1. Number of hours contracted or quantities to be hauled: _____
2. Number of fully operational trucks to be used: _____ Tractor/trailers: _____ Dump trucks: _____
3. Number of fully operational trucks owned by DBE: _____ Dump trucks: _____ Tractors/trailers: _____
4. If Owner Operators or additional trucking companies are to be used answer the following:

Name of Trucking Company	DBE Y/N	Estimated Dollar Amount to be Contracted	Number and Type of Trucks (specify)
		\$	
		\$	

The prime contractor certifies by signature on this agreement to utilize the DBE trucking company as listed on the agreement form. If a DBE trucking company is unable to perform the work as listed on this agreement form, the prime contractor will follow the substitution/replacement approval process as outlined in the contract DBE requirements. **IMPORTANT! The signatures of the DBE, prime contractor, and subcontractor (only if the DBE will be a second tier sub) confirms that all information on this Agreement is true and correct. Parties should sign Agreement in the order in which they are listed.**

DBE NAME:	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
Email:	
Prime Contractor:	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
Email:	
Subcontractor (only if the DBE will be a second tier sub):	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
Email:	

HDOT retains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that we collect about you.



**Disadvantaged Business Enterprise (DBE)
Confirmation and Commitment Agreement
Trucking Company
INSTRUCTIONS**

The purpose of this agreement is to secure the commitment of the bidder/offeror to utilize the listed DBE trucking company, and the DBE's confirmation that it will perform work for the bidder/offeror on this project. The information on this form shall be provided by the DBE.

Project #	Self-explanatory
County	County where project is located
NAICS Code/Description of Work	Primary North American Industry Classification System code under which DBE is certified to perform and description of work to be done
Secondary NAICS Code	List other NAICS codes firm is certified to perform
Estimated Beginning Date (Month/Year)	Date DBE shall begin work on the project
Estimated Completion Date (Month/Year)	Date DBE's work will be completed
Trucking Company	Name of DBE trucking company
Item No.	List pay item number
Item Description	Description of item
Unit	Unit of measure – e.g. weight or hours
Unit Price/Rate	Cost per unit or hourly rate
Amount	Total amount per pay item
Total Commitment Amount	Sum of all pay items and total commitment of bidder/offeror to DBE
Number of hours contracted or quantities to be hauled	Approximate number of hours or tonnage to be hauled
Number of fully operational trucks to be used:	Total number of trucks to be used for the project
Tractor/Trailers	Number of tractor trailers to be used
Dump Trucks	Number of dump trucks to be used
Number of fully operational trucks owned by DBE	Number of listed DBE's trucks to be used on this project
Name of Trucking Company	If other trucking companies (DBE or non-DBE) are to be leased, list name and information about type of trucks in this section
Estimated Dollar Amount to be Contracted	Provide information about estimated cost to lease trucks
Number of Dump Trucks, Tractor/Trailer	Self-explanatory
DBE NAME	DBE Company name
Name/Title	Name and title of DBE's representative
Address	Self-explanatory
Phone	Self-explanatory
Fax	Self-explanatory
Email	Self-explanatory
Signature	Signature of DBE's representative
Date	Date agreement is signed
Prime Contractor	Company name

Name/Title	Name and title of prime contractor's representative
Address	Self-explanatory
Phone	Self-explanatory
Fax	Self-explanatory
Email	Self-explanatory
Signature	Signature of prime contractor's representative
Date	Date agreement is signed
Subcontractor (only if the DBE will be a second tier sub):	Name of subcontractor only if the listed DBE trucking company will be performing work under this subcontractor
Name/Title	Name and title of the subcontractor's representative
Address	Self-explanatory
Phone	Self-explanatory
Fax	Self-explanatory
Email	Self-explanatory
Signature	Signature of subcontractor
Date	Date agreement is signed



Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement Subcontractor, Manufacturer, or Supplier

This commitment is subject to the award and receipt of a signed contract from the Hawaii Department of Transportation (HDOT) for the subject project. DBEs must be certified by the bid opening date.

Project #:	County:
NAICS CODE/DESCRIPTION OF WORK:	SECONDARY NAICS CODE:

*All quantities and units should match the bid tab item whenever possible.

The prime contractor shall inform HDOT of the dates when the subcontractor starts and completes all work under the subcontract.

Estimated Beginning Date (Month/Year):	Estimated Completion Date (Month/Year):
---	--

SUBCONTRACTOR:	Item No.	Item	Approx. Quantity	Unit	Unit Price	Amount
					\$	\$
					\$	\$
					\$	\$
					\$	\$
TOTAL COMMITMENT AMOUNT						\$

MANUFACTURER:	Item No.	Item	Approx. Quantity	Unit	Unit Price	Amount
					\$	\$
					\$	\$
TOTAL COMMITMENT AMOUNT						\$

SUPPLIER:	Item No.	Item	Approx. Quantity	Unit	Unit Price	Amount
					\$	\$
					\$	\$
TOTAL COMMITMENT AMOUNT						\$

The prime contractor certifies by signature on this agreement that subcontracts will be executed between the prime contractor and the DBE subcontractors as listed on the agreement form. If a DBE subcontractor is unable to perform the work as listed on this agreement form, the prime contractor will follow the substitution/replacement approval process as outlined in the contract DBE requirements. **IMPORTANT! The signatures of the DBE, prime contractor, and subcontractor (only if the DBE will be a second tier sub) confirms that all information on this Agreement is true and correct. Parties should sign Agreement in the order in which they are listed.**

DBE NAME:	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
Email:	Date:
Prime Contractor:	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
Email:	Date:
Subcontractor (only if the DBE will be a second tier sub):	Name/Title (please print):
Address:	Signature:
Phone: Fax:	
Email:	Date:

HDOT retains the information collected through this form. With few exceptions, you are entitled on request to be informed about the information that we collect about you.



Disadvantaged Business Enterprise (DBE) Confirmation and Commitment Agreement Subcontractor, Manufacturer, or Supplier INSTRUCTIONS

The purpose of this agreement is to secure the commitment of the bidder/offeror to utilize the listed DBE, and the DBE's confirmation that it will perform work for the bidder/offeror on this project. The information on this form shall be provided by the DBE.

Project #	Self-explanatory
County	County where project is located
NAICS Code/Description of Work	Primary North American Industry Classification System code under which DBE is certified to perform and description of work to be done
Secondary NAICS Code	List other NAICS codes firm is certified to perform
Estimated Beginning Date (Month/Year)	Date DBE shall begin work on the project
Estimated Completion Date (Month/Year)	Date DBE's work will be completed
Subcontractor	Name of DBE subcontractor (company name)
Item No.	List pay item number
Item	Description of item
Approx. Quantity	Self-explanatory
Unit	List unit of measure
Unit Price	Cost per unit
Amount	Total amount per pay item
Total Commitment Amount	Sum of all pay items and total commitment of bidder/offeror to DBE
Manufacturer	Name of DBE manufacturer
Supplier	Name of DBE supplier (aka regular dealer)
DBE NAME	DBE Company name
Name/Title	Name and title of DBE's representative
Address	Self-explanatory
Phone	Self-explanatory
Fax	Self-explanatory
Email	Self-explanatory
Signature	Signature of DBE's representative
Date	Date agreement is signed
Prime Contractor	Company name
Name/Title	Name and title of prime contractor's representative
Address	Self-explanatory
Phone	Self-explanatory
Fax	Self-explanatory
Email	Self-explanatory
Signature	Signature of prime contractor's representative
Date	Date agreement is signed
Subcontractor (only if the DBE will be a second tier sub):	Name of subcontractor only if the listed DBE will be performing work under this subcontractor as a second tier subcontractor/supplier/manufacturer

Name/Title	Name and title of the subcontractor's representative that the listed DBE will work under as a second tier subcontractor/supplier/manufacturer
Address	Self-explanatory
Phone	Self-explanatory
Fax	Self-explanatory
Email	Self-explanatory
Signature	Signature of subcontractor's representative
Date	Date agreement is signed

**REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature*. The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification*. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention*. The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents*. The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers*. The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements*. If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures*. Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay*. Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits*. Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio*. The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates*. Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity*. The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU, HAWAII

SPECIAL PROVISIONS

These Special Provisions shall supplement and/or amend the applicable provisions of the Hawaii Standard Specifications for Road and Bridge Construction, 2005, hereinafter referred to as the "Standard Specifications".

1 Amend **Section 101 - TERMS, ABBREVIATIONS, AND DEFINITIONS** to read as
2 follows:

3
4 **“DIVISION 100 - GENERAL PROVISIONS**

5
6
7 **SECTION 101 - TERMS, ABBREVIATIONS, AND DEFINITIONS**

8
9 **101.01 Meaning of Terms.** The specifications are generally written in the
10 imperative mood. In sentences using the imperative mood, the subject, “the
11 Contractor shall”, is implied. In the material specifications, the subject may also
12 be the supplier, fabricator, or manufacturer supplying material, products, or
13 equipment for use on the project. The word “will” generally pertains to decisions
14 or actions of the State.

15
16 When a publication is specified, it refers to the most recent date of issue,
17 including interim publications, before the bid opening date for the project, unless a
18 specific date or year of issue is provided.

19
20 **101.02 Abbreviations.** Meanings of abbreviations used in the specifications,
21 on the plans, or in other contract documents are as follows:

22

23	AAN	American Association of Nurserymen
24		
25	AASHTO	American Association of State Highway and 26 Transportation Officials
27		
28	ACI	American Concrete Institute
29		
30	ADA	Americans with Disabilities Act
31		
32	ADAAG	Americans with Disabilities Act Accessibility Guidelines
33		
34	AGC	Associated General Contractors of America
35		
36	AIA	American Institute of Architects
37		
38	AISC	American Institute of Steel Construction
39		
40	AISI	American Iron and Steel Institute
41		
42	ANSI	American National Standards Institute
43		
44	APA	American Plywood Association
45		

46	ARA	American Railway Association
47		
48	AREA	American Railway Engineering Association
49		
50	ASA	American Standards Association
51		
52	ASCE	American Society of Civil Engineers
53		
54	ASLA	American Society of Landscape Architects
55		
56	ASTM	American Society for Testing and Materials
57		
58	AWG	American Wire Gauge
59		
60	AWPA	American Wood Preserver's Association
61		
62	AWS	American Welding Society
63		
64	AWWA	American Water Works Association
65		
66	BMP	Best Management Practice
67		
68	CCO	Contract Change Order
69		
70	CFR	Code of Federal Regulations
71		
72	CRSI	Concrete Reinforcing Steel Institute
73		
74	DCAB	Disability and Communication Access Board, Department of Health, State of Hawaii
75		
76		
77	DOTAX	Department of Taxation, State of Hawaii
78		
79	EPA	U.S. Environmental Protection Agency
80		
81	FHWA	Federal Highway Administration, U.S. Department of Transportation
82		
83		
84	FSS	Federal Specifications and Standards, General Services Administration, U.S. Department of Defense
85		
86		
87	HAR	Hawaii Administrative Rules
88		
89	HDOT	Department of Transportation, State of Hawaii
90		

91	HIOSH	Occupational Safety and Health, Department of Labor and Industrial Relations, State of Hawaii
92		
93		
94	HMA	Hot Mix Asphalt
95		
96	HRS	Hawaii Revised Statutes
97		
98	ICEA	Insulated Cable Engineers Association (formerly IPCEA)
99		
100	IMSA	International Municipal Signal Association
101		
102	IRS	Internal Revenue Service
103		
104	ITE	Institute of Transportation Engineers
105		
106	MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways, FHWA, U.S. Department of Transportation
107		
108		
109	NCHRP	National Cooperative Highway Research Program
110		
111	NEC	National Electric Code
112		
113	NEMA	National Electrical Manufacturers Association
114		
115	NFPA	National Forest Products Association
116		
117	NPDES	National Pollutant Discharge Elimination System
118		
119	OSHA	Occupational Safety and Health Administration/Act, U.S. Department of Labor
120		
121		
122	SAE	Society of Automotive Engineers
123		
124	SI	International Systems of Units
125		
126	UFAS	Uniform Federal Accessibility Standards
127		
128	UL	Underwriter's Laboratory
129		
130	USGS	U.S. Geological Survey
131		
132	VECP	Value Engineering Cost Proposal
133		
134		

135 **101.03 Definitions.** Whenever the following words, terms, or pronouns are
136 used in the contract documents, unless otherwise prescribed therein and without
137 regards to the use or omission of uppercase letters, the intent and meaning shall
138 be interpreted as follows:

139
140 **Addendum (plural - Addenda)** - A written or graphic document, including
141 drawings and specifications, issued by the Director during the bidding period. This
142 document modifies or interprets the bidding documents by additions, deletions,
143 clarifications or corrections.

144
145 **Addition** (to the contract sum) - Amount added to the contract sum by change
146 order.

147
148 **Advertisement** - A public announcement inviting bids for work to be performed or
149 materials to be furnished.

150
151 **Amendment** - A written document issued to amend the existing contract between
152 the State and Contractor and properly executed by the Contractor and Director.

153
154 **Award** - Written notification to the bidder that the bidder has been awarded a
155 contract.

156
157 **Bad Weather Day (or Unworkable Day)** - A day when weather or other conditions
158 prevent a minimum of four hours of work with the Contractor's normal work force
159 on critical path activities at the site.

160
161 **Bag** - 94 pounds of cement.

162
163 **Barrel** - 376 pounds of cement.

164
165 **Base Course** - The layer or layers of specified material or selected material of a
166 designed thickness placed on a subbase or subgrade to support a surface course.

167
168 **Basement Material** - The material in excavation or embankments underlying the
169 lowest layer of subbase, base, pavement, surfacing or other specified layer.

170
171 **Bid** - See Proposal.

172
173 **Bidder** - An individual, partnership, corporation, joint venture or other legal entity
174 submitting, directly or through a duly authorized representative or agent, a
175 proposal for the work or construction contemplated.

176
177 **Bidding Documents (or Solicitation Documents)** - The published solicitation
178 notice, bid requirements, bid forms and the proposed contract documents including
179 all addenda and clarifications issued prior to receipt of the bid.

180

181 **Bid Security** - The security furnished by the bidder from which the State may
182 recover its damages in the event the bidder breaches its promise to enter into a
183 contract with the State, or fails to execute the required bonds covering the work
184 contemplated, if its proposal is accepted.

185
186 **Blue Book** - EquipmentWatch Cost Recovery (formerly known as
187 EquipmentWatch Rental Rate Blue Book), available from EquipmentWatch, a
188 division of Penton, Inc.

189
190 **Calendar Day** - See Day.

191
192 **Change Order (or Contract Change Order)** - A written order signed by the
193 Engineer issued with or without the consent of the Contractor directing changes in
194 the work, contract time or contract price. The purposes of a change order include,
195 but are not limited to (1) establishing a price or time adjustment for changes in the
196 work; (2) establishing full payment for direct, indirect, and consequential costs,
197 including costs of delay; (3) establishing price adjustment or time adjustment for
198 work covered and affected by one or more field orders; or (4) settling Contractor's
199 claims for direct, indirect, and consequential costs, or for additional contract time,
200 in whole or in part.

201
202 **Completion** - See Substantial Completion and Final Completion.

203
204 **Completion Date** - The date specified by the contract for the completion of all
205 work on the project or of a designated portion of the project.

206
207 **Comptroller** - the Comptroller of the State of Hawaii, Department of Accounting
208 and General Services.

209
210 **Contract** - The written agreement between the Contractor and the State, by which
211 the Contractor shall provide all labor, equipment, and materials and perform the
212 specified work within the contract time stipulated, and by which the State of Hawaii
213 is obligated to compensate the Contractor at the prices set forth in the contract
214 documents.

215
216 **Contract Certification Date** - The Date on which the Deputy Comptroller for the
217 State of Hawaii (or authorized representative) signs the Contract Certification.

218
219 **Contract Completion Date** - The calendar day on which all work on the project,
220 required by the contract, must be completed. See CONTRACT TIME.

221

222 **Contract Documents** - The contract, solicitation, addenda, notice to bidders,
223 Contractor's bid proposal (including wage schedule, list of subcontractors and
224 other documentations accompanying the bid), notice to proceed, bonds, general
225 provisions, special provisions, specifications, drawings, all modifications, all written
226 amendments, change orders, field orders, orders for minor changes in the work,
227 the Engineer's written interpretations and clarifications issued on or after the
228 effective date of the contract.

229
230 **Contract Item (Pay Item)** - A specific unit of work for which there is a price in the
231 contract.

232
233 **Contract Modification (Modification)** - A change order that is mutually agreed to
234 and signed by the parties to the contract.

235
236 **Contract Price** - The amount designated on the face of the contract for the
237 performance of work.

238
239 **Contract Time (or Contract Duration)** - The number of calendar or working days
240 provided for completion of the contract, inclusive of authorized time extensions.
241 Contract time shall commence on the Start Work Date and end on the Substantial
242 Completion Date. If in lieu of providing a number of calendar or working days, the
243 contract requires completion by a certain date, the work shall be completed by that
244 date.

245
246 **Contracting Officer** - See Engineer.

247
248 **Contractor** - Any individual, partnership, firm, corporation, joint venture, or other
249 legal entity undertaking the execution of the work under the terms of the contract
250 with the State.

251
252 **Critical Path** - Longest logical sequence of activities that must be completed on
253 schedule for the entire project to be completed on schedule.

254
255 **Day** - Any day shown on the calendar, beginning at midnight and proceeding up
256 to, but not including, midnight the following day. If no designation of calendar or
257 working day is made, "day" shall mean calendar day.

258
259 **Department** - The Department of Transportation of the State of Hawaii
260 (abbreviated HDOT).

261
262 **Director** - The Director of the HDOT acting directly or through duly authorized
263 representatives.

264
265 **Plans (or Drawings)** - The contract drawings in graphic or pictorial form including
266 the notes, tables and other notations thereon indicating the design, location,
267 character, dimensions, and details of the work.

268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314

Engineer - The Highway Administrator, Highways Division, HDOT, or the authorized person delegated to act on the Administrator's behalf.

Equipment - All machinery, tools, and apparatus needed to complete the contract.

Field Order - A written order issued by the Engineer or the Engineer's authorized representative to the Contractor requiring a change or changes to the contract work. A field order may (1) establish a price adjustment or time adjustment; or (2) may declare that no adjustment will be made to contract price or contract time; or (3) may request the Contractor to submit a proposal for an adjustment to the contract price or contract time.

Final Acceptance - The Status of the project when the Engineer finds that the Contractor has satisfactorily completed all contract work in compliance with the contract including all plant establishment requirements, and all the materials have been accepted by the State.

Final Completion - The date set by the Director that all work required by the contract has been completed in full compliance with the contract documents.

Final Inspection - Inspection where all contract items (with the exception of Planting Period and Plant Establishment Period) are accepted by the Engineer. Substantial Completion will be issued by the Engineer based on the satisfactory results of the Final Inspection.

Float - The amount of time between when an activity can start and when an activity must start, i.e., the time available to complete non-critical activities required for the performance of the work without affecting the critical path.

Guarantee - Legally enforceable assurance of the duration of satisfactory performance of quality of a product or work.

Hawaii Administrative Rules - Rules adopted by the State in accordance with Chapter 91 of the Hawaii Revised Statutes, as amended.

Hawaii ePROCUREMENT System (HlePRO) - The State of Hawaii eProcurement System for issuing solicitations, receiving proposals and responses, and issuing notices of award.

Highway (Street, Road, or Roadway) - A public way within a right-of-way designed, intended, and set aside for use by vehicles, bicyclists, or pedestrians.

Highways Division - The Highways Division of the Hawaii Department of Transportation constituted under the laws of Hawaii for the administration of highway work.

315 **Holidays** - The days of each year which are set apart and established as State
316 holidays pursuant to Chapter 8 of the Hawaii Revised Statutes, as amended.

317
318 **Inspector** - The Engineer's authorized representative assigned to make detailed
319 inspections of contract performance, prescribed work, and materials supplied.

320
321 **Laboratory** - The testing laboratory of the Highways Division or other testing
322 laboratories that may be designated by the Engineer.

323
324 **Laws** - All Federal, State, and local laws, executive orders and regulations having
325 the force of law.

326
327 **Leveling Course** - An aggregate mixture course of variable thickness used to
328 restore horizontal and vertical uniformity to existing pavements or shoulders.

329
330 **Liquidated Damages** - The amount prescribed in Subsection 108.08 - Liquidated
331 Damages for Failure to Complete the Work or Portions of the Work on Time, to be
332 paid to the State or to be deducted from any payments payable to or, which may
333 become payable to the Contractor.

334
335 **Lump Sum (LS)** - When used as a payment method means complete payment
336 for the item of work described in the contract documents.

337
338 **Material** - Any natural or manmade substance or item specified in the contract to
339 be incorporated in the work.

340
341 **Notice to Bidders** - The advertisement for proposals for all work or materials on
342 which bids are required. Such advertisement will indicate the location of the work
343 to be done or the character of the material to be furnished and the time and place
344 for the opening of proposals.

345
346 **Notice to Proceed** - Written notice from the Engineer to the Contractor identifying
347 the date on which the Contractor is to begin procuring materials and required
348 permits and adjusting work forces, equipment, schedules, etc. prior to beginning
349 physical work.

350
351 **Pavement** - The uppermost layer of material placed on the traveled way or
352 shoulders or both. Pavement and surfacing may be interchangeable.

353
354 **Pavement Structure** - The combination of subbase, base, pavement, surfacing or
355 other specified layer of a roadway constructed on a subgrade to support the traffic
356 load.

357
358 **Payment Bond** - The security executed by the Contractor and surety or sureties
359 furnished to the Department to guarantee payment by the Contractor to laborers,
360 material suppliers and subcontractors in accordance with the terms of the contract.

361

362 **Physical Work** - Physical construction activities on the project site or at
363 appurtenant facilities including staging areas. It includes; (i) building or installing
364 any structures or facilities including, but not limited to sign erection; BMP
365 installation; field office site grading and building; (ii) removal, adjustment, or
366 demolition of physical obstructions on site; (iii) any ground breaking activities; and
367 (iv) any utility work. It does not include pre-construction environmental testing
368 (such as water quality baseline measurements) that may be required as part of
369 contract.

370

371 **Pre-Final Inspection** - Inspection scheduled when Contractor notifies Engineer
372 that all physical work on the project, with the exception of planting period and plant
373 establishment period, has been completed. Notice from Contractor of substantial
374 completion will suspend contract time until Contractor receives punchlist from
375 Engineer.

376

377 **Profile Grade** - The elevation or gradient of a vertical plane intersecting the top
378 surface of the proposed pavement.

379

380 **Project Acceptance Date** - The calendar day on which the Engineer accepts the
381 project as completed. See Final Completion.

382

383 **Proposal (or Bid)** - The offer of a Bidder, on the prescribed HDOT form, to perform
384 the work and to furnish the labor and materials at the prices quoted.”

385

386 **Public Traffic** - Vehicular or pedestrian movement on a public way.

387

388 **Punchlist** - A list compiled by the Engineer specifying work yet to be completed or
389 corrected by the Contractor in order to substantially complete the contract.

390

391 **Questionnaire** - The specified forms on which the bidder shall furnish required
392 information as to its ability to perform and finance the work.

393

394 **Request for Change Proposal** - A written notice from the Engineer to the
395 Contractor requesting that the Contractor provide a price and/or time proposal for
396 contemplated changes preparatory to the issuance of a field order or change order.

397

398 **Right-of-Way** - Land, property, or property interests acquired by a government
399 agency for, or devoted to transportation purposes.

400

401 **Roadbed** - The graded portion of a highway within top and side slopes, prepared
402 as a foundation for the pavement structure and shoulders.

403

404 **Roadside** - The area between the outside edges of the shoulders and the right-of-
405 way boundaries. Unpaved median areas between inside shoulders of divided
406 highways and infield areas of interchanges are included.

407 **Section and Subsection** - Section or subsection shall be understood to refer to
408 these specifications unless otherwise specified.

409

410 **Shop Drawings** - All drawings, diagrams, illustrations, schedules and other data
411 or information which are specifically prepared or assembled by or for the
412 Contractor and submitted by the Contractor to illustrate some portion of the work.

413

414 **Shoulder** - The portion of the roadway next to the traveled way for:
415 accommodation of stopped vehicles, placement of underground facilities,
416 emergency use, and lateral support of base and surface courses.

417

418 **Sidewalk** - That portion of the roadway primarily constructed for use by
419 pedestrians.

420

421 **Solicitation** - An invitation to bid or request for proposals or any other document
422 issued by the Department to solicit bids or offers to perform a contract. The
423 solicitation may indicate the time and place to receive the bids or offers and the
424 location, nature and character of the work, construction or materials to be provided.

425

426 **Specifications** - Compilation of provisions and requirements to perform
427 prescribed work.

428

429 **(A) Standard Specifications.** Specifications by the State intended for
430 general application and repetitive use.

431

432 **(B) Special Provisions.** Revisions and additions to the standard
433 specifications applicable to an individual project.

434

435 **Standard Plans** - Drawings provided by the State for specific items of work
436 approved for repetitive use.

437

438 **State** - The State of Hawaii, its Departments and agencies, acting through its
439 authorized representative(s).

440

441 **State Waters** – All waters, fresh, brackish, or salt, around and within the State,
442 including, but not limited to, coastal waters, streams, rivers, drainage ditches,
443 ponds, reservoirs, canals, ground waters, and lakes; provided that drainage
444 ditches, ponds, and reservoirs required as a part of a water pollution control system
445 are excluded.

446

447 **Start Work Date** - Date on which Contractor begins physical work on the contract.
448 This date shall also be the beginning of Contract Time.

449

450 **Structures** - Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing,
451 manholes, endwalls, buildings, sewers, service pipes, underdrains, foundation
452 drains, and other such features that may be encountered in the work.

453

454 **Subbase** - A layer of specified material of specified thickness between the
455 subgrade and a base.

456

457 **Subcontract -**

458 An individual, partnership, firm, corporation, or joint venture, or other legal entity,
459 as licensed or required to be licensed under Chapter 444, Hawaii Revised
460 Statutes, as amended, which enters into an agreement with the Contractor to
461 perform a portion of the work.

462

463 **Subcontractor** - An individual, partnership, firm, corporation, joint venture or other
464 legal entity, as licensed or required to be licensed under Chapter 444, Hawaii
465 Revised Statutes, as amended, which enters into an agreement with the
466 Contractor to perform a portion of the work.

467

468 **Subgrade** - The top surface of completed earthwork on which subbase, base,
469 surfacing, pavement, or a course of other material is to be placed.

470

471 **Substantial Completion** - The Status of the project when the Contractor has
472 completed the work, except for the planting period and plant establishment period,
473 and each of the following requirements are met:

474

475 (1) All traffic lanes (including shoulders, ramps, sidewalks and bike
476 paths) are in their final configuration as designed and the final
477 wearing surface has been installed;

478

479 (2) All operational and safety devices have been installed in accordance
480 with the contract documents including guardrails, end treatments,
481 traffic barriers, required signs and pavement markings, drainage,
482 parapet, and bridge and pavement structures;

483

484 (3) All required illumination and lighting for normal and safe use and
485 operation is installed and functional in accordance with the contract
486 documents;

487

488 (4) All utilities and services are connected and working;

489

490 (5) The need for temporary traffic controls or lane closures at any time
491 has ceased, except for lane closures required for routine
492 maintenance;

493

494 (6) The building, structure, improvement or facility can be used for its
495 intended purpose.

496

497 **Substantial Completion Date** - The date the Substantial Completion is granted
498 by the Engineer in Writing and Contract Time stops.

499

500 **Superintendent** - The employee of the Contractor who is responsible for all the
501 work and is a Contractor's agent for communications to and from the State.

502

503 **Surety** - The qualified individual, firm or corporation other than the Contractor,
504 which executes a bond with and for the Contractor to insure its acceptable
505 performance of the contract.

506

507 **Surfacing** - The uppermost layer of material placed on the traveled way or
508 shoulders. This term is used interchangeably with pavement.

509

510 **Traveled Way** - The portion of the roadway for the movement of vehicles,
511 exclusive of shoulders.

512

513 **Unsuitable Material** - Materials that contain organic matter, muck, humus, peat,
514 sticks, debris, chemicals, toxic matter, or other deleterious materials not suitable
515 for use in earthwork.

516

517 **Utility** - A line, facility, or system for producing, transmitting, or distributing
518 communications, power, electricity, heat, gas, oil, water, steam, waste, or storm
519 water.

520

521 **Utility Owner** - The entity, whether private or owned by a State, Federal, or County
522 governmental body, that has the power and responsibility to grant approval for, or
523 undertake construction work involving a particular utility.

524

525 **Water Pollutant** - Dredged spoil, solid refuse, incinerator residue, sewage,
526 garbage, sewage sludge, munitions, chemical waste, biological materials,
527 radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil,
528 sediment, cellar dirt and industrial, municipal, and agricultural waste.

529

530 **Water Pollution** - **(1)** Such contamination or other alteration of the physical,
531 chemical, or biological properties of any state waters, including change in
532 temperature, taste, color, turbidity, or odor of the waters, or **(2)** Such discharge of
533 any liquid, gaseous, solid, radioactive, or other substances into any state waters,
534 as will or is likely to create a nuisance or render such waters unreasonably harmful,
535 detrimental, or injurious to public health, safety, or welfare, including harm,
536 detriment, or injury to public water supplies, fish and aquatic life and wildlife,
537 recreational purposes and agricultural and industrial research and scientific uses
538 of such waters or as will or is likely to violate any water quality standards, effluent
539 standards, treatment and pretreatment standards, or standards of performance for
540 new sources adopted by the Department of Health.

541

542 **Work** - The furnishing of all labor, material, equipment, and other incidentals
543 necessary or convenient for the successful execution of all the duties and
544 obligations imposed by the contract.

545

546 **Working Day** - A calendar day in which a Contractor is capable of working four or
547 more hours with its normal work force, exclusive of:

548
549
550
551
552
553
554
555
556
557
558

(1) Saturdays, Sundays, and recognized legal State holidays and such other days specified by the contract documents as non-working days,

(2) Day in which the Engineer suspends work for four or more hours through no fault of the Contractor.”

END OF SECTION 101

1 Make this section a part of the Standard Specifications:

2
3 **“SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS**

4
5
6 **102.01 Prequalification of Bidders.** Prospective bidders shall be capable of
7 performing the work for which they are bidding.

8
9 In accordance with HRS Chapter 103D-310, the Department may require
10 any prospective bidder to submit answers to questions contained in the 'Standard
11 Qualification Questionnaire For Prospective Bidders On Public Works Contracts'
12 furnished by the Department, properly executed and notarized, setting forth a
13 complete statement of the experience of such prospective bidder and its
14 organization in performing similar work and a statement of the equipment
15 proposed to be used, together with adequate proof of the availability of such
16 equipment. Whenever it appears to the Department, from answers to the
17 questionnaire or otherwise, that the prospective bidder is not fully qualified and
18 able to perform the intended work, the Department will, after affording the
19 prospective bidder an opportunity to be heard and if still of the opinion that the
20 bidder is not fully qualified to perform the work, refuse to receive or consider any
21 bid offered by the prospective bidder. All information contained in the answers to
22 the questionnaire shall be kept confidential. Questionnaire so submitted shall be
23 returned to the bidders after serving their purpose.

24
25 No person, firm or corporation may bid where (1) the person, firm, or
26 corporation, or (2) a corporation owned substantially by the person, firm, or
27 corporation, or (3) a substantial stockholder or an officer of the corporation, or (4)
28 a partner or substantial investor in the firm is in arrears in payments owed to the
29 State or its political subdivisions or is in default as a surety or failure to do
30 faithfully and diligently previous contracts with the State.

31
32 **102.02 Contents of Proposal Forms.** The Department will furnish
33 prospective bidders with proposal forms posted in HlePRO stating:

- 34
35 (1) The location,
36
37 (2) Description of the proposed work,
38
39 (3) The approximate quantities,
40
41 (4) Items of work to be done or materials to be furnished,
42
43 (5) A schedule of items, and
44
45 (6) The time in which the work shall be completed.
46

47 Papers bound with or attached to the proposal form are part of the
48 proposal. The bidder shall not detach or alter the papers bound with or attached
49 to the proposal when the bidder submits its proposal through HlePRO.
50

51 Also, the bidder shall consider other documents including the plans and
52 specifications a part of the proposal form whether attached or not.
53

54 **102.03 (Unassigned).**
55

56 **102.04 Estimated Quantities.** The quantities shown in the contract are
57 approximate and are for the comparison of bids only. The actual quantity of work
58 may not correspond with the quantities shown in the contract. The Department
59 will make payment to the Contractor for unit price items in accordance with the
60 contract for only the following:
61

62 (1) Actual quantities of work done and accepted, not the estimated
63 quantities; or
64

65 (2) Actual quantities of materials furnished, not the estimated
66 quantities.
67

68 The Department may increase, decrease, or omit each scheduled
69 quantities of work to be done and materials to be furnished. When the
70 Department increases or decreases the estimated quantity of a contract item by
71 more than 15% the Department will make payment for such items in accordance
72 with Subsection 104.06 - Methods of Price Adjustment.
73

74 **102.05 Examination of Contract and Site of Work.** The bidder shall
75 examine carefully the site of the proposed work and contract before submitting a
76 proposal.
77

78 By the act of submitting a bid for the proposed contract, the bidder
79 warrants that:
80

81 (1) The bidder and its Subcontractors have reviewed the contract
82 documents and found them free from ambiguities and sufficient for the
83 purpose intended;
84

85 (2) The bidder and its workers, employees and subcontractors have
86 the skills and experience in the type of work required by the contract
87 documents bid upon;
88

89 (3) Neither the bidder nor its employees, agents, suppliers or
90 subcontractors have relied upon verbal representations from the
91 Department, its employees or agents, including architects, engineers or
92 consultants, in assembling the bid figure; and

93 (4) The basis for the bid figure are solely on the construction contract
94 documents.

95
96 Also, the bidder warrants that the bidder has examined the site of the
97 work. From its investigations, the bidder acknowledges satisfaction on:
98

- 99 (1) The nature and location of the work;
100
101 (2) The character, quality, and quantity of materials;
102
103 (3) The difficulties to be encountered; and
104
105 (4) The kind and amount of equipment and other facilities needed;
106

107 Subsurface information or hydrographic survey data furnished are for the
108 bidders' convenience only. The data and information furnished are the product of
109 the Department's interpretation gathered in investigations made at the specific
110 locations. These conditions may not be typical of conditions at other locations
111 within the project area or that such conditions remain unchanged. Also,
112 conditions found at the time of the subsurface explorations may not be the same
113 conditions when work starts. The bidder shall be solely responsible for
114 assumptions, deductions, or conclusions the bidder may derive from the
115 subsurface information or data furnished.
116

117 If the Engineer determines that the natural conditions differ from that
118 originally anticipated or contemplated by the Contractor in the items of
119 excavation, the State may treat the difference in natural conditions, as falling
120 within the meaning of Subsection 104.02 – Changes.
121

122 **102.06 Preparation of Proposal.** The submittal of its proposal shall be on
123 forms furnished by the Department. The bidder shall specify in words or figures:
124

- 125 (1) A unit price for each pay item with a quantity given;
126
127 (2) The products of the respective unit prices and quantities
128
129 (3) The lump sum amount; and
130
131 (4) The total amount of the proposal obtained by adding the amounts
132 of the several items.
133

134 The words and figures shall be in ink or typed. If a discrepancy occurs
135 between the prices written in words and those written in figures, the prices written
136 in words shall govern.
137

138 When an item in the proposal contains an option to be made, the bidder
139 shall choose in accordance with the contract for that particular item.
140 Determination of an option will not permit the Contractor to choose again.

141
142 The bidder shall sign the proposal properly in ink. A duly authorized
143 representatives of the bidder or by an agent of the bidder legally qualified and
144 acceptable to the Department shall sign, including one or more partners of the
145 bidder and one or more representatives of each entity comprising a joint venture.

146
147 When an agent, other than the officer(s) of a corporation authorized to
148 sign contracts for the corporation or a partner of a partnership, signs the
149 proposals, a 'Power of Attorney' shall be on file with the Department or submitted
150 with the proposal. Otherwise, the Department will reject the proposal as irregular
151 and unauthorized.

152
153 The bidder shall submit acceptable evidence of the authority of the
154 partner, member(s) or officer(s) to sign for the partnership, joint venture, or
155 corporation respectively with the proposal. Otherwise, the Department will reject
156 the proposal as irregular and unauthorized.

157
158 **102.07 Irregular Proposals.** The Department may consider proposals
159 irregular and may reject the proposals for the following reasons:

160
161 (1) The proposal is a form not furnished by the Department, altered, or
162 detached;

163
164 (2) The proposal contains unauthorized additions, conditions, or
165 alternates. Also, the proposal contains irregularities that may tend to
166 make the proposal incomplete, indefinite, or ambiguous to its meaning;

167
168 (3) The bidder adds provisions reserving the right to accept or reject an
169 award. Also, the bidder adds provisions into a contract before an award;

170
171 (4) The proposal does not contain a unit price for each pay item listed
172 except authorized optional pay items; and

173
174 (5) Prices for some items are out of proportion to the prices for other
175 items.

176
177 (6) If in the opinion of the Director, the bidder and its listed
178 subcontractors do not have the Contractor's licenses or combination of
179 Contractor's licenses necessary to complete the work.

180

181 Where the prospective bidder is bidding on multiple projects
182 simultaneously and the proposal limits the maximum gross amount of awards
183 that the bidder can accept at one bid letting, the proposal is not irregular if the
184 limit on the gross amount of awards is clear, and the Department selects the
185 awards that can be given.

186
187 **102.08 Proposal Guaranty.** The Department will not consider a proposal of
188 \$25,000 or more unless accompanied by:

189
190 (1) A deposit of legal tender; or

191
192 (2) A valid surety bid bond, underwritten by a company licensed to
193 issue bonds in the State of Hawaii, in the form and composed,
194 substantially, with the same language as provided herewith and signed by
195 both parties; or

196
197 (3) A certificate of deposit, share certificate, cashier's check,
198 treasurer's check, teller's check, or official check drawn by, or a certified
199 check accepted by and payable on demand to the State by a bank,
200 savings institution, or credit union insured by the Federal Deposit
201 Insurance Corporation (FDIC) or the National Credit Union Administration
202 (NCUA).

203
204 (a) The bidder may use these instruments only to a maximum of
205 \$100,000.

206
207 (b) If the required security or bond amount totals over \$100,000
208 more than one instrument not exceeding \$100,000 each and issued
209 by different financial institutions shall be acceptable.

210
211 (c) The instrument shall be made payable at sight to the
212 Department.

213
214 (d) If bidder elects options (1) or (3) above for its bid security,
215 said bid security shall be in its original form and shall be submitted
216 before the bid deadline to the Contract Office, Department of
217 Transportation, Aliiaimoku Hale, 869 Punchbowl Street, Room 105,
218 Honolulu, Hawaii 96813. Original surety bid bonds do not need to
219 be submitted to the Contracts Office. Bidders are reminded that a
220 copy of its surety bid bond shall be included with its bid submitted
221 and uploaded to HlePRO.

222
223 In accordance with HRS Chapter 103D-323, the above shall be in a sum
224 not less than 5% of the amount bid.

226 **102.09 Delivery of Proposal.** Bidders shall submit and upload the complete
227 proposal to HlePRO prior to the bid opening date and time. Proposals received
228 after said due date and time shall not be considered. Any additional support
229 documents explicitly designated as confidential and/or proprietary shall be
230 uploaded as a separate file to HlePRO. Bidders shall not include confidential
231 and/or proprietary documents with the proposal. The record of each bidder and
232 respective bid shall be open to public inspection. Original (wet ink, hard copy)
233 proposal documents are not required to be submitted. Contract award shall be
234 based on evaluation of proposals submitted and uploaded to HlePRO.

235
236 FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HlePRO SHALL BE
237 GROUND FOR REJECTION OF THE BID.

238
239 If there is a conflict between the specification document and the HlePRO
240 solicitation, the specifications shall govern and control, unless otherwise
241 specified.

242
243 **102.10 Withdrawal or Revision of Proposals.** Bids may be modified or
244 withdrawn prior to the bid opening date and time. Withdrawal or revision of
245 proposal shall be completed, and submitted and uploaded to HlePRO prior to the
246 bid opening date and time.

247
248 **102.11 Public Opening of Proposals.** Not applicable.

249
250 **102.12 Disqualification of Bidders.** The Department may disqualify a bidder
251 and reject its proposal for the following reasons:

- 252
- 253 (1) Submittal of more than one proposal whether under the same or
254 different name.
 - 255
 - 256 (2) Evidence of collusion among bidders. The Department will not
257 recognize participants in collusion as bidders for any future work of the
258 Department until such participants are reinstated as qualified bidders.
 - 259
 - 260 (3) Lack of proposal guaranty.
 - 261
 - 262 (4) Submittal of an unsigned or improperly signed proposal.
 - 263
 - 264 (5) Submittal of a proposal without a listing of subcontractors or
265 containing only a partial or incomplete listing of subcontractors.
 - 266
 - 267 (6) Submittal of an irregular proposal in accordance with Subsection
268 102.07 - Irregular Proposals.
 - 269
 - 270 (7) Evidence of assistance from a person who has been an employee
271 of the agency within the preceding two years and who participated while in

272 State office or employment in the matter with which the contract is directly
273 concerned, pursuant to HRS Chapter 84-15.

274
275 **(8)** Suspended or debarred in accordance with HRS Chapter 104-25.

276
277 **(9)** Failure to complete the prequalification questionnaire, if applicable.

278
279 **(10)** Failure to attend the mandatory pre-bid meeting, if applicable.

280
281 **102.13 Material Guaranty.** The successful bidder may be required to furnish
282 a statement of the composition, origin, manufacture of materials, and samples.

283
284 **102.14 Substitution of Materials and Equipment Before Bid Opening.** See
285 Subsection 106.13 for Substitution Of Materials and Equipment After Bid
286 Opening.

287
288 **(A) General.** When brand names of materials or equipment are
289 specified in the contract documents, they are to indicate a quality, style,
290 appearance, or performance and not to limit competition. The bidder shall
291 base its bid on one of the specified brand names unless alternate brands
292 are qualified as equal or better in an addendum. Qualification of such
293 proposed alternate brands shall be submitted via email to the Contact
294 person listed in HlePRO for the solicitation and also post a question in
295 HlePRO under the question/answer tab referencing the email with the
296 request. The request must be posted in HlePRO no later than 14
297 calendar days before the bid opening date, not including the bid opening
298 date.

299
300 An addendum will be issued to inform all prospective bidders of any
301 accepted substitution in accordance with Subsection 102.17 – Addenda.

302
303 **(B) Statement of Variances.** The statement of variances must list all
304 features of the proposed substitution that differ from the contract
305 documents and must further certify that the substitution has no other
306 variant features. The brochure and information submitted shall be clearly
307 marked showing make, model, size, options, and any other features
308 requested by the Engineer and must include sufficient evidence to
309 evaluate each feature listed as a variance. A request will be denied if
310 submitted without sufficient evidence. If after installing the substituted
311 product, an unlisted variance is discovered, the Contractor shall
312 immediately replace the product with a specified product at no increase in
313 contract price and contract time.

314
315 **(C) Substitution Denial.** Any substitution request not complying with
316 the above requirements will be denied.

317
318 **102.15 Preferences.** Preferences shall not apply to this project.

319 **102.16 Certification for Safety and Health Program for Bids in excess of**
320 **\$100,000.** In accordance with HRS Chapter 396-18, the bidder or offeror, by
321 signing and submitting this proposal, certifies that a written safety and health plan
322 for this project will be available and implemented by the notice to proceed date
323 for this project. Details of the requirements of this plan may be obtained from the
324 State Department of Labor and Industrial Relations, Occupational Safety and
325 Health Division (HIOSH).

326
327 **102.17 Addenda.** Addenda issued shall become part of the contract
328 documents. Addenda to the bid documents will be provided to all prospective
329 bidders via HlePRO. Each addendum shall be an addition to the contract
330 documents. The terms and requirements of the bid documents (i.e., drawings,
331 specifications and other bid and contract documents) cannot be changed prior to
332 the bid opening except by a duly issued addendum.”

333
334
335

END OF SECTION 102

1 Make this section a part of the Standard Specifications:

2
3 **“SECTION 103 - AWARD AND EXECUTION OF CONTRACT**

4
5
6 **103.01 Consideration of Proposals.** The Department will compare the
7 proposals in terms of the summation of the products of the approximate quantities
8 and the unit bid prices after the submittal date and time established in HlePRO. If
9 a discrepancy occurs between the unit bid price and the bid price, the unit bid price
10 shall govern.

11
12 The “Buy America” provisions in the Surface Transportation Assistance Act
13 of 1982 is applicable to Federal-aid projects. Bidders may submit a bid based
14 upon the furnishing and use of domestic steel or foreign steel. Manufacturing
15 processes for domestic steel shall occur in the United States.

16
17 The Department reserves the right to reject proposals, waive technicalities
18 or advertise for new proposals, if the rejection, waiver, or new advertisement favors
19 the Department.

20
21 **103.02 Award of Contract.** The award of contract, if it be awarded, will be
22 made within 60 calendar days after the opening of bids, to the lowest responsible
23 and responsive bidder whose proposal complies with all the prescribed
24 requirements. The Department may request the bidders to allow the Department
25 to consider the bids for the issuance of an award beyond the 60-calendar day
26 period. Agreement to such an extension must be made by a bidder in writing. Only
27 bidders who have agreed to such an extension will be eligible for the award.

28
29 **(1) Requirement for Award.** The Bidder, as proof of compliance
30 with the requirements of section 103D-310(c), HRS, upon award
31 of a contract made pursuant to section 103D-302, HRS, shall
32 provide the documents listed below. The documents shall be
33 submitted promptly to the Department. If a valid
34 certificate/clearance is not submitted on a timely basis upon
35 award, the Bidder may be deemed non-responsible. See also
36 Subsection 108.03 – Preconstruction Data Submittal.

37
38 **(A) Tax Clearance.** Pursuant to §103D-310(c), 103-53 and 103D-328,
39 HRS, the bidder shall submit a tax clearance certificate from the State of
40 Hawaii Department of Taxation (DOTAX) and the Internal Revenue Service
41 (IRS), subject to section 103D-328, HRS, current within six months of
42 issuance date.

43
44 FORM A6, TAX CLEARANCE CERTIFICATE, is available at the
45 following website:

46
47 <https://tax.hawaii.gov/>
48

49 To receive DOTAX Forms by fax or mail, phone
50 (808) 587-4242 or 1-800-222-3229.
51

52 The application for the Tax Clearance Certificate is the responsibility
53 of the bidder. Bidder shall submit directly to the DOTAX or IRS. The
54 approved certificate may then be submitted to the Department.
55

56 **(B) DLIR Certificate of Compliance.** Pursuant to §103D-310(c), HRS,
57 the bidder shall submit a certificate of compliance for Hawaii Employment
58 Security Law (Chapter 383, HRS), Workers' Compensation Law (Chapter
59 386, HRS), Temporary Disability Insurance (Chapter 392, HRS), and
60 Prepaid Health Care Act (Chapter 393, HRS), from the State of Hawaii
61 Department of Labor and Industrial Relations (DLIR), current within six
62 months of issuance date.
63

64 FORM LIR#27, APPLICATION FOR CERTIFICATE OF
65 COMPLIANCE WITH SECTION 3-122-112, HAR, is available at the
66 following website:
67

68 <http://labor.hawaii.gov/>
69

70 Contact the DLIR Unemployment Insurance Division at (808) 586-8926 for
71 additional information.
72

73 Inquiries regarding the status of a LIR#27 Form may be made by calling the
74 DLIR Disability Compensation Division at (808) 586-9200.
75

76 The application for the Certificate of Compliance is the responsibility of the
77 bidder. Bidder shall submit directly to the DLIR. The approved certificate
78 may then be submitted to the Department.

79 **(C) DCCA Certificate of Good Standing.** Pursuant to §103D-310(c),
80 HRS, the bidder shall submit a certificate of good standing from the
81 business registration division (BREG) of the State of Hawaii Department of
82 Commerce and Consumer Affairs (DCCA), current within six months of
83 issuance date, to demonstrate it is either:
84

85 **(1)** Incorporated or organized under the laws of the State; or
86

87 **(2)** Registered to do business in the State as a separate branch or
88 division that is capable of fully performing under the contract.

89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133

A Hawaii business that is a sole proprietorship, is not required to register with the BREG, and therefore not required to submit a certificate of good standing. Bidders are advised of costs associated with registering and obtaining a Certificate of Good Standing from the DCCA.

To purchase a CERTIFICATE OF GOOD STANDING, go to On-Line Services at the following website:

<http://cca.hawaii.gov/>

The application for the Certificate of Good Standing is the responsibility of the bidder. Bidder shall submit directly to the DCCA. The approved certificate may then be submitted to the Department.

(D) Hawaii Compliance Express (HCE). In lieu of the certificates referenced in subsection A, B, and C, the bidder may make available proof of compliance through a state procurement office designated certification process.

103.03 Cancellation of Award. The Department reserves the right to cancel the award of contracts before the execution of said contract by the parties. There will be no liability to the awardee and to other bidders.

103.04 Return of Proposal Guaranty. The Department will return the proposal guaranties, except those of the three lowest bidders, after the Department checks the proposals. The Department will return the proposal guaranties of the remaining two lowest bidders, not awarded the contract, within five working days following the execution of the contract. The Department will return the successful bidder's proposal guaranty after the successful bidder furnishes a bond and executes the contract.

103.05 Requirement of Contract Bond. At the time of execution of the contract, the successful bidder shall file a good and sufficient performance bond and a payment bond on the forms furnished by the Department conditioned for the full and faithful performance of the contract in accordance with the terms and intent thereof and for the prompt payment to all others for all labor and material furnished by them to the bidder and used in the prosecution of the work provided for in the contract. The bonds shall be of an amount equal to 100 percent of the amount of the contract price and include 5 percent of the contract amount estimated to be required for extra work. The bidder shall limit the acceptable performance and payment bonds to the following:

(a) Legal tender;

134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174

(b) Surety bond underwritten by a company licensed to issue bonds in the State of Hawaii; or

(c) A certificate of deposit; share certificate; cashier's check; treasurer's check, teller's check drawn by or a certified check accepted by and payable on demand to the State by a bank savings institution or credit union insured by the Federal Deposit Insurance Corporation (FDIC) or the National Credit Union Administration (NCUA).

1. The bidder may use these instruments only to a maximum of \$100,000.
2. If the required security or bond amount totals over \$100,000 more than one instrument not exceeding \$100,000 each and issued by different financial institutions shall be acceptable.

Such bonds shall also by the terms insure to the benefit of any and all persons entitled to file claims for labor done or material furnished in the work so as to give them a right of action as contemplated by HRS Section 103D-324.

103.06 Execution of the Contract. The contract bond and HRS Chapter 104 - Compliance Certificate, similar to a copy of the same annexed hereto, shall be executed by the successful bidder and returned within ten days after the award of the contract or within such further time as the Director may allow after the bidder has received the contract for execution.

The contract shall not bind the Department unless said parties execute the contract and the Director of Finance endorses the bidder's certificate in accordance with HRS Section 103-39.

103.07 Failure to Execute Contract. Failure to execute the contract and file acceptable bonds shall be cause for the cancellation of the award in accordance with Subsection 103.06 - Execution of the Contract. Also, the Contractor forfeits the proposal guaranty which becomes the property of the Department. This is not a penalty, but liquidated damages sustained by the State. The Department may then make award to the next lowest responsible and responsive bidder or the Department may readvertise and construct the work under contract.”

END OF SECTION 103

48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84

submission by the contractor of proper documentation of completed force account work, whether periodic (conforming to the applicable billing cycle) or final. The Engineer shall return any documentation that is defective, to the contractor within fifteen days after receipt, with a statement identifying the defect; or

(B) For change orders with value exceeding \$50,000 by a unilateral determination by the Engineer of the costs attributable to the events or situations with adjustment of profit and fee, all as computed by the Engineer in accordance with applicable sections of HAR Chapters 3-123 and 3-126, and Section 109.05 - Allowances for Overhead and Profit. When a unilateral determination has been made, a unilateral change order shall be issued within ten days. Upon receipt of the unilateral change order, if the contractor does not agree with any of the terms or conditions, or the adjustment or nonadjustment of the contract time or contract price, the contractor shall file a notice of intent to claim within thirty days after the receipt of the written unilateral change order. Failure to file a protest within the time specified shall constitute agreement on the part of the contractor with the terms, conditions, amounts, and adjustment or nonadjustment of the contract time or the contract price set forth in the unilateral change order.

A contractor shall be required to submit cost or pricing data if any adjustment in contract price is subject to the provisions of HAR Chapter 3-122, Subchapter 15. A fully executed change order or other document permitting billing for the adjustment in price under any method listed in Subsections 104.06(1) through 104.06(7) shall be issued within ten days after agreement on the method of adjustment."

END OF SECTION 104

47 **(C) Authority of the Consultant and Construction Management.**
48 The State may engage consultants and construction managements to
49 perform duties in connection with the work. Unless otherwise specified in
50 writing to the Contractor, such retained consultants and construction
51 managements shall have no greater authority than an Inspector.”
52

53 **(II) Amend Subsection 105.02 - Submittals** by revising the first paragraph
54 from lines 52 to 61 to read as follows:
55

56 **“105.02 Submittals.** The contract contains the description of various items
57 that the Contractor must submit to the Engineer for review and acceptance. The
58 Contractor shall review all submittals for correctness, conformance with the
59 requirements of the contract documents and completeness before submitting
60 them to the Engineer. The submittal shall indicate the contract items and
61 specifications subsections for which the submittal is provided. The submittal
62 shall be legible and clearly indicate what portion of the submittal is being
63 submitted for review. The Contractor shall provide six copies of the required
64 submissions at the earliest possible date.”
65

66 **(III) Amend Subsection 105.08 (A) - Furnishing Drawings and Special**
67 **Provisions** to read as follows:
68

69 **“(A) Furnishing Drawings and Special Provisions.** The State will
70 furnish the Contractor an electronic set of the special provisions and
71 plans.” The Contractor shall have and maintain at least one set of plans
72 and specifications on the work site, at all times.”
73

74 **(IV) Amend Subsection 105.14(D) – No Designated Storage Area** from lines
75 421 to 432 to read as follows:
76

77 **“(D) No Designated Storage Area.** If no storage area is designated
78 within the contract documents, materials and equipment may be stored
79 anywhere within the State highway right-of-way, provided such storage
80 and access to and from such site, within the sole discretion of the
81 Engineer, does not create a public or traffic hazard or an impediment to
82 the movement of traffic.”
83

84 **(V) Amend 105.16(A) – Subcontract Requirements** by adding the following
85 paragraph after line 483:
86

87 “The 'Specialty Items' of work for this project are as follows:
88

	Section No.	Description
89		
90		
91		
92	606	All Contract Items under Section 606 - Guardrail
93		
94	629	All Contract Items under Section 629 - Pavement Markings
95		
96	632	All Contract Items under Section 632 - Markers
97		
98	645	Contract Item No. 645.1000 under Section 645 – Work Zone Traffic Control”
99		

100
101 **(VI)** Amend **Subsection 105.16(B) – Substituting Subcontractors** from line
102 487 to line 494 to read:

103
104 **“(B) Substituting Subcontractors.** Under HRS Chapter 103D-302, the
105 Contractor is required to list the names of persons or firms to be engaged
106 by the Contractor as a subcontractor or joint contractor in the performance
107 of the contract. No subcontractor may be added or deleted, unless
108 authorized by the Engineer. Substitutions will be allowed only if the
109 subcontractor:”

110
111
112
113
114

END OF SECTION 105

1 Make the following amendment to said Section:
2

3 **SECTION 106 – MATERIAL RESTRICTIONS AND REQUIREMENTS**
4
5

6 **(I)** Amend **106.05(B) – Deviation** by revising the third sentence from line 106
7 to 108 to read as follows:
8

9 “Any deviations will be subject to Subsection 102.14 – Substitution of
10 Materials and Equipment Before Bid Opening.”
11

12 **(II)** Amend **Section 106 – Material Restrictions and Requirements** by
13 adding the following after line 334:
14

15 **“106.14 Construction Materials.**

16
17 **(A)** Buy America requirements apply to the following construction
18 materials if permanently incorporated into the project unless otherwise
19 specified:
20

- 21 **(1)** Non-ferrous metals.
 - 22 **(2)** Plastic and polymer-based products such as:
 - 23 **(a)** High Density Polyethylene
 - 24 **(b)** Polyvinylchloride.
 - 25 **(c)** Composite building materials.
 - 26 **(d)** Polymers used in fiber optic cables.
 - 27 **(3)** Glass (including optic glass).
 - 28 **(4)** Fiber optic cable (including drop cable).
 - 29 **(5)** Optical fiber.
 - 30 **(6)** Lumber.
 - 31 **(7)** Engineered wood.
 - 32 **(8)** Drywall.
 - 33 **(9)** Manufactured products containing steel and iron material
- 34
35
36
37
38
39
40
41
42
43
44
45
46

47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89

Where one or more of these construction materials have been combined by a manufacturer with other materials through a manufacturing process, Buy America requirements do not apply unless otherwise specified. Furnish construction materials to be incorporated into the work with certificates of compliance with each project delivery. Manufacturer's certificate of compliance must identify where the construction material was manufactured and attest specifically to Buy America compliance. All manufacturing processes for these materials must occur in the United States.

Non-ferrous metals, such as aluminum, copper, lead, nickel, tin, titanium, zinc, brass, and bronze, are subject to Buy America requirements if used as construction materials in various shapes, sizes, and gauges including channels, bars, pipe, couplers, fittings, bolts, nuts, and products made of 100 percent of the non-ferrous metal. If the non-ferrous metal is combined with other construction materials during a manufacturing process, the product is considered a manufactured product and not subject to Buy America requirements.

One hundred percent plastic or polymer materials are subject to Buy America requirements. This includes high-density polyethylene or polyvinyl chloride pipe and fittings. Plastics or polymers that are combined with other construction materials in a manufacturing process are considered a manufactured product and not subject to these requirements.

Glass construction materials subject to Buy America requirements are composed solely of glass. This includes glass beads incorporated into pavement striping and 100 percent Fiberglass material.

Fiber optic cable (including drop cable) and optical fiber are subject to Buy America requirements.

Lumber products including engineered lumber are subject to Buy America requirements.

Manufactured products containing steel or iron including pre-cast concrete products are subject to Buy America requirements."

END OF SECTION 106

1 **SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC**

2
3 Make the following amendments to said Section:

4
5 **(I)** Amend **Section 107.01 Insurance Requirements** from lines 5 to 81 to
6 read as follows:

7
8 **“(A) Obligation of Contractor.** Contractor shall not commence any
9 work until it obtains, at its own expense, all required insurance described
10 herein. Such insurance shall be provided by an insurance company
11 authorized by the laws of the State to issue such insurance in the State of
12 Hawaii. Coverage by a “Non-Admitted” carrier is permissible provided the
13 carrier has a Best’s Rating of “A-VII” or better. The Contractor shall
14 maintain and ensure all insurance policies are current for the full period of
15 the contract until final acceptance of the work by the State.

16
17 The Certificate of Insurance shall contain: a clause that it is agreed
18 that any insurance maintained by the State of Hawaii will apply in excess
19 of, and not contribute with, insurance provided by this policy; and shall be
20 accompanied by endorsement form CG2010 or equivalent naming the
21 State and other named additional insureds as an additional insured to the
22 policy which status shall be maintained for the full period of the contract
23 until final acceptance of the work by State.

24
25 The Contractor shall obtain all required insurance as part of the
26 contract price. Where there is a requirement for the State of Hawaii and
27 its officers and employees to be named as additional insureds under any
28 Contractor’s insurance policy, before the State of Hawaii issues the Notice
29 to Proceed, the Contractor shall obtain and submit to the Engineer a
30 Certificate of Insurance and a written policy endorsement that confirms the
31 State of Hawaii and its officers and employees and other named additional
32 insureds are additional insureds for the specific State project number and
33 project title under such insurance policies. The written policy
34 endorsement must be issued by the insurance company insuring the
35 Contractor for the specified policy type or by an agent of such insurance
36 company who is vested with the authority to issue a written policy
37 endorsement. The insurer’s agent shall also submit written confirmation of
38 such authority to bind the insurer. Any delays in the issuance of the
39 Notice to Proceed attributed to the failure to obtain the proof of the State
40 of Hawaii and its officers and employees’ and other named additional
41 insureds, additional insured status shall be charged to the Contractor.
42 Provide waiver of subrogation in named additional insureds favor.

43 A mere Certificate of Insurance issued by a broker who represents
44 the Contractor (but not the Contractor’s insurer), or by any other party who
45 is not authorized to contractually name the State and other named
46 additional insureds as an additional insured under the Contractor’s

47 insurance policy, is not sufficient to meet the Contractor's insurance
48 obligations.

49
50 Certificates shall contain a provision that coverages being certified
51 will not be cancelled or materially changed without giving the Engineer at
52 least thirty (30) days prior written notice. Contractor will immediately
53 provide written notice to the Director should any of the insurance policies
54 evidenced on its Certificate of Insurance form be cancelled, reduced in
55 scope or coverage, or not renewed upon expiration. Should any policy be
56 canceled before final acceptance of the work by the State, and the
57 Contractor fails to immediately procure replacement insurance as
58 specified, the State, in addition to all other remedies it may have for such
59 breach, reserves the right to procure such insurance and deduct the cost
60 thereof from any money due or to become due to the Contractor.

61
62 Nothing contained in these insurance requirements is to be
63 construed as limiting the extent of Contractor's responsibility for payment
64 of damages resulting from its operations under this contract, including the
65 Contractor's obligation to pay liquidated damages, nor shall it affect the
66 Contractor's separate and independent duty to defend, indemnify and hold
67 the State and other named additional insureds harmless pursuant to other
68 provisions of this contract. In no instance will the State's exercise of an
69 option to occupy and use completed portions of the work relieve the
70 Contractor of its obligation to maintain the required insurance until the
71 date of final acceptance of the work.

72
73 All insurance described herein shall be primary and cover the
74 insured for all work to be performed under the contract, all work performed
75 incidental thereto or directly or indirectly connected therewith, including
76 but not limited to traffic detour work, barricades, warnings, diversions, lane
77 closures, and other work performed outside the work area and all change
78 order work.

79
80 The Contractor shall, from time to time, furnish the Engineer, when
81 requested, satisfactory proof of coverage of each type of insurance
82 required covering the work. Failure to comply with the Engineer's request
83 may result in suspension of the work, and shall be sufficient grounds to
84 withhold future payments due the Contractor and to terminate the contract
85 for Contractor's default.

86
87 **(B) Types of Insurance.** Contractor shall purchase and maintain
88 insurance described below which shall provide coverage against claims
89 arising out of the Contractor's operations under the contract, whether such
90 operations be by the Contractor itself or by any subcontractor or by
91 anyone directly or indirectly employed by any of them or by anyone for
92 whose acts any of them may be liable.

93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138

(1) Workers' Compensation. The Contractor shall obtain worker's compensation insurance for all persons whom they employ in carrying out the work under this contract. This insurance shall be in strict conformity with the requirements of the most current and applicable State of Hawaii Worker's Compensation Insurance laws in effect on the date of the execution of this contract and as modified during the duration of the contract.

(2) Auto Liability. The Contractor shall obtain Auto Liability Insurance covering all owned, non-owned and hired autos with a Combined single Limit of not less than \$1,000,000 per occurrence for bodily injury and property damage with the State of Hawaii and TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP named as additional insureds. Refer to SPECIAL CONDITIONS for any additional requirements.

(3) General Liability. The Contractor shall obtain General Liability insurance with a limit of not less than \$2,000,000 per occurrence and in the Aggregates for each of the following:

- (a)** Products - Completed/Operations Aggregate,
- (b)** Personal & Advertising Injury, and
- (c)** Bodily Injury & Property Damage

The General Liability insurance shall include the State of Hawaii and TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP as an Additional Insureds. The required limit of insurance may be provided by a single policy or with a combination of primary and excess policies. Refer to SPECIAL CONDITIONS for any additional requirements.

(4) Builders Risk For All Work. The Contractor shall take out a policy of builder's risk insurance for the full replacement value of the project work; from a company licensed or otherwise authorized to do business in the State of Hawaii; naming the State as an additional insured under each policy; and covering all work, labor, and materials furnished by such Contractor and all its subcontractors against loss by fire, windstorm, tsunamis, earthquakes, lightning, explosion, other perils covered by the standard Extended Coverage Endorsement, vandalism, and malicious mischief. Refer to SPECIAL CONDITIONS for any additional requirements.

139 **(II)** Amend **Section 107.01 Insurance Requirements** from lines 93 to 102
140 to read as follows:

141

142 **“(D) Subcontractor Insurance.** The Contractor shall either:

143

144 **(1)** Require its subcontractors to procure and to maintain during
145 the life of its subcontractor, subcontractor’s comprehensive general
146 liability, automobile liability and property damage liability insurance
147 of the type and in the same amounts specified herein and further
148 require that such coverage be required by its subcontractors from
149 all lower tier subcontractors. On all such insurance coverages, the
150 State of Hawaii, its officers and employees, and TRUSTEES OF
151 THE ESTATE OF BERNICE PAUAHI BISHOP shall be additional
152 insureds.

153

154 **(III)** Amend **Section 107.10 Furnishing Right-of-Way** by adding the
155 following after line 279:

156

157 “The Department has completed Right-of-Entry Agreements with the
158 following property owner, and the Contractor shall execute the Indemnification
159 Agreement furnished by the Department 30 days prior to construction, and shall
160 mail the executed agreement to the current address of the property owner prior
161 to construction:

162

163 **(A)** TRUSTEES OF THE ESTATE OF BERNICE PAUAHI BISHOP
164 TMK: (3) 4-1-002:011 (por.)”

165

166 **(IV)** Amend **Section 107.12 Protection of Persons and Property** by
167 adding the following after line 311:

168

169 “The Contractor and the Engineer shall do a preconstruction site visit to
170 document all features of the construction parcels. Findings from the inspection
171 shall be documented by videos, pictures, and notes. This shall be done 30 days
172 prior to construction and on a periodic basis as determined by the Engineer. The
173 Contractor shall maintain the construction parcels to the satisfaction of the
174 Engineer. The Contractor and the Engineer shall do a post construction site visit
175 to verify all restoration work has been completed to the satisfaction of the
176 Engineer.”

177

178

179

END OF SECTION 107

1 Amend **Section 108 – PROSECUTION AND PROGRESS** to read as follows:
2

3 **“SECTION 108 – PROSECUTION AND PROGRESS**
4

5
6 **108.01 Notice to Proceed (NTP).** A Notice To Proceed will be issued to the
7 Contractor not more 30 calendar days after the contract certification date. The
8 Engineer may suspend the contract before issuing the Notice To Proceed, in
9 which case the Contractor’s remedies are exclusively those set forth in Subsection
10 108.10 – Suspension of Work.
11

12 The Contractor shall be allowed up to 14 calendar days after the Notice to
13 Proceed to begin physical work. The Start Work Date will be established when
14 this period ends or on the actual day that physical work begins, whichever is first.
15 Charging of Contract Time will begin on the Start Work Date. The Contractor shall
16 notify the Engineer, in writing, at least five working days before beginning physical
17 work.
18

19 In the event that the Contractor fails to start physical work within the time
20 specified, the Engineer may terminate the contract in accordance with Subsection
21 108.11 – Termination of Contract for Cause.
22

23 During the period between the Notice to Proceed and the Start Work Date
24 the Contractor should adjust work forces, equipment, schedules, and procure
25 materials and required permits, prior to beginning physical work.
26

27 Any physical work done prior to the Start Work Date will be considered
28 unauthorized work. If the Engineer does not direct that the unauthorized work be
29 removed, it shall be paid for after the Start Work Date and only if it is acceptable.
30

31 In the event that the Engineer establishes, in writing, a Start Work Date that
32 is beyond 60 calendar days from the Notice to Proceed date, the Contractor may
33 submit a claim in accordance with, Subsection 107.15 – Disputes and Claims for
34 increased labor and material costs which are directly attributable to the delay
35 beyond the first 60 calendar days after the Notice to Proceed date.
36

37 The Contractor shall notify the Engineer at least 24 hours before restarting
38 physical work after a suspension of work pursuant to Subsection 108.10 –
39 Suspension of Work.
40

41 Once physical work has begun, the Contractor shall work expeditiously and
42 pursue the work diligently to completion with the contract time. If a portion of the
43 work is to be done in stages, the Contractor shall leave the area safe and usable
44 for the user agency and the public at the end of each stage.
45

46 **108.02 Prosecution of Work.** Unless otherwise permitted by the Engineer, in
47 writing, the Contractor shall not commence with physical construction unless
48 sufficient materials and equipment are available for either continuous construction
49 or completion of a specified portion of the work.

50
51 **108.03 Preconstruction Submittals.** The awardee shall submit to the
52 Engineer for information and review the pre-construction submittals within 21
53 calendar days from award. Until the items listed below are received and found
54 acceptable by the Engineer, the Contractor shall not start physical work unless
55 otherwise authorized to do so in writing and subject to such conditions set by the
56 Engineer. Charging of Contract Time will not be delayed, and additional contract
57 time will not be granted due to Contractor delay in submitting acceptable
58 preconstruction submittals. No progress payment will be made to the Contractor
59 until the Engineer acknowledges, in writing, receipt of the following
60 preconstruction submittals acceptable to the Engineer:

- 61
62 (1) List of the Superintendent and other Supervisory Personnel, and
63 their contact information.
- 64
65 (2) Name of person(s) authorized to sign for the Contractor.
- 66
67 (3) Work Schedule including hours of operation.
- 68
69 (4) Initial Progress Schedule (See Subsection 108.06 – Progress
70 Schedule).
- 71
72 (5) Water Pollution and Siltation Control Submittals, including Site-
73 Specific Best Management Practice Plan.
- 74
75 (6) Solid Waste Disposal form.
- 76
77 (7) Tax Rates.
- 78
79 (8) Insurance Rates.
- 80
81 (9) Certificate of Insurance, satisfactory to the Engineer, indicating that
82 the Contractor has in place all insurance coverage required by the contract
83 documents.
- 84
85 (10) Schedule of agreed prices.
- 86
87 (11) List of suppliers.
- 88
89 (12) Traffic Control Plan, if applicable.

90 **108.04 Character and Proficiency of Workers.** The Contractor shall at all
91 times provide adequate supervision and sufficient labor and equipment for
92 prosecuting the work to full completion in the manner and within the time required
93 by the contract. The superintendent and all other representatives of the
94 Contractor shall act in a civil and honest manner in all dealings with the Engineer,
95 all other State officials and representatives, and the public, in connection with the
96 work.

97
98 All workers shall possess the proper license, certification, job classification,
99 skill, training, and experience necessary to properly perform the work assigned to
100 them.

101
102 The Engineer may direct the removal of any worker(s) who does not carry
103 out the assigned work in a proper and skillful manner or who is disrespectful,
104 intemperate, violent, or disorderly. The worker shall be removed forthwith by the
105 Contractor and will not work again without the written permission of the Engineer.

106
107 **108.05 Contract Time.**

108
109 **(A) Calculation of Contract Time.** When the contract time is on a
110 working day basis, the total contract time allowed for the performance of
111 the work will be the number of working days shown in the contract plus any
112 additional working days authorized in writing as provided hereinafter. The
113 count of elapsed working days to be charged against contract time, will
114 begin from the Start Work Date and will continue consecutively to the date
115 of Substantial Completion. When multiple shifts are used to perform the
116 work, the State will not consider the hours worked over the normal eight
117 working hours per day or night as an additional working day.

118
119 When the contract is on a calendar day basis, the total contract time
120 allowed for the performance of the work will be the number of days shown
121 in the contract plus any additional days authorized in writing as provided
122 hereinafter. The count of elapsed days to be charged against contract time
123 will begin from the Start Work Date and will continue consecutively to the
124 date of Substantial Completion. The Engineer will exclude days elapsing
125 between the orders of the Engineer to suspend work and resume work for
126 suspensions not the fault of the Contractor.

127
128 **(B) Modifications of Contract Time.** Whenever the Contractor
129 believes that an extension of contract time is justified, the Contractor shall
130 serve written notice on the Engineer not more than five working days after
131 the occurrence of the event that causes a delay or justifies a contract time
132 extension. Contract time may be adjusted for the following reasons or
133 events, but only if and to the extent the critical path has been affected:
134

135 **(1) Changes in the Work, Additional Work, and Delays**
136 **Caused by the State.** If the Contractor believes that an extension of
137 time is justified on account of any act or omission by the State, and is
138 not adequately provided for in a field order or change order, it must
139 request the additional time as provided above. At the request of the
140 Engineer, the Contractor must show how the critical path will be
141 affected and must also support the time extension request with
142 schedules, as well as statements from its subcontractors, suppliers,
143 or manufacturers, as necessary. Claims for compensation for any
144 altered or additional work will be determined pursuant to Subsection
145 104.02 – Changes.

146
147 Additional time to perform the extra work will be added to the
148 time allowed in the contract without regard to the date the change
149 directive was issued, even if the contract completion date has
150 passed. A change requiring time issued after contract time has
151 expired will not constitute an excusal or waiver of pre-existing
152 Contractor delay.

153
154 **(2) Delay for Permits.** For delays in the routine application and
155 processing time required to obtain necessary permits, including
156 permits to be obtained from State agencies, the Engineer may grant
157 an extension provided that the permit takes longer than 30 days to
158 acquire and the delay is not caused by the Contractor, and provided
159 that as soon as the delay occurs, the Contractor notifies the
160 Engineer in writing that the permits are not available. Permits
161 required by the contract that take less than 30 days to acquire from
162 the time which the appropriate documents are granted shall be
163 acquired between Notice to Proceed and Start Work Date or
164 accounted for in the contractor's progress schedule. Time
165 extensions will be the exclusive relief granted on account of such
166 delays.

167
168 **(3) Delays Beyond Contractor's Control.** For delays caused by
169 acts of God, a public enemy, fire, inclement weather days or
170 adverse conditions resulting therefrom, earthquakes, floods,
171 epidemics, quarantine restrictions, labor disputes impacting the
172 Contractor or the State, freight embargoes and other reasons
173 beyond the Contractor's control, the Contractor may be granted an
174 extension of time provided that:

175
176 **(a)** In the written notice of delay to the Engineer, the
177 Contractor describes possible effects on the completion date
178 of the contract. The description of delays shall:
179

180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224

1. State specifically the reason or reasons for the delay and fully explain in a detailed chronology how the delay affects the critical path.
2. Include copies of pertinent documentation to support the time extension request.
3. Cite the anticipated period of delay and the time extension requested.
4. State either that the above circumstances have been cleared and normal working conditions restored as of a certain day or that the above circumstances will continue to prevent completion of the project.

(b) The Contractor shall notify the Engineer in writing when the delay ends. Time extensions will be the exclusive relief granted and no additional compensation will be paid the Contractor for such delays.

(4) Delays in Delivery of Materials or Equipment. For delays in delivery of materials or equipment, which occur as a result of unforeseeable causes beyond the control and without fault of the Contractor, its subcontractor(s) or supplier(s), time extensions shall be the exclusive relief granted and no additional compensation will be paid the Contractor on account of such delay. The delay shall not exceed the difference between the originally scheduled delivery date and the actual delivery date. The Contractor may be granted an extension of time provided that it complies with the following procedures:

(a) The Contractor's written notice to the Engineer must describe the delays and state the effect such delays may have on the critical path.

(b) The Contractor, if requested, must submit to the Engineer within five days after a firm delivery date for the material and equipment is established, a written statement regarding the delay. The Contractor must justify the delay as follows:

1. State specifically all reasons for the delay. Explain in a detailed chronology the effect of the delay on the critical path.

225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265

2. Submit copies of purchase order(s), factory invoice(s), bill(s) of lading, shipping manifest(s), delivery tag(s), and any other documents to support the time extension request.

3. Cite the start and end date of the delay and the time extension requested.

(5) Delays for Suspension of Work. When the performance of the work is totally suspended for one or more days (calendar or working days, as appropriate) by order of the Engineer in accordance with Subsections 108.10(A)(1), 108.10(A)(2), or 108.10(A)(5) the number of days from the effective date of the Engineer's order to suspend operations to the effective date of the Engineer's order to resume operations shall not be counted as contract time and the contract completion date will be adjusted. During periods of partial suspensions of the work, the Contractor will be granted a time extension only if the partial suspension affects the critical path. If the Contractor believes that an extension of time is justified for a partial suspension of work, it must request the extension in writing at least five working days before the partial suspension will affect the critical operation(s) in progress. The Contractor must show how the critical path was increased based on the status of the work and must also support its claim if requested, with statements from its subcontractors. A suspension of work will not constitute a waiver of pre-existing Contractor delay.

(6) Contractor Caused Delays. No time extension will be granted under the following circumstances:

(a) Delays within the Contractor's control in performing the work caused by the Contractor, subcontractor, supplier, or any combination thereof.

(b) Delays within the Contractor's control in arrival of materials and equipment caused by the Contractor, subcontractor, supplier, or any combination thereof, in ordering, fabricating, and delivery.

(c) Delays requested for changes which do not affect the critical path.

266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311

(d) Delays caused by the failure of the Contractor to make submittals in a timely manner for review and acceptance by the Engineer, such as but not limited to shop drawings, descriptive sheets, material samples, and color samples except as covered in Subsection 108.05(B)(3) – Delays Beyond Contractor’s Control and 108.05(B)(4) – Delays in Delivery of Materials or Equipment.

(e) Delays caused by the failure to submit sufficient information and data in a timely manner in the proper form in order to obtain necessary permits related to the work.

(f) Failure to follow the procedure within the time allowed by contract to request a time extension.

(g) Failure of the Contractor to provide evidence sufficient to support the time extension request.

(7) **Reduction in Time.** If the State deletes or modifies any portion of the work, an appropriate reduction of contract time may be made in accordance with Subsection 104.02 - Changes.

108.06 Progress Schedules.

(A) **Forms of Schedule.** All schedules shall be submitted using the specific computer program designated in the bid documents. If no such scheduling software program is designated, then all schedules shall be submitted using the latest version of Microsoft Project by Microsoft or approved equivalent software program.

Schedule submittals shall be as follows:

(1) **For Contracts \$2,000,000 or less or For Contract Time 100 Working Days or 140 Calendar Days or Less.** For contracts of \$2,000,000 or less or for contract time of 100 working days or 140 calendar days or less, the progress schedule will be a Time Scaled Logic Diagram (TSLD). The Contractor shall submit a TSLD submittal package meeting the following requirements and having these essential and distinctive elements:

(a) The major features of work, such as but not limited to BMP installation, grubbing, roadway excavation, structure excavation, structure construction, shown in the chronological order in which the Contractor proposes to work that feature or work and its location on the project. The schedule shall account for normal inclement weather, unusual soil or other

312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358

conditions that may influence the progress of the work, schedules, and coordination required by any utility, off or on site fabrications, and other pertinent factors that relate to progress;

(b) All features listed or not listed in the contract documents that the Contractor considers a controlling factor for the timely completion of the contract work.

(c) The time span and sequence of the activities or events for each feature, and its interrelationship and interdependencies in time and logic to other features in order to complete the project.

(d) The total anticipated time necessary to complete work required by the contract.

(e) A chronological listing of critical intermediate dates or time periods for features or milestones or phases that can affect timely completion of the project.

(f) Major activities related to the location on the project.

(g) Non-construction activities, such as submittal and acceptance periods for shop drawings and material, procurement, testing, fabrication, mobilization, and demobilization or order dates of long lead material.

(h) Set schedule logic for out of sequence activities to retain logic. In addition, open ends shall be non-critical.

(i) Show target bars for all activities.

(j) Vertical and horizontal sight lines both major and minor shall be used as well as a separator line between groups. The Engineer will determine frequency and style.

(k) The file name, print date, revision number, data and project title and number shall be included in the title block.

(l) Have columns with the appropriate data in them for activity ID, description, original duration, remaining duration, early start, early finish, total float, percent complete, resources. The resource column shall list who is responsible for the work to be done in the activity. These columns shall be to the left of the bar chart.

359 **(2) For Contracts Which Have A Contract Amount More Than**
360 **\$2,000,000 Or Having A Contract Time Of More Than 100**
361 **Working Days Or 140 Calendar Days.** For contracts which have a
362 contract amount more than \$2,000,000 or contract time of more than
363 100 working days or 140 calendar days, the Contractor shall submit
364 a Timed-Scaled Logic Diagram (TSLD) meeting the following
365 requirements and having these essential and distinctive elements:
366

367 **(a)** The information and requirements listed in Subsection
368 108.06(A)(1) – For Contracts \$2,000,000 or Less or For
369 Contract Time 100 Working Days or 140 Calendar Days or
370 Less.

371
372 **(b)** Additional reports and graphics available from the
373 software as requested by the Engineer.
374

375 **(c)** Sufficient detail to allow at least weekly monitoring of
376 the Contractor and subcontractor's operations.
377

378 **(d)** The time scaled schematic shall be on a calendar or
379 working days basis. What will be used shall be determined by
380 how the contract keeps track of time. It will be the same. Plot
381 the critical calendar dates anticipated.
382

383 **(e)** Breakdown of activity, such as forming, placing
384 reinforcing steel, concrete pouring and curing, and stripping
385 in concrete construction. Indicate location of work to be done
386 in such detail that it would be easily determined where work
387 would be occurring within approximately 200 feet.
388

389 **(f)** Latest start and finish dates for critical path activities.
390

391 **(g)** Identify responsible subcontractor, supplier, and others
392 for their respective activity.
393

394 **(h)** No individual activity shall have duration of more than
395 20 calendar days unless requested and approved by the
396 Engineer.
397

398 **(i)** All activities shall have work breakdown structure
399 codes and activity codes. The activity codes shall have
400 coding that incorporates information for phase, location, who
401 is responsible for doing work and type of operation and
402 activity description.
403

404 (j) Incorporate all physical access and availability
405 restraints.

406
407 **(B) Inspection and Testing.** All schedules shall provide reasonable
408 time and opportunity for the Engineer to inspect and test each work activity.
409

410 **(C) Engineer's Acceptance of Progress Schedule.** The submittal of,
411 and the Engineer's receipt of any progress schedule, shall not be deemed
412 an agreement to modify any terms or conditions of the contract. Any
413 modifications to the contract terms and conditions that appear in or may be
414 inferred from an acceptable schedule will not be valid or enforceable unless
415 and until the Engineer exercises discretion to issue an appropriate change
416 order. Nor shall any submittal or receipt imply the Engineer's approval of
417 the schedule's breakdown, its individual elements, any critical path that may
418 be shown, nor shall it obligate the State to make its personnel available
419 outside normal working hours or the working hours established by the
420 Contract in order to accommodate such schedule. The Contractor has the
421 risk of all elements (whether or not shown) of the schedule and its
422 execution. No claim for additional compensation, time, or both, shall be
423 made by the Contractor or recognized by the Engineer for delays during
424 any period for which an acceptable progress schedule or an updated
425 progress schedule as required by Subsection 108.06(E) – Contractor's
426 Continuing Schedule Submittal Requirements had not been submitted. Any
427 acceptance or approval of the schedule shall be for general format only and
428 shall not be deemed an agreement by the State that the construction
429 means, methods, and resources shown on the schedule will result in work
430 that conforms to the contract requirements or that the sequences or
431 durations indicated are feasible.
432

433 **(D) Initial Progress Schedule.** The Contractor shall submit an initial
434 progress schedule. The initial progress schedule shall consist of the
435 following:
436

- 437 (1) Four sets of the TSLD schedule.
- 438
- 439 (2) All the software files and data to re-create the TSLD in a
440 computerized software format as specified by the Engineer.
441
- 442 (3) A listing of equipment that is anticipated to be used on the
443 project. Including the type, size, make, year of manufacture, and all
444 information necessary to identify the equipment in the Rental Rate
445 Blue Book for Construction Equipment.
446
- 447 (4) An anticipated manpower requirement graph plotting contract
448 time and total manpower requirement. This may be superimposed
449 over the payment graph.
450

451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496

(5) A Method Statement that is a detailed narrative describing the work to be done and the method by which the work shall be accomplished for each major activity. A major activity is an activity that:

- (a) Has a duration longer than five days.
- (b) Is a milestone activity.
- (c) Is a contract item that exceeds \$10,000 on the contract cost proposal.
- (d) Is a critical path activity.
- (e) Is an activity designated as such by the Engineer.

Each Method Statement shall include the following items needed to fulfill the schedule:

- (a) Quantity, type, make, and model of equipment.
- (b) The manpower to do the work, specifying worker classification.
- (c) The production rate per eight hour day, or the working hours established by the contract documents needed to meet the time indicated on the schedule. If the production rate is not for eight hours, the number of working hours shall be indicated.

(6) Two sets of color time-scaled project evaluation and review technique charts ("PERT") using the activity box template of Logic – Early Start or such other template designated by the Engineer.

If the contract documents establish a sequence or order for the work, the initial progress schedule shall conform to such sequence or order.

(E) Contractor’s Continuing Schedule Submittal Requirements.

After the acceptance of the initial TSLD and when construction starts, the Contractor shall submit four plotted progress schedules, two PERT charts, and reports on all construction activities every two weeks (bi-weekly). This scheduled bi-weekly submittal shall also include an updated version of the project schedule in a computerized software format as specified by the Engineer. The submittal shall have all the information needed to re-create that time period’s TSLD plot and reports. The bi-weekly submittal shall include, but not limited to, an update of activities based on actual durations,

497 all new activities and any changes in duration or start or finish dates of any
498 activity.
499

500 The Contractor shall submit with every update, in report form
501 acceptable to the Engineer, a list of changes to the progress schedule since
502 the previous schedule submittal. The Engineer may change the frequency
503 of the submittal requirements but may not require a submittal of the
504 schedule to be more than once a week. The Engineer may decrease the
505 frequency of the submittal of the bi-weekly schedule.
506

507 The Contractor shall submit updates of the anticipated work
508 completion graph, equipment listing, manpower requirement graph or
509 method statement when requested by the Engineer. The Contractor shall
510 submit such updates within 4 calendar days from the date of the request by
511 the Engineer.
512

513 The Engineer may withhold progress payment until the Contractor is
514 in compliance with all schedule update requirements
515

516 **(F) Float.** All float appearing on a schedule is a shared commodity.
517 Float does not belong to or exist for the exclusive use or benefit of either
518 the State or the Contractor. The State or the Contractor has the opportunity
519 to use available float until it is depleted. Float has no monetary value.
520

521 **(G) Scheduled Meetings.** The Contractor shall meet on a bi-weekly
522 basis with the Engineer to review the progress schedule. The Contractor
523 shall have someone attending the meeting that can answer all questions on
524 the TSLD and other schedule related submittals.
525

526 **(H) Accelerated Schedule; Early Completion.** If the Contractor
527 submits an accelerated schedule (shorter than the contract time), the
528 Engineer's review and acceptance of an accelerated schedule does not
529 constitute an agreement or obligation by the State to modify the contract
530 time or completion date. The Contractor is solely responsible for and shall
531 accept all risks and any delays, other than those that can be directly and
532 solely attributable to the State, that may occur during the work, until the
533 contract completion date. The contract time or completion date is
534 established for the benefit of the State and cannot be changed without an
535 appropriate change order or Substantial Completion granted by the State.
536 The State may accept the work before the completion date is established,
537 but is not obligated to do so.

538 If the TSLD indicates an early completion of the project, the
539 Contractor shall, upon submittal of the schedule, cooperate with the
540 Engineer in explaining how it will be achieved. In addition, the Contractor
541 shall submit the above explanation in writing which shall include the State's
542 part, if any, in achieving the early completion date. Early completion of the
543 project shall not rely on changes to the Contract Documents unless
544 approved by the Engineer.

545
546 **(l) Contractor Responsibilities.** The Contractor shall promptly
547 respond to any inquiries from the Engineer regarding any schedule
548 submission. The Contractor shall adjust the schedule to address directives
549 from the Engineer and shall resubmit the TSLD package to the Engineer
550 until the Engineer finds it acceptable.

551
552 The Contractor shall perform the work in accordance with the
553 submitted TSLD. The Engineer may require the Contractor to provide
554 additional work forces and equipment to bring the progress of the work into
555 conformance with the TSLD at no increase in contract price or contract time
556 whenever the Engineer determines that the progress of the work does not
557 insure completion within the specified contract time.

558
559 **108.07 Weekly Meeting.** In addition to the bi-weekly schedule meetings, the
560 Contractor shall be available to meet once a week with the Engineer at the time
561 and place as determined by the Engineer to discuss the work and its progress
562 including but not limited to, the progress of the project, potential problems,
563 coordination of work, submittals, erosion control reports, etc. The Contractor's
564 personnel attending shall have the authority to make decisions and answer
565 questions.

566
567 The Contractor shall bring to weekly meetings a detailed work schedule
568 showing the next three weeks' work. Number of copies of the detailed work
569 schedule to be submitted will be determined by the Engineer. The three-week
570 schedule is in addition to the TSLD and shall in no way be considered as a
571 substitute for the TSLD or vice versa. The three-week schedule shall show:

572
573 **(a)** All construction events, traffic control and BMP related activities in
574 such detail that the Engineer will be able to determine at what location and
575 type of work will be done for any day for the next three weeks. This is for
576 the State to use to plan its manpower requirements for that time period.

577
578 **(b)** The duration of all events and delays.

579
580 **(c)** The critical path clearly marked in red or marked in a manner that
581 makes it clearly distinguishable from other paths and is acceptable to the
582 Engineer.

584 (d) Critical submittals and requests for information (RFI's).

585

586 (e) The project title, project number, date created, period the schedule
587 covers, Contractor's name and creator of the schedule on each page.

588

589 Two days prior to each weekly meeting, the Contractor shall submit
590 a list of outstanding submittals, RFIs and issues that require discussion.

591

592 **108.08 Liquidated Damages for Failure to Complete the Work or Portions**
593 **of the Work on Time.** The actual amount of damages resulting from the
594 Contractor's failure to complete the contract in a timely manner is difficult to
595 accurately determine. Therefore, the amount of such damages shall be liquidated
596 damages as set forth herein and in the special provisions. The State may, at its
597 discretion, deduct the amount from monies due or that may become due under the
598 contract.

599

600 When the Contractor fails to reach substantial completion of the work for
601 which liquidated damages are specified, within the time or times fixed in the
602 contract or any extension thereof, in addition to all other remedies for breach that
603 may be available to the State, the Contractor shall pay liquidated damages to the
604 State, in the amount of \$5,000.00 per working day.

605

606 (A) **Liquidated Damages Upon Termination.** If the State terminates
607 on account of Contractor's default, liquidated damages may be charged
608 against the defaulting Contractor and its surety until final completion of
609 work.

610

611 (B) **Liquidated Damages for Failure to Complete the Punchlist.** The
612 Contractor shall complete the work on any punchlist created after the pre-
613 final inspection, within the contract time or any extension thereof.

614

615 When the Contractor fails to complete the work on such punchlist
616 within the contract time or any extension thereof, the Contractor shall pay
617 liquidated damages to the State of 20 percent of the amount of liquidated
618 damages established for failure to substantially complete the work within
619 contract time. Liquidated damages shall not be assessed for the period
620 between:

621

622 (1) Notice from the Contractor that the project is substantially
623 complete and the time the punchlist is delivered to the Contractor.

624

625 (2) The date of the completion of punchlist as determined by the
626 Engineer and the date of the successful final inspection, and

627

628 (3) The date of the Final Inspection that results in Substantial
629 Completion and the receipt by the Contractor of the written notice of
630 Substantial Completion.

631
632 **(C) Actual Damages Recoverable If Liquidated Damages Deemed**
633 **Unenforceable.** In the event a court of competent jurisdiction holds that
634 any liquidated damages assessed pursuant to this contract are
635 unenforceable, the State will be entitled to recover its actual damages for
636 Contractor's failure to complete the work, or any designated portion of the
637 work within the time set by the contract.

638
639 **108.09 Rental Fees for Unauthorized Lane Closure or Occupancy.** In
640 addition to all other remedies available to the State for Contractor's breach of the
641 terms of the contract, the Engineer will assess the rental fees in the amount of
642 \$500 for every one-to fifteen-minute increment for each roadway lane closed to
643 public use or occupied beyond the time periods authorized in the contract or by the
644 Engineer. The maximum amount assessed per day shall be \$5,000. The State
645 may, at its discretion, deduct the amount from monies due or that may become
646 due under the contract. The rental fee may be waived in whole or part if the
647 Engineer determines that the unauthorized period of lane closure or occupancy
648 was due to factors beyond the control of the Contractor. Equipment breakdown is
649 not a cause to waive liquidated damages.

650
651 **108.10 Suspension of Work.**

652
653 **(A) Suspension of Work.** The Engineer may, by written order, suspend
654 the performance of the work, either in whole or in part, for such periods as
655 the Engineer may deem necessary, for any cause, including but not limited
656 to:

657
658 (1) Weather or soil conditions considered unsuitable for
659 prosecution of the work.

660
661 (2) Whenever a redesign that may affect the work is deemed
662 necessary by the Engineer.

663
664 (3) Unacceptable noise or dust arising from the construction even
665 if it does not violate any law or regulation.

666
667 (4) Failure on the part of the Contractor to:

668
669 (a) Correct conditions unsafe for the general public or for
670 the workers.

671
672 (b) Carry out orders given by the Engineer.

673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717

(c) Perform the work in strict compliance with the provisions of the contract.

(d) Provide adequate supervision on the jobsite.

(5) The convenience of the State.

(B) Partial and Total Suspension. Suspension of work on some but not all items of work shall be considered a “partial suspension”. Suspension of work on all items shall be considered “total suspension”. The period of suspension shall be computed from the date set out in the written order for work to cease until the date of the order for work to resume.

(C) Reimbursement to Contractor. In the event that the Contractor is ordered by the Engineer in writing as provided herein to suspend all work under the contract for the reasons specified in Subsections 108.10(A)(2), 108.10(A)(3), or 108.10(A)(5) of the “Suspension of Work” paragraph, the Contractor may be reimbursed for actual direct costs incurred on work at the jobsite, as authorized in writing by the Engineer, including costs expended for the protection of the work. An allowance of 5 percent for indirect categories of delay costs will be paid on any reimbursed direct costs, including extended branch and home-office overhead and delay impact costs. No allowance will be made for anticipated profits. Payment for equipment which is ordered to standby during such suspension of work shall be made as described in Subsection 109.06(H) - Idle and Standby Equipment.

(D) Cost Adjustment. If the performance of all or part of the work is suspended for reasons beyond the control of the Contractor except an adjustment shall be made for any increase in cost of performance of this contract (excluding profit) necessarily caused by such suspension, and the contract modified in writing accordingly.

However, no adjustment to the contract price shall be made for any suspension, delay, or interruption:

(1) For weather related conditions.

(2) To the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor.

(3) Or, for which an adjustment is provided for or excluded under any other provision of this Contract.

718 **(E) Claims for Adjustment.** Any adjustment in contract price made
719 shall be determined in accordance with Subsections 104.02 – Changes and
720 104.06 – Methods of Price Adjustment.
721

722 Any claims for such compensation shall be filed in writing with the
723 Engineer within 30 days after the date of the order to resume work or the
724 claim will not be considered. The claim shall conform to the requirements
725 of Subsection 107.15(D) – Making of a Claim. The Engineer will take the
726 claim under consideration, may make such investigations as are deemed
727 necessary and will be the sole judge as to the equitability of the claim. The
728 Engineer’s decision will be final.
729

730 **(F) No Adjustment.** No provision of this clause shall entitle the
731 Contractor to any adjustments for delays due to failure of its surety, the
732 cancellation or expiration of any insurance coverage required by the
733 contract documents, for suspensions made at the request of the Contractor,
734 for any delay required under the contract, for suspensions, either partial or
735 whole, made by the Engineer under Subsection 108.10(A)(4) of the
736 “Suspension of work” paragraph.
737

738 **108.11 Termination of Contract for Cause.**
739

740 **(A) Default.** If the Contractor refuses or fails to perform the work, or any
741 separable part thereof, with such diligence as will assure its completion
742 within the time specified in this contract, or any extension thereof, or
743 commits any other material breach of this contract, and further fails within
744 seven days after receipt of written notice from the Engineer to commence
745 and continue correction of the refusal or failure with diligence and
746 promptness, the Engineer may, by written notice to the Contractor, declare
747 the Contractor in breach and terminate the Contractor’s right to proceed
748 with the work or the part of the work as to which there has been delay or
749 other breach of contract. In such event, the State may take over the work,
750 perform the same to completion, by contract or otherwise, and may take
751 possession of, and utilize in completing the work, the materials, appliances,
752 and plants as may be on the site of the work and necessary therefore.
753 Whether or not the Contractor’s right to proceed with the work is terminated,
754 the Contractor and the Contractor’s sureties shall be liable for any damage
755 to the State resulting from the Contractor’s refusal or failure to complete the
756 work within the specified time.
757

758 **(B) Additional Rights and Remedies.** The rights and remedies of the
759 State provided in this contract are in addition to any other rights and
760 remedies provided by law.
761

762 **(C) Costs and Charges.** All costs and charges incurred by the State,
763 together with the cost of completing the work under contract, will be

764 deducted from any monies due or which would or might have become due
765 to the Contractor had it been allowed to complete the work under the
766 contract. If such expense exceeds the sum which would have been
767 payable under the contract, then the Contractor and the surety shall be
768 liable and shall pay the State the amount of the excess.
769

770 In case of termination, the Engineer will limit any payment to the
771 Contractor to the part of the contract satisfactorily completed at the time of
772 termination. Payment will not be made until the work has satisfactorily been
773 completed and all required documents, including the tax clearance required
774 by Subsection 109.11 – Final Payment are submitted by the Contractor.
775 Termination shall not relieve the Contractor or Surety from liability for
776 liquidated damages.
777

778 **(D) Erroneous Termination for Cause.** If, after notice of termination of
779 the Contractor's right to proceed under this section, it is determined for any
780 reason that good cause did not exist to allow the State to terminate as
781 provided herein, the rights and obligations of the parties shall be the same
782 as, and the relief afforded the Contractor shall be limited to, the provisions
783 contained in Subsection 108.12 – Termination for Convenience.
784

785 **108.12 Termination For Convenience.**

786
787 **(A) Terminations.** The Director may, when the interests of the State so
788 require, terminate this contract in whole or in part, for the convenience of
789 the State. The Director will give written notice of the termination to the
790 Contractor specifying the part of the contract terminated and when
791 termination becomes effective.
792

793 **(B) Contractor's Obligations.** The Contractor shall incur no further
794 obligations in connection with the terminated work and on the date set in
795 the notice of termination the Contractor shall stop work to the extent
796 specified. The Contractor shall also terminate outstanding orders and
797 subcontracts as they relate to the terminated work. The Contractor shall
798 settle the liabilities and claims arising out of the termination of subcontracts
799 and orders connected with the terminated work subject to the State's
800 approval. The Engineer may direct the Contractor to assign the
801 Contractor's right, title, and interest under terminated orders or subcontracts
802 to the State. The Contractor must still complete the work not terminated by
803 the notice of termination and may incur obligations as necessary to do so.
804

805 **(C) Right to Construction and Goods.** The Engineer may require the
806 Contractor to transfer title and to deliver to the State in the manner and to
807 the extent directed by the Engineer, the following:

808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853

- (1) Any completed work.
- (2) Any partially completed construction, goods, materials, parts, tools, dies, jigs, fixtures, drawings, information, and contract rights (hereinafter called "construction material") that the Contractor has specifically produced or specially acquired for the performance of the terminated part of this contract.
- (3) The Contractor shall protect and preserve all property in the possession of the Contractor in which the State has an interest. If the Engineer does not elect to retain any such property, the Contractor shall use its best efforts to sell such property and construction materials for the State's account in accordance with the standards of HRS Chapter 490:2-706.

(D) Compensation.

- (1) The Contractor shall submit a termination claim specifying the amounts due because of the termination for convenience together with cost or pricing data, submitted to the extent required by HAR Subchapter 15, Chapter 3-122. If the Contractor fails to file a termination claim within one year from the effective date of termination, the Engineer may pay the Contractor, if at all, an amount set in accordance with Subsection 108.12(D)(3).
- (2) The Engineer and the Contractor may agree to a settlement provided the Contractor has filed a termination claim supported by cost or pricing data submitted as required and that the settlement does not exceed the total contract price plus settlement costs reduced by payments previously made by the State, the proceeds of any sales of construction, supplies, and construction materials under Subsection 108.12(C)(3), and the proportionate contract price of the work not terminated.
- (3) Absent complete agreement, the Engineer will pay the Contractor the following amounts less any payments previously made under the contract:
 - (a) The cost of all contract work performed prior to the effective date of the notice of termination work plus a 5 percent markup on the actual direct costs, including amounts paid to subcontractor, less amounts paid or to be paid for completed portions of such work; provided, however, that if it appears that the Contractor would have sustained a loss if the entire contract would have been completed, no markup shall be allowed or included and the amount of compensation shall

854 be reduced to reflect the anticipated rate of loss. No
855 anticipated profit or consequential damage will be due or paid.

856
857 **(b)** Subcontractors shall be paid a markup of 10 percent on
858 their direct job costs incurred to the date of termination. No
859 anticipated profit or consequential damage will be due or paid
860 to any subcontractor. These costs must not include payments
861 made to the Contractor for subcontract work during the
862 contract period.

863
864 **(c)** The total sum to be paid the Contractor shall not
865 exceed the total contract price reduced by the amount of any
866 sales of construction supplies, and construction materials.

867
868 **(4)** Cost claimed, agreed to, or established by the State shall be
869 in accordance with HAR Chapter 3-123.

870
871 **108.13 Pre-Final and Final Inspections.**

872
873 **(A) Inspection Requirements.** Before the Engineer undertakes a final
874 inspection of any work, a pre-final inspection must first be conducted. The
875 Contractor shall notify the Engineer that the work has reached substantial
876 completion and is ready for pre-final inspection.

877
878 **(B) Pre-Final Inspection.** Before notifying the Engineer that the work
879 has reached substantial completion, the Contractor shall inspect the project
880 and test all installed items with all of its subcontractors as appropriate. The
881 Contractor shall also submit the following documents as applicable to the
882 work:

- 883
884 **(1)** All written guarantees required by the contract.
885
886 **(2)** Two accepted final field-posted drawings as specified in
887 Section 648 – Field-Posted Drawings;
888
889 **(3)** Complete weekly certified payroll records for the Contractor
890 and Subcontractors.
891
892 **(4)** Certificate of Plumbing and Electrical Inspection.
893
894 **(5)** Certificate of building occupancy as required.
895
896 **(6)** Certificate of Soil and Wood Treatments.
897
898 **(7)** Certificate of Water System Chlorination.
899

900 (8) Certificate of Elevator Inspection, Boiler and Pressure Pipe
901 Inspection.

902
903 (9) Maintenance Service Contract and two copies of a list of all
904 equipment installed.

905
906 (10) Current Tax clearance. The contractor will be required to
907 submit an additional tax clearance certificate when the final payment
908 is made.

909
910 (11) And any other final items and submittals required by the
911 contract documents.

912
913 (C) **Procedure.** When in compliance with the above requirements, the
914 Contractor shall notify the Engineer in writing that the project has reached
915 substantial completion and is ready for pre-final inspection.

916
917 The Engineer will then make a preliminary determination as to
918 whether or not the project is substantially complete and ready for pre-final
919 inspection. The Engineer may, in writing, postpone until after the pre-final
920 inspection the Contractor's submittal of any of the items listed in Subsection
921 108.13(B) – Pre-Final Inspection, herein, if in the Engineer's discretion it is
922 in the interest of the State to do so.

923
924 If, in the opinion of the Engineer, the project is not substantially
925 complete, the Engineer will provide the Contractor a punchlist of specific
926 deficiencies in writing which must be corrected or finished before the work
927 will be ready for a pre-final inspection. The Engineer may add to or
928 otherwise modify this punchlist from time to time. The Contractor shall take
929 immediate action to correct the deficiencies and must repeat all steps
930 described above including written notification that the work is ready for pre-
931 final inspection.

932
933 After the Engineer is satisfied that the project appears substantially
934 complete a final inspection shall be scheduled within ten working days after
935 receipt of the Contractor's latest letter of notification that the project is ready
936 for final inspection.

937
938 If, as a result of the pre-final inspection, the Engineer determines the
939 work is not substantially complete, the Engineer will inform the Contractor in
940 writing as to specific deficiencies which must be corrected before the work
941 will be ready for another pre-final inspection. If the Engineer finds the work
942 is substantially complete but finds deficiencies that must be corrected
943 before the work is ready for final inspection, the Engineer will prepare in
944 writing and deliver to the Contractor a punchlist describing such
945 deficiencies.

946 At any time before final acceptance, the Engineer may revoke the
947 determination of substantial completion if the Engineer finds that it was not
948 warranted and will notify the Contractor in writing the reasons therefore
949 together with a description of the deficiencies negating the declaration.

950
951 When the date of substantial completion has been determined by the
952 State, liquidated damages for the failure to complete the punchlist, if due to
953 the State will be assessed in pursuant to Subsection 108.08(B) - Liquidated
954 Damages for Failure to Complete the Punchlist.

955
956 **(D) Punchlist; Clean Up and Final Inspection.** Upon receiving a
957 punchlist after pre-final inspection, the Contractor shall promptly devote all
958 required time, labor, equipment, materials and incidentals to correct and
959 remedy all punchlist deficiencies. The Engineer may add to or otherwise
960 modify this punchlist until substantial completion of the project.

961
962 Before final inspection of the work, the Contractor shall clean all
963 ground occupied by the Contractor in connection with the work of all
964 rubbish, excess materials temporary structures and equipment, shall
965 remove all graffiti and defacement of the work and all parts of the work and
966 the worksite must be left in a neat and presentable condition to the
967 satisfaction of the Engineer.

968
969 Final inspection will occur within ten working days after the
970 Contractor notifies the Engineer in writing that all punchlist deficiencies
971 remaining after the pre-final inspection have been completed and the
972 Engineer concurs. If the Engineer determines that deficiencies still remain
973 at the final inspection, the work will not be accepted and the Engineer will
974 notify the Contractor, in writing, of the deficiencies which shall be corrected
975 and the steps above repeated.

976
977 If the Contractor fails to correct the deficiencies and complete the
978 work by the established or agreed date, the State may correct the
979 deficiencies by whatever method it deems appropriate and deduct the cost
980 from any payments due the Contractor.

981
982 **108.14 Substantial Completion and Final Acceptance.**

983
984 **(A) Substantial Completion.** When the Engineer finds that the
985 Contractor has satisfactorily completed all work for the project in
986 compliance with the contract, with the exception of the planting period and
987 the plant establishment period, the Engineer will notify the Contractor, in
988 writing, of the project's substantial completion, effective as of the date of the
989 final inspection. The substantial completion date shall determine end of
990 contract time and relieve contractor of any additional accumulation of
991 liquidated damages for failure to complete the punchlist.

992
993
994
995
996
997
998
999
1000
1001
1002
1003
1004
1005
1006
1007
1008
1009
1010
1011
1012
1013
1014
1015
1016
1017
1018
1019
1020
1021
1022
1023
1024
1025
1026
1027
1028
1029
1030
1031
1032
1033
1034
1035
1036
1037

(B) Final Acceptance. When the Engineer finds that the Contractor has satisfactorily completed all contract work in compliance with the contract including all plant establishment requirements, and all the materials have been accepted by the State, the Engineer will issue a Final Acceptance Letter. The Final Acceptance date shall determine the commencement of all guaranty periods subject to Subsection 108.16 – Contractor’s Responsibility for Work; Risk of Loss or Damage.

108.15 Use of Structure or Improvement. The State has the right to use the structure, equipment, improvement, or any part thereof, at any time after it is considered by the Engineer as available. In the event that the structure, equipment or any part thereof is used by the State before final acceptance, the Contractor is not relieved of its responsibility to protect and preserve all the work until final acceptance.

108.16 Contractor’s Responsibility for Work; Risk of Loss or Damage. Until the written notice of final acceptance has been received, the Contractor shall take every precaution against loss or damage to any part of the work by the action of the elements or from any other cause whatsoever, whether arising from the performance or from the non-performance of the work. The Contractor shall rebuild, repair, restore and make good all loss or damage to any portion of the work resulting from any cause before its receipt of the written notice of final acceptance and shall bear the risk and expense thereof.

The risk of loss or damage to the work from any hazard or occurrence that may or may not be covered by a builder’s risk policy is that of the Contractor and Surety, unless such risk of loss is placed elsewhere by express language in the contract documents.

108.17 Guarantee of Work.

(1) Regardless of, and in addition to, any manufacturers’ warranties, all work and equipment shall be guaranteed by the Contractor against defects in materials, equipment or workmanship for one year from the date of final acceptance or as otherwise specified in the contract documents.

(2) When the Engineer determines that repairs or replacements of any guaranteed work and equipment is necessary due to materials, equipment, or workmanship which are inferior, defective, or not in accordance with the terms of the contract, the Contractor shall, at no increase in contract price or contract time, and within five working days of receipt of written notice from the State, commence to all of the following:

(a) Correct all noted defects and make replacements, as directed by the Engineer, in the equipment and work.

1038
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1080
1081
1082
1083

(b) Repair or replace to new or pre-existing condition any damages resulting from such defective materials, equipment or installation thereof.

(3) The State will be entitled to the benefit of all manufacturers and installers warranties that extend beyond the terms of the Contractor's guaranty regardless of whether or not such extended warranty is required by the contract documents. The Contractor shall prepare and submit all documents required by the providers of such warranties to make them effective, and submit copies of such documents to the Engineer. If an available extended warranty cannot be transferred or assigned to the State as the ultimate user, the Contractor shall notify the Engineer who may direct that the warranted items be acquired in the name of the State as purchaser.

(4) If a defect is discovered during a guarantee period, all repairs and corrections to the defective items when corrected shall be guaranteed for a new duration equal to the original full guarantee period. The running of the guarantee period shall be suspended for all other work affected by any defect. The guarantee period for all other work affected by any such defect shall restart for its remaining duration upon confirmation by the Engineer that the deficiencies have been repaired or remedied.

(5) Nothing in this section is intended to limit or affect the State's rights and remedies arising from the discovery of latent defects in the work after the expiration of any guarantee period.

108.18 No Waiver of Legal Rights. The following will not operate or be considered as a waiver of any portion of the contract, or any power herein reserved, or any right to damages provided herein or by law:

- (1) Any payment for, or acceptance of, the whole or any part of the work.
- (2) Any extension of time.
- (3) Any possession taken by the Engineer.

A waiver of any notice requirement or of any noncompliance with the contract will not be held to be a waiver of any other notice requirement or any other noncompliance with the contract.

108.19 Final Settlement of Contract.

(A) **Closing Requirements.** The contract will be considered settled after the project acceptance date and when the following items have been satisfactorily submitted, where applicable:

- 1084 (1) All written guarantees required by the contract.
- 1085
- 1086 (2) Complete and certified weekly payrolls for the Contractor and
- 1087 its subcontractor's.
- 1088
- 1089 (3) Certificate of plumbing and electrical inspection.
- 1090
- 1091 (4) Certificate of building occupancy.
- 1092
- 1093 (5) Certificate for soil treatment and wood treatment.
- 1094
- 1095 (6) Certificate of water system chlorination.
- 1096
- 1097 (7) Certificate of elevator inspection, boiler and pressure pipe
- 1098 installation.
- 1099
- 1100 (8) Tax clearance.
- 1101
- 1102 (9) All other documents required by the Contract or by law.
- 1103

1104 **(B) Failure to Meet Closing Requirements.** The Contractor shall meet
1105 the applicable closing requirements within 60 days from the date of Project
1106 Acceptance or the agreed to Punchlist complete date. Should the
1107 Contractor fail to comply with these requirements, the Engineer may
1108 terminate the contract for cause.”

1109
1110
1111
1112
1113

END OF SECTION 108

49
50
51
52
53
54
55

claims have been fully and completely discharged or otherwise satisfied.”

END OF SECTION 109

1 **SECTION 202 – REMOVAL OF STRUCTURES AND OBSTRUCTIONS**
 2

3 Make the following amendments to said Section:
 4

5 **(I)** Add the following paragraphs to Subsection **202.03(C) Removal of**
 6 **Bridges**, line 118, to read as follows:
 7

8 “All concrete and/or reinforcing steel removed shall be recycled by an
 9 appropriately licensed or certified concrete recycling facility.”
 10

11 **(II)** Amend **202.04 – Measurement** by revising lines 119 to 120 to read as
 12 follows:
 13

14 **“202.04 Measurement.** The Engineer will not measure the demolition and
 15 removal of structures and obstructions when contracted on a lump sum basis.”
 16

17 **(III)** Amend **202.05 – Payment** by revising lines 122 to 131 to read as follows:
 18

19 **“202.05 Payment.** If the proposal does not show a contract item for the
 20 removal of structures and obstructions, the Engineer will not pay for the removal
 21 of structures and obstructions separately. The Contractor shall consider them
 22 incidental to the various contract items.
 23

24 The Engineer will pay for specific items stipulated for demolition, removal
 25 and disposal at the contract price bid per unit specified in the proposal. The price
 26 shall be full compensation for removal and disposal of that items, excavation,
 27 backfill, salvage of materials removed. Salvaging of materials removed includes
 28 their custody, preservation, storage on the right-of-way. Also, the price shall be
 29 full compensation for equipment, tools, labor materials and incidentals necessary
 30 to complete the work.
 31

32 The Engineer will pay for the following pay item when included in the
 33 proposal schedule.
 34

35 Pay Item	35 Pay Unit
36 37 Removal of _____	Lump Sum”
38	
39	
40	
41	

END OF SECTION 202

1 **SECTION 203 – EXCAVATION AND EMBANKMENT**

2
3 Make the following amendments to said Section:

4
5 **(I)** Amend **203.03(C)(2)(a) – Maximum Dry Unit Weight** from line 245 to line
6 255 to read as follows:

7
8 **“(a) Maximum Dry Unit Weight.** Test for maximum dry
9 unit weight according to AASHTO T 180, and apply the
10 correction for fraction larger than 3/4 inch. Use Hawaii
11 Test Method HDOT TM 5 for sample preparation of sensitive
12 soils when so designated by the Engineer.”

13
14 **(II)** Amend **203.04 – Measurement** by revising lines 345 to 366 to read as
15 follows:

16
17 **“203.04 Measurement.**

18
19 **(A)** The Engineer will measure roadway excavation per cubic yard.
20 The Engineer will compute quantities of roadway excavation by average
21 end area method and centerline distances. Curvature correction will not
22 be applied to quantities within roadway prism, as indicated in the contract
23 documents. In computing excavation quantities from outside the roadway
24 prism, where roadway centerline is used as a base, curvature correction
25 will be applied when centerline radius is 1,000 feet or less.

26
27 When roadway excavation quantities by average end area method
28 cannot be computed due to the nature of a particular operation or changed
29 conditions, the Engineer will determine and use computation method that
30 will produce an accurate quantity estimate.

31
32 **(III)** Amend **203.05 – Payment** by revising lines 368 to 457 to read as follows:

33
34 **“203.05 Payment.** The Engineer will pay for the accepted pay items listed
35 below at the contract price per pay unit, as shown in the proposal schedule.
36 Payment will be full compensation for the work prescribed in this section and the
37 contract documents.

38
39 The Engineer will pay for each of the following pay items when included in
40 the proposal schedule:

41

Pay Item	Pay Unit
Roadway Excavation	Cubic Yard

42
43
44
45 The Engineer will pay for:

47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90

(1) 15 percent of the contract bid price upon completion of obliterating old roadways and hauling.

(2) 30 percent of the contract bid price upon completion of preparing subgrade.

(3) 40 percent of the contract bid price upon completion of placing selected material in final position, rounding of slopes, and using water for compaction.

(4) 15 percent of the contract bid price upon completion of disposing of surplus excavation material.

The Engineer will pay for accepted quantities of subexcavation, as roadway excavation at the contract unit price per cubic yard, when ordered by the Engineer, for work prescribed in Subsection 203.03(A)(4) – Subexcavation. Payment will be full compensation for the work prescribed therein and in the contract documents.

The Engineer will pay for accepted quantities of unlined gutter excavation as roadway excavation at the contract unit price per cubic yard, when gutter is located as follows: within median area of a divided highway; and between roadbed shoulder and adjacent cut slope. Payment will be full compensation for removing and disposing of excavated material; backfilling and compacting; and for the work prescribed in the contract documents.

The Engineer will not pay for stockpiling selected material, placing selected material in final position, or placing selected material in windrows along tops of roadway slopes for erosion control work, separately and will consider the cost as included in the unit prices for the various excavation contract pay items. The cost is for work prescribed in this section and the contract documents.

The Engineer will not pay for overhaul separately and will consider the cost as included in the unit prices for the various excavation contract pay items. The cost is for work prescribed in this section and the contract documents.

The Engineer will not pay for embankment separately and will consider the cost as included in the unit price for roadway excavation. The cost is for work prescribed in this section and the contract documents.”

END OF SECTION 203

1 **SECTION 205 – EXCAVATION AND BACKFILL FOR BRIDGE AND**
2 **RETAINING STRUCTURES**

3
4 Make the following amendments to said Section:

5
6
7 **(I)** Amend **205.01 Description** by revising subparagraph (A) between lines 5
8 and 8 to read as follows:

9
10 **“(A)** Excavating and backfilling to depths and lines established for
11 bridge, overhead-mounted expressway sign, retaining (reinforced concrete
12 or cement rubble masonry) structures, foundations, and box culverts.”

13
14 **(II)** Amend **205.03(A)(1) General** by adding the following paragraph
15 after line 47 to read as follows:

16
17 “The Contractor shall be responsible for protecting the sides of the
18 excavations from cave-ins. If the Contractor decides to brace or shore the cut
19 slope, the Contractor shall submit working drawings and calculations. The
20 working drawings and calculations shall be stamped by a registered Hawaii
21 Structural Engineer and a registered Civil Engineer specializing in Geotechnical
22 Engineering in the State of Hawaii. If the Contractor decides not to brace the cut
23 slope, the Contractor shall submit, when requested by the Engineer,
24 calculations, showing the stability of the slope, stamped by a registered Civil
25 Engineer specializing in Geotechnical Engineering in the State of Hawaii. The
26 working drawings and calculations shall be reviewed and accepted by the
27 Engineer before proceeding with the construction.”

28
29
30
31 **END OF SECTION 205**
32

1 Amend **Section 209 - TEMPORARY WATER POLLUTION, DUST, AND EROSION**
2 **CONTROL** to read as follows:

3
4
5 **“SECTION 209 - TEMPORARY WATER POLLUTION, DUST, AND EROSION**
6 **CONTROL**

7
8
9 **209.01 Description.** This section describes the following:

10
11 **(A)** Including detailed plans, diagrams, and written Site-Specific Best
12 Management Practices (BMP); constructing, maintaining, and repairing
13 temporary water pollution, dust, and erosion control measures at the project
14 site, including local material sources, work areas and haul roads; removing
15 and disposing hazardous wastes; control of fugitive dust (defined as
16 uncontrolled emission of solid airborne particulate matter from any source
17 other than combustion); and complying with applicable State and Federal
18 permit conditions.

19
20 **(B)** Work associated with construction stormwater, dewatering, and
21 hydrotesting activities and complying with conditions of the National Pollutant
22 Discharge Elimination System (NPDES) permit(s) authorizing discharges
23 associated with construction stormwater, dewatering, and hydrotesting
24 activities.

25
26 **(C)** Potential pollutant identification and mitigation measures are listed in
27 Appendix A for use in the development of the Contractor’s Site-Specific BMP.

28
29 Requirements of this section also apply to construction support
30 activities including concrete or asphalt batch plants, rock crushing plants,
31 equipment staging yards/areas, material storage areas, excavated material
32 disposal areas, and borrow areas located outside the State Right-of-Way.
33 For areas serving multiple construction projects, or operating beyond the
34 completion of the construction project in which it supports, the Contractor
35 shall be responsible for securing the necessary permits, clearances, and
36 documents, and following the conditions of the permits and clearances, at no
37 cost to the State.

38
39 **209.02 Materials.** Comply with applicable materials described in Chapters 2 and
40 3 of the current HDOT “Construction Best Management Practices Field Manual”. In
41 addition, the materials shall comply with the following:

42
43 **(A) Grass.** Grass shall be a quick growing species such as rye grass,
44 Italian rye grass, or cereal grasses. Grass shall be suitable to the area and
45 provide a temporary cover that will not compete later with permanent cover.
46 Alternative grasses are allowable if acceptable to the Engineer.

47 **(B) Fertilizer and Soil Conditioners.** Fertilizer and soil conditioners shall
48 be a standard commercial grade acceptable to the Engineer. Fertilizer shall
49 conform to Subsection 619.02(H)(1) - Commercial Fertilizer.
50

51 **(C) Hydro-mulching.** Hydro-mulching used as a temporary vegetative
52 stabilization measure shall consist of materials in Subsections 209.02(A) -
53 Grass, and 209.02(B) – Fertilizer and Soil Conditioners. Mulches shall be
54 recycled materials including bagasse, hay, straw, wood cellulose bark, wood
55 chips, or other material acceptable to the Engineer. Mulches shall be clean
56 and free of noxious weeds and deleterious materials. Potable water shall
57 meet the requirements of Subsection 712.01 - Water. Submit alternate
58 sources of irrigation water for the Engineer’s acceptance if deviating from
59 712.01 - Water. Installation and other requirements shall be in accordance
60 with portions of Section 641- Hydro-Mulch Seeding including 641.02(D) - Soil
61 and Mulch Tackifier, 641.03(A) – Seeding, and 641.03(B) - Planting Period.
62 Install non-vegetative controls including mulch or rolled erosion control
63 products while the vegetation is being established. Water and fertilize grass.
64 Apply fertilizer as recommended by the manufacturer. Replace grass the
65 Engineer considers unsuitable or sick. Remove and dispose of trash and
66 debris. Remove invasive species. Mow as needed to prevent site or signage
67 obstructions, fire hazard, or nuisance to the public. Do not remove down
68 stream sediment control measures until the vegetation is uniformly
69 established, including no large bare areas, and provides 70 percent of the
70 density of pre-disturbance vegetation. Temporary vegetative stabilization
71 shall not be used longer than one year.
72

73 **(D) Silt Fences.** Comply with ASTM D6462, Standard Practice for Silt
74 Fence Installation.
75

76 Alternative materials or methods to control, prevent, remove and dispose
77 pollution are allowable if acceptable to the Engineer.
78

79 **209.03 Construction.**
80

81 **(A) Preconstruction Requirements.**
82

83 **(1) Water Pollution, Dust, and Erosion Control Meeting.**
84 Schedule a water pollution, dust, and erosion control meeting with the
85 Engineer after Site-Specific BMP is accepted in writing by the
86 Engineer. Meeting shall be scheduled a minimum of 7 calendar days
87 prior to the Start Work Date. Discuss sequence of work, plans and
88 proposals for water pollution, dust, and erosion control.
89

90 **(2) Water Pollution, Dust, and Erosion Control Submittals.**

91 Submit a Site-Specific BMP Plan within 21 calendar days of date of
92 award. Submission of complete and acceptable Site-Specific BMP
93 Plan is the sole responsibility of the Contractor and additional contract
94 time will not be issued for delays due to incompleteness. Include the
95 following:

96
97 **(a)** Written description of activities to minimize water
98 pollution and soil erosion into State waters, drainage or sewer
99 systems. BMP shall include the following:

- 100 1. An identification of potential pollutants and their
101 sources.
- 102 2. A list of all materials and heavy equipment to be
103 used during construction.
- 104 3. Descriptions of the methods and devices used to
105 minimize the discharge of pollutants into State waters,
106 drainage or sewer systems.
- 107 4. Details of the procedures used for the
108 maintenance and subsequent removal of any erosion or
109 siltation control devices.
- 110 5. Methods of removing and disposing hazardous
111 wastes encountered or generated during construction.
- 112 6. Methods of removing and disposing concrete and
113 asphalt pavement cutting slurry, concrete curing water,
114 and hydrodemolition water.
- 115 7. Spill Control and Prevention and Emergency Spill
116 Response Plan.
- 117 8. Fugitive dust control, including dust from grinding,
118 sweeping, or brooming off operations or combination
119 thereof.
- 120 9. Methods of storing and handling of oils, paints
121 and other products used for the project.
- 122 10. Material storage and handling areas, and other
123 staging areas.
- 124 11. Concrete truck washouts.

136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180

- 12. Concrete waste control.
- 13. Fueling and maintenance of vehicles and other equipment.
- 14. Tracking of sediment offsite from project entries and exits.
- 15. Litter management.
- 16. Toilet facilities.
- 17. Other factors that may cause water pollution, dust and erosion control.

(b) Provide plans indicating location of water pollution, dust and erosion control devices; provide plans and details of BMPs to be installed or utilized; show areas of soil disturbance in cut and fill, indicate areas used for construction staging and storage including items (1) through (17) above, storage of aggregate (indicate type of aggregate), asphalt cold mix, soil or solid waste, equipment and vehicle parking, and show areas where vegetative practices are to be implemented. Indicate intended drainage pattern on plans. Include flow arrows. Include separate drawing for each phase of construction that alters drainage patterns. Indicate approximate date when device will be installed and removed.

(c) Construction schedule.

(d) Name(s) of specific individual(s) designated responsible for water pollution, dust, and erosion controls on the project site. Include home, cellular, and business telephone numbers, fax numbers, and e-mail addresses.

(e) Description of fill material to be used.

(f) For projects with an NPDES Permit for Construction Activities, submit information to address all sections in the Storm Water Pollution Prevention Plan (SWPPP).

(g) For projects with an NPDES Permit, information required for compliance with the conditions of the Notice of General Permit Coverage (NGPC)/NPDES Permit.

181 (h) Site-Specific BMP Review Checklist. The checklist may
182 be downloaded from HDOT’s Stormwater Management
183 website at <http://stormwaterhawaii.com>.
184

185 Date and sign Site-Specific BMP Plan. Keep accepted
186 copy on site or at an accessible location so that it can be made
187 available at the time of an on-site inspection or upon request by
188 the Engineer, HDOT Third-Party Inspector, and/or DOH/EPA
189 Representative. Amendments to the Site-Specific BMP Plan
190 shall be included with original Site-Specific BMP Plan. Modify
191 SWPPP if necessary to conform to revisions. Include date of
192 installation and removal of Site-Specific BMP measures.
193 Obtain written acceptance by the Engineer before
194 implementing revised Site-Specific BMPs in the field.
195

196 Follow the guidelines in the current HDOT “Construction
197 Best Management Practices Field Manual”, in developing,
198 installing, and maintaining Site-Specific BMPs for all projects.
199 For any conflicting requirements between the Manual and
200 applicable bid documents, the applicable bid documents will
201 govern. Should a requirement not be clearly described within
202 the applicable bid documents, notify the Engineer immediately
203 for interpretation. For the purposes of clarification “applicable
204 bid documents” include the construction plans, standard
205 specifications, special provisions, Permits, and the SWPPP
206 when applicable.
207

208 Follow Honolulu’s City and County “Rules for Soil
209 Erosion Standards and Guidelines” for all projects on Oahu.
210 Use respective Soil Erosion Guidelines for Maui, Kauai and
211 Hawaii projects.
212

213 **(B) Construction Requirements.** Do not begin work until submittals
214 detailed in Subsection 209.03(A)(2) - Water Pollution, Dust, and Erosion
215 Control Submittals are completed and accepted in writing by the Engineer.
216

217 Install, maintain, monitor, repair and replace site-specific BMP
218 measures, such as for water pollution, dust and erosion control; installation,
219 monitoring, and operation of hydrotesting activities; removal and disposal of
220 hazardous waste indicated on plans, concrete cutting slurry, concrete curing
221 water; or hydrodemolition water. Site-Specific BMP measures shall be in
222 place, functional and accepted by HDOT personnel prior to initiating any
223 ground disturbing activities.
224

225 If necessary, furnish and install rain gage in a secure location prior to
226 field work including installation of site-specific BMP. Provide rain gage with
227 a tolerance of at least 0.05 inches of rainfall. Install rain gage on project site
228 in an area that will not deter rainfall from entering the gate opening. Do not
229 install in a location where rain water may splash into rain gage. The rain
230 gage installation shall be stable and plumbed. Maintain rain gage and
231 replace rain gage that is stolen, does not function properly or accurately, is
232 worn out, or needs to be relocated. Do not begin field work until rain gage is
233 installed and Site-Specific BMPs are in place. Rain gage data logs shall be
234 readily available. Submit rain gage data logs weekly to the Engineer.

235
236 Address all comments received from the Engineer.

237
238 Modify and resubmit plans and construction schedules to correct
239 conditions that develop during construction which were unforeseen during
240 the design and pre-construction stages.

241
242 Coordinate temporary control provisions with permanent control
243 features throughout the construction and post-construction period.

244
245 Limit maximum surface area of earth material exposed at any time to
246 300,000 square feet. Do not expose or disturb surface area of earth material
247 (including clearing and grubbing) until BMP measures are installed and
248 accepted in writing by the Engineer. Protect temporarily or permanently
249 disturbed soil surface from rainfall impact, runoff and wind before end of the
250 work day.

251
252 Immediately initiate stabilizing exposed soil areas upon completion of
253 earth disturbing activities for areas permanently or temporarily ceased on any
254 portion of the site. Earth-disturbing activities have permanently ceased when
255 clearing and excavation within any area of the construction site that will not
256 include permanent structures has been completed. Earth-disturbing
257 activities have temporarily ceased when clearing, grading, and excavation
258 within any area of the site that will not include permanent structures will not
259 resume for a period of 14 or more calendar days, but such activities will
260 resume in the future. The term "immediately" is used in this section to define
261 the deadline for initiating stabilization measures. "Immediately" means as
262 soon as practicable, but no later than the end of the next work day, following
263 the day when the earth-disturbing activities have temporarily or permanently
264 ceased.

265
266 For projects with an NPDES Permit for Construction activities:
267

268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313

(1) For construction areas discharging into waters not impaired for nutrients or sediments, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

(2) For construction areas discharging into nutrient or sediment impaired waters, complete initial stabilization within 7 calendar days after the temporary or permanent cessation of earth-disturbing activities.

For projects without an NPDES Permit for Construction activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

Any of the following types of activities constitutes initiation of stabilization:

- (1)** Prepping the soil for vegetative or non-vegetative stabilization;
- (2)** Applying mulch or other non-vegetative product to the exposed area;
- (3)** Seeding or planting the exposed area;
- (4)** Starting any of the activities in items (1) – (3) above on a portion of the area to be stabilized, but not on the entire area; and
- (5)** Finalizing arrangements to have stabilization product fully installed in compliance with the deadline for completing initial stabilization activities.

Any of the following types of activities constitutes completion of initial stabilization activities:

- (1)** For vegetative stabilization, all activities necessary to initially seed or plant the area to be stabilized; and/or
- (2)** For non-vegetative stabilization, the installation or application of all such non-vegetative measures.

If the Contractor is unable to meet the deadlines above due to circumstances beyond the Contractor's control, and the Contractor is using vegetative cover for temporary or permanent stabilization, the Contractor may comply with the following stabilization deadlines instead as agreed to by the Engineer:

314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357

(1) Immediately initiate, and complete within the timeframe shown above, the installation of temporary non-vegetative stabilization measures to prevent erosion;

(2) Complete all soil conditioning, seeding, watering or irrigation installation, mulching, and other required activities related to the planting and initial establishment of vegetation as soon as conditions or circumstances allow it on the site; and

(3) Notify and provide documentation to the Engineer the circumstances that prevent the Contractor from meeting the deadlines above for stabilization and the schedule the Contractor will follow for initiating and completing initial stabilization and as agreed to by the Engineer.

Follow the applicable requirements of the specifications and special provisions including Section 619 Planting and Section 641 Hydro-Mulch Seeding.

Immediately after seeding or planting the area to be vegetatively stabilized, to the extent necessary to prevent erosion on the seeded or planted area, select, design, and install non-vegetative erosion controls that provide cover (e.g., mulch, rolled erosion control products) to the area while vegetation is becoming established.

Protect exposed or disturbed surface area with mulches, grass seeds or hydromulch. Spray mulches at a rate of 2,000 pounds per acre. Add tackifier to mix at a rate of 85 pounds per acre. Apply grass seeds at a rate of 125 pounds per acre. For hydromulch, use the ingredients and rates required for mulches and grass seeds. Submit recommendations from a licensed Landscape Architect when deviating from the application rates above.

Apply fertilizer to mulches, grass seed or hydromulch per manufacturer's recommendations. Submit recommendations from a licensed Landscape Architect when deviating from the manufacturer's recommendations.

Install velocity dissipation measures when exposing erodible surfaces greater than 15 feet in height.

BMP measures shall be in place and operational at the end of work day or as required by Section 209.03(B) Construction Requirements.

358 Install and maintain either or both stabilized construction entrances
359 and wheel washes to minimize tracking of dirt and mud onto roadways.
360 Restrict traffic to stabilized construction areas only. Clean dirt, mud, or other
361 material tracked onto the road, sidewalk, or other paved area by the end of
362 the same day in which the track-out occurs. Modify stabilized construction
363 entrances to prevent mud from being tracked onto road. Stabilize entire
364 access roads if necessary.

365
366 Chemicals may be used as soil stabilizers for either or both erosion
367 and dust control if acceptable to the Engineer.

368
369 Provide temporary slope drains of rigid or flexible conduits to carry
370 runoff from cuts and embankments. Provide portable flume at the entrance.
371 Shorten or extend temporary slope drains to ensure proper function.

372
373 Protect ditches, channels, and other drainageways leading away from
374 cuts and fills at all times by either:

- 375
376 (1) Hydro-mulching the lower region of embankments in the
377 immediate area.
378
379 (2) Installing check dams and siltation control devices.
380
381 (3) Other methods acceptable to the Engineer.

382
383 Provide for controlled discharge of waters impounded, directed, or
384 controlled by project activities or erosion control measures.

385
386 Cover exposed surface of materials completely with tarpaulin or
387 similar device when transporting aggregate, soil, excavated material or
388 material that may be source of fugitive dust.

389
390 Cleanup and remove any pollutant that can be attributed to the
391 Contractor.

392
393 Install or modify Site-Specific BMP measures due to change in the
394 Contractor's means and methods, or for omitted condition that should have
395 been allowed for in the accepted Site-Specific BMP or a Site-Specific BMP
396 that replaces an accepted Site-Specific BMP that is not satisfactorily
397 performing. Modifications to Site-Specific BMP measures shall be accepted
398 in writing by the Engineer prior to implementation.

399
400 Properly maintain all Site-Specific BMP measures.

401
402 For projects with an NPDES Permit for Construction Activities:

403

404 (1) For construction areas discharging into nutrient or sediment
405 impaired waters, inspect, prepare a written report, and make repairs
406 to BMP measures at the following intervals:

- 407
- 408 (a) Weekly.
 - 409
 - 410 (b) Within 24 hours of any rainfall of 0.25 inch or greater
411 which occurs in a 24-hour period.
 - 412
 - 413 (c) When existing erosion control measures are damaged
414 or not operating properly as required by Site-Specific BMP.
 - 415

416 (2) For construction areas discharging to waters not impaired for
417 nutrients or sediments, inspect, prepare a written report, and make
418 repairs to BMP measures at the following intervals:

- 419
- 420 (a) Weekly.
 - 421
 - 422 (b) When existing erosion control measures are damaged
423 or not operating properly as required by Site-Specific BMP.
 - 424

425 For projects without an NPDES Permit for Construction activities,
426 inspect, prepare a written report, and make repairs to BMP measures at the
427 following intervals:

- 428
- 429 (a) Weekly.
 - 430
 - 431 (b) When existing erosion control measures are damaged
432 or not operating properly as required by Site-Specific BMP.
 - 433

434 Temporarily remove, replace or relocate any Site-Specific BMP that
435 must be removed, replaced or relocated due to potential or actual flooding,
436 or potential danger or damage to project or public.

437

438 Maintain records of inspections of Site-Specific BMP work. Keep
439 continuous records for duration of the project. Submit copy of Inspection
440 Report to the Engineer within 24 hours after each inspection.

441

442 The Contractor's designated representative specified in Subsection
443 209.03(A)(2)(d) shall address any Site-Specific BMP deficiencies brought up
444 by the Engineer immediately, including weekends and holidays, and
445 complete work to fix the deficiencies by the close of the next work day if the
446 problem does not require significant repair or replacement, or if the problem
447 can be corrected through routine maintenance. Address any Site-Specific
448 BMP deficiencies brought up by the State's Third-Party Inspector in the
449 timeframe above or as specified in the Consent Decree or MS4 NPDES

450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495

Permit, whichever is more stringent. The Consent Decree timeframe requirement applies statewide. The MS4 NPDES Permit only applies to Oahu. In this section, “immediately” means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day. When installation of a new pollution prevention control or a significant repair is needed, complete installation or repair no later than 7 calendar days from the time of notification/Contractor discovery. Notify the Engineer and document why it is infeasible to complete the installation or repair within 7 calendar days and complete the work as soon as practicable and as agreed to by the Engineer. Address Site-Specific BMP deficiencies discovered by the Contractor within the timeframe above. The Contractor’s failure to satisfactorily address these Site-Specific BMP deficiencies, the Engineer reserves the right to employ outside assistance or use the Engineer’s own labor forces to provide necessary corrective measures. The Engineer will charge the Contractor such incurred costs plus any associated project engineering costs. The Engineer will make appropriate deductions from the Contractor’s monthly progress estimate. Failure to apply Site-Specific BMP measures may result in one or more of the following: assessment of liquidated damages, suspension, or cancellation of Contract with the Contractor being fully responsible for all additional costs incurred by the State.

(C) Discharges of Storm Water Associated with Construction Activities. If work includes disturbance of one acre or more, an NPDES Permit authorizing Discharges of Storm Water Associated with Construction Activity (CWB-NOI Form C) or Individual Permit authorizing storm water discharges associated with construction activity is required from the Department of Health Clean Water Branch (DOH-CWB).

Do not begin construction activities until all required conditions of the permit are met and submittals detailed in Subsection 209.03(A)(2) – Water Pollution, Dust, and Erosion Control Submittals are completed and accepted in writing by the Engineer.

(D) Discharges Associated with Hydrotesting Activities. If hydrotesting activities require effluent discharge into State waters or drainage systems, an NPDES Hydrotesting Waters Permit (CWB-NOI Form F) or Individual Permit authorizing discharges associated with hydrotesting from DOH-CWB is required from the DOH-CWB.

Do not begin hydrotesting activities until the DOH-CWB has issued an Individual NPDES Permit or Notice of General Permit Coverage (NGPC). Conduct Hydrotesting operations in accordance with the conditions of the permit or NGPC.

496 **(E) Discharges Associated with Dewatering Activities.** If dewatering
497 activities require effluent discharge into State waters or drainage systems, an
498 NPDES Dewatering Permit (CWB-NOI Form G) or Individual Permit
499 authorizing discharges associated with dewatering from DOH-CWB is
500 required from the DOH-CWB.
501

502 Do not begin dewatering activities until the DOH-CWB has issued an
503 Individual NPDES Permit or Notice of General Permit Coverage (NGPC).
504 Conduct dewatering operations in accordance with the conditions of the
505 permit or NGPC.
506

507 **(F) Solid Waste.** Submit the Solid Waste Disclosure Form for
508 Construction Sites to the Engineer within 21 calendar days of date of award.
509 Provide a copy of all the disposal receipts from the facility permitted by the
510 Department of Health to receive solid waste to the Engineer monthly. This
511 should also include documentation from any intermediary facility where solid
512 waste is handled or processed, or as directed by the Engineer.
513

514 **(G) Construction BMP Training.** The Contractor's representative
515 responsible for development of the Site-Specific BMP Plan and
516 implementation of Site-Specific BMPs in the field shall attend the State's
517 Construction Best Management Practices Training. The Contractor shall
518 keep training logs updated and readily available.
519

520 **209.04 Measurement.**
521

522 **(A)** Installation, maintenance, monitoring, and removal of BMP will be paid
523 on a lump sum basis. Measurement for payment will not apply.
524

525 **(B)** The Engineer will only measure additional water pollution, dust and
526 erosion control required and requested by the Engineer on a force account
527 basis in accordance with Subsection 109.06 – Force Account Provisions and
528 Compensation.
529

530 **209.05 Payment.** The Engineer will pay for accepted pay items listed below at
531 contract price per pay unit, as shown in the proposal schedule. Payment will be full
532 compensation for work prescribed in this section and contract documents.
533

534 The Engineer will pay for each of the following pay items when included in
535 proposal schedule:
536

537 Pay Item	538 Pay Unit
539 Installation, Maintenance, Monitoring, and Removal of BMP	Lump Sum
540 Additional Water Pollution, Dust, and Erosion Control	Force Account

541
542

543 An estimated amount for force account is allocated in proposal schedule
544 under 'Additional Water Pollution, Dust, and Erosion Control', but actual amount to
545 be paid will be the sum shown on accepted force account records, whether this sum
546 be more or less than estimated amount allocated in proposal schedule. The
547 Engineer will pay for BMP measures requested by the Engineer that are beyond
548 scope of accepted Site-Specific BMP on a force account basis.

549
550 No progress payment will be authorized until the Engineer accepts in writing
551 Site-Specific BMP or when the Contractor fails to maintain project site in accordance
552 with accepted BMP.

553
554 For all citations or fines received by the Department for non-compliance,
555 including compliance with NPDES Permit conditions, the Contractor shall reimburse
556 State within 30 calendar days for full amount of outstanding cost State has incurred,
557 or the Engineer will deduct cost from progress payment.

558
559 The Engineer will assess liquidated damages up to \$27,500 per day for non-
560 compliance of each BMP requirement and all other requirements in this section.
561

562 **Appendix A**

563

564 The following list identifies potential pollutant sources and corresponding
565 BMPs used to mitigate the pollutants. Each BMP is referenced to the corresponding
566 section of the current HDOT Construction Best Management Practices Field Manual
567 or appropriate Supplemental Sheets. The Manual may be obtained from the HDOT
568 Statewide Stormwater Management Program Website at
569 <http://www.stormwaterhawaii.com/resources/contractors-and-consultants/> under
570 Construction Best Management Practices Field Manual. Supplemental BMP sheets
571 are located at <http://www.stormwaterhawaii.com/resources/contractors-and-consultants/storm-water-pollution-prevention-plan-swppp/> under Concrete Curing
572 and Irrigation Water.
573
574

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
<p>Construction debris, green waste, general litter</p>	<ul style="list-style-type: none"> • Separate contaminated clean up materials from construction and demolition (C&D) wastes. • Provide waste containers (e.g., dumpster or trash receptacle) of sufficient size and number to contain construction and domestic wastes. • Inspect construction waste and recycling areas regularly. • Schedule solid waste collection regularly. • Schedule recycling activities based on construction/demolition phases. • Empty waste containers weekly or when they are two-thirds full, whichever is sooner. • Do not allow containers to overflow. Clean up immediately if they do. • On work days, clean up and dispose of waste in designated waste containers. • See Solid Waste Management Section SM-6 for additional requirements. • Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable. • Collect and dispose of all waste materials in trash dumpsters. Place dumpsters, with secure watertight lids, away from storm water conveyances and drains, in a covered materials storage area. • Dispose of construction and non- construction solid waste in accordance with State DOH regs. • Load removed non- recyclable vegetation directly onto trucks; cover and transport to a licensed facility 	<p>See Solid Waste Management Section SM-6. Storm Drain Inlet Protection SC-1, and Perimeter Sediment Controls where applicable.</p>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
<p>Materials associated with the operation and maintenance of equipment, such as oil, fuel, and hydraulic fluid leakage</p>	<ul style="list-style-type: none"> • Use off-site wash racks, repair and maintenance facilities, and fueling sites when practical. • Designate bermed wash area if cleaning on site is necessary. • Place drip pans or drop cloths under vehicles and equipment to absorb spills or leaks. • Provide an ample supply of readily available spill cleanup materials. • Clean up spills immediately, using dry cleanup methods where possible, and dispose of used materials properly. • Do not clean surfaces or spills by hosing the area down. • Eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge. • Inspect on-site vehicles and equipment regularly and immediately repair leaks. • Regularly inspect fueling areas and storage tanks. • Train employees on proper maintenance and spill practices and procedures and fueling and cleanup procedures. • Store diesel fuel, oil, hydraulic fluid, or other petroleum products or other chemicals in water-tight containers and provide cover or secondary containment. • Do not remove original product labels and comply with manufacturer's labels for proper disposal. • Dispose of containers only after all the product has been used. • Dispose of or recycle oil or oily wastes according to Federal, State, and Local requirements. • Store soaps, detergents, or solvents under cover or other means to prevent contact with rainwater. • See Vehicle and Equipment Cleaning, Maintenance, and Refueling, Sections SM-11, SM-12, and SM-13 and Material Storage and Handling Section SM-2 for additional requirements. 	<p>See Vehicle and Equipment Cleaning, Maintenance, and Refueling, Sections SM-11, SM-12, and SM-13, and Material Storage and Handling, Section SM-2, and Spill Prevention and Control SM-10.</p>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
Soil erosion from the disturbed areas	<ul style="list-style-type: none"> • Provide Soil Stabilization, Slope Protection, Storm Drain Inlet Protection SC-1, Perimeter Controls and Sediment Barriers, Sediment Basins and Detention Ponds, Check Dams SC-3 ,Level Spreader EC-6, Paving Operations SM-20, Construction Roads and Parking Area Stabilization SC-10, Controlling Storm Water Flowing Onto and Through the Project, Post-Construction BMPs, and Non-Structural BMPs (Construction BMP Training SM-1, Scheduling SM-14, Location of Potential Sources of Sediment SM-15, Preservation of Existing Vegetation SM-17). • Delineate, and clearly mark off, with flags, tape, or other similar marking device all natural buffer areas defined in the SWPPP. • Preserve native topsoil where practicable. • In areas where vegetative stabilization will occur, restrict vehicle/equipment use in areas to avoid soil compaction or condition soil to promote vegetative growth. • For Storm Drain Inlet Protection, clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. • Where there is evidence of sediment accumulation adjacent to the inlet protection measure, remove the deposited sediment by the end of the same day in which it is found or by the end of the following work day if removal by the same day is not feasible. • Sediment basins shall be designed and maintained in accordance with HAR Chapter 11-55. • Minimize disturbance on steep slopes (Greater than 15% in grade). • If disturbance of steep slopes are unavoidable, phase disturbances and use stabilization techniques designed for steep grades. • For temporary drains and swales use velocity dissipation devices within and at the outlet to minimize erosive flow velocities. 	<p>Soil Stabilization</p> <ol style="list-style-type: none"> 1. SM-22 Topsoil Management 2. EC-12 Seeding and Planting 3. EC-14 Mulching 4. EC-11 Geotextiles and Mats <p>Slope Protection</p> <ol style="list-style-type: none"> 1. EC-12 Seeding and Planting 2. EC-14 Mulching 3. EC-11 Geotextiles and Mats 4. EC-4 Slope Roughening, Terracing, and Rounding 5. EC-7 Slope Drains and Subsurface Drains 6. EC-9 Slope Interceptor or Diversion Ditches/Berms <p>SC-1 Storm Drain Inlet Protection</p>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
		<p><i>Perimeter Controls and Sediment Barriers</i></p> <ol style="list-style-type: none"> 1. <i>SC-7 Silt Fence or Filter Fabric Fence</i> 2. <i>SC-2 Vegetated Filter Strips and Buffers</i> 3. <i>SC-6 Compost Filter Berm/Sock</i> 4. <i>SC-8 Sandbag Barrier</i> 5. <i>SC-9 Brush or Rock Filter</i> <p><i>Sediment Basins and Detention Ponds</i></p> <ol style="list-style-type: none"> 1. <i>SC-4 Sediment Trap</i> 2. <i>SC-5 Sediment Basin</i> <p><i>SC-3 Check Dams</i></p> <p><i>EC-6 Level Spreader</i> <i>SM-20 Paving Operations</i> <i>SC-10 Construction Roads and Parking Area Stabilization</i></p>

579

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
		<p><i>Controlling Storm Water Flowing onto and Through the Project</i></p> <ol style="list-style-type: none"> 1. <i>EC-3 Run-On Diversion</i> 2. <i>EC-5 Earth Dike, Swales and Ditches</i> <p><i>Post Construction BMPs</i></p> <ol style="list-style-type: none"> 1. <i>EC-2 Flared Culvert End Sections</i> 2. <i>EC-10 Rip-Rap and Gabion Inflow Protection</i> 3. <i>EC-8 Outlet Protection and Velocity Dissipation Devices</i> 4. <i>SM-22 Topsoil Management</i> <p><i>Non-Structural BMPs</i></p> <ol style="list-style-type: none"> 1. <i>SM-1 Construction BMP Training</i> 2. <i>SM-14 Scheduling</i> 3. <i>SM-15 Location of Potential Sources of Sediment</i> 4. <i>SM-17 Preservation of Existing Vegetation</i>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
Sediment from soil stockpiles	<ul style="list-style-type: none"> • Locate stockpiles a minimum of 50 feet or as far as practicable from concentrated runoff or outside of any natural buffers identified on the SWPPP. • Place bagged materials on pallets and under cover. • Provide physical diversion to protect stockpiles from concentrated runoff. • Cover stockpiles with plastic or comparable material when practicable. • Place silt fence, fiber filtration tubes, or straw wattles around stockpiles. • Do not hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any storm water conveyance (unless connected to a sediment basin, sediment trap, or similarly effective control), storm drain inlet, or state water. • Unless infeasible, contain and securely protect stockpiles from the wind. • Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable. See Stockpile Management Section SM-3 for additional requirements. 	See Stockpile Management Section SM-3. Storm Drain Inlet Protection SC-1, and Perimeter Sediment Controls where applicable.
Emulsified asphalt or prime/tack coat	<ul style="list-style-type: none"> • Provide training for employees and contractors on proper material delivery and storage practices and procedures. • Restrict paving operations during wet weather to prevent paving materials from being discharged. • Use asphalt emulsions such as prime coat when possible. • Protect drain inlet structures and manholes during application of tack coat, seal coat, slurry seal, and fog seal. • Keep ample supplies of drip pans and absorbent materials on site. • Inspect inlet protection devices. • See Material Storage and Handling Section SM-2 and Paving Operations Section SM-20 for additional requirements. • Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable. 	See Material Storage and Handling Section SM-2, and Stockpile Management Section SM-3, Paving Operations Section SM-20, Storm Drain Inlet Protection SC-1, and Perimeter Sediment Controls where applicable.

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
<p><i>Materials associated with painting, such as paint and paint wash solvent</i></p>	<ul style="list-style-type: none"> • <i>Hazardous chemicals shall be well-labeled and stored in original containers.</i> • <i>Keep ample supply of cleanup materials on site.</i> • <i>Dispose container only after all of the product has been used.</i> • <i>Remove as much paint from brushes on painted surface.</i> • <i>Rinse from water-based paints shall be discharged into the sanitary sewer system where possible. If not, direct all washwater into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation.</i> • <i>Locate on-site wash area a minimum of 50 feet away or as far as practicable from storm drain inlets, open drainage facilities, or water bodies.</i> • <i>Do not dump liquid wastes into the storm drainage system.</i> • <i>Filter and re-use solvents and thinners.</i> • <i>Dispose of oil-based paints and residue as a hazardous waste.</i> • <i>Ensure collection, removal, and disposal of hazardous waste complies with regulations.</i> • <i>Immediately clean up spills and leaks.</i> • <i>Properly store paints, solvents, and epoxy compounds.</i> • <i>Properly store and dispose waste materials generated from painting and structure repair and construction activities.</i> • <i>Mix paints in a covered and contained area, when possible, to minimize adverse impacts from spills.</i> • <i>Do not apply traffic paint or thermoplastic if rain is forecasted.</i> • <i>See Material Storage and Handling Use SM-2, Hazardous Materials and Waste Management Section SM-9, Spill Prevention and Control Section SM-10, and Structure Construction and Painting Section SM-21 for additional requirements.</i> <p><i>Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.</i></p>	<p><i>See Material Storage and Handling Use Section SM-2, Stockpile Management Section SM-3, Hazardous Materials and Waste Management Section SM-9, Waste Management, Spill Prevention and Control Section SM-10, and Structure Construction and Painting Section SM-21, Storm Drain Inlet Protection SC-1, and Perimeter Sediment Controls where applicable.</i></p>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
<p><i>Industrial chemicals, fertilizers, and/or pesticides</i></p>	<ul style="list-style-type: none"> • <i>Hazardous chemicals shall be well-labeled and stored in original containers.</i> • <i>Keep ample supply of cleanup materials on site.</i> • <i>Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly.</i> • <i>Do not clean surfaces or spills by hosing the area down.</i> • <i>Eliminate the source of the spill to prevent a discharge or a furtherance of an ongoing discharge.</i> • <i>Dispose container only after all of the product has been used.</i> • <i>Retain a complete set of safety data sheets (formerly MSDS) on site.</i> • <i>Store industrial chemicals in water-tight containers and provide either cover or secondary containment.</i> • <i>Provide cover when storing fertilizers or pesticides to prevent these chemicals from coming into contact with rainwater.</i> • <i>Restrict amount of pesticide prepared to quantity necessary for the current application.</i> • <i>Do not apply fertilizers or pesticides during or just before a rain event.</i> • <i>Do not apply to stormwater conveyance channels with flowing water.</i> • <i>Comply with fertilizer and pesticide manufacturer's recommended usage and disposal instructions. Document departures from manufacturer's specifications in Attachment J.</i> • <i>Apply fertilizers at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth.</i> • <i>Follow federal, state, and local laws regarding fertilizer application.</i> • <i>Do not dispose of toxic liquid wastes (solvents, used oils, and paints) or chemicals (additives, acids, and curing compounds) in dumpsters allocated for construction debris.</i> 	<p><i>See Material Storage and Handling Use Section SM-2, Stockpile Management Section SM-3, and Hazardous Materials and Waste Management Section SM-9, and Spill Prevention and Control SM-10</i></p>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
	<ul style="list-style-type: none"> • <i>Ensure collection, removal, and disposal of hazardous waste complies with regulations. Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler.</i> • <i>See Material Storage and Handling Use SM-2, and Hazardous Materials and Waste Management Section SM-9 for additional requirements.</i> 	
<p><i>Hazardous waste (Batteries, Solvents, Treated Lumber, etc.)</i></p>	<ul style="list-style-type: none"> • <i>Do not dispose of toxic materials in dumpsters allocated for construction debris.</i> • <i>Ensure collection, removal, and disposal of hazardous waste complies with regulations.</i> • <i>Hazardous waste that cannot be reused or recycled shall be disposed of by a licensed hazardous waste hauler.</i> • <i>Segregate and recycle wastes from vehicle/equipment maintenance activities such as used oil or oil filters, greases, cleaning solutions, antifreeze, automotive batteries, and hydraulic and transmission fluids.</i> • <i>Store waste in sealed containers, which are constructed of suitable materials to prevent leakage and corrosion, and which are labeled in accordance with applicable Resource Conservation and Recovery Act (RCRA) requirements and all other applicable federal, state, and local requirements.</i> • <i>All containers stored outside shall be kept away from surface waters and within appropriately sized secondary containment (e.g., spill berms, decks, spill containment pallets). Provide cover if possible.</i> • <i>Clean up spills immediately, using dry clean-up methods where possible, and dispose of used materials properly.</i> • <i>Do not clean surfaces or spills by hosing the area down.</i> • <i>Eliminate the source of the spill to prevent a discharge or a continuation of an ongoing discharge.</i> 	<p><i>See Hazardous Materials and Waste Management Section SM-9 and Vehicle and Equipment Maintenance SM-12</i></p>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
	<ul style="list-style-type: none"> • <i>Ensure collection, removal, and disposal of hazardous waste complies with manufacturer's recommendations and is in compliance with federal, state, and local requirements.</i> • <i>See Hazardous Materials and Waste Management Section SM-9 and Vehicle and Equipment Management, Vehicle and Equipment Maintenance SM-12 for additional requirements.</i> 	
<i>Metals and Building Materials</i>	<ul style="list-style-type: none"> • <i>Inspect construction waste and recycling areas regularly.</i> • <i>Schedule solid waste collection regularly.</i> • <i>If building materials or metals are stored on site (such as rebar or galvanized poles) store under cover under tarps or in containers.</i> • <i>Minimize the amount of material stored on site.</i> • <i>Do not stockpile uncovered metals or other building materials in close proximity to discharge points.</i> • <i>See Solid Waste Management Section SM-6 for additional requirements.</i> 	<i>See Solid Waste Management Section SM-6</i>
<i>Contaminated Soil</i>	<ul style="list-style-type: none"> • <i>See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Materials and Waste Management Section SM-9 for additional requirements.</i> • <i>At minimum contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheets.</i> 	<i>See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Materials and Waste Management Section SM-9</i>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
<i>Fugitive Dust Control and Dust Control Water</i>	<ul style="list-style-type: none"> • <i>Do not over spray water for dust control purposes which will result in runoff from the area.</i> • <i>Apply water as conditions require.</i> • <i>Washing down of debris or dirt into drainage, sewage systems, or State waters is not allowed.</i> • <i>Minimize exposed areas through the schedule of construction activities.</i> • <i>Utilize vegetation, mulching, sprinkling, and stone/gravel layering to quickly stabilize exposed soil.</i> • <i>Direct construction vehicle traffic to stabilized roadways.</i> • <i>Cover dump trucks hauling material from the site with a tarpaulin.</i> <p><i>See Dust Control Section SM-19 for additional requirements.</i></p>	<i>See Dust Control Section SM-19</i>
<i>Concrete Truck Wash Water</i>	<ul style="list-style-type: none"> • <i>Disposal of concrete truck wash water via percolation is prohibited.</i> • <i>Wash concrete-coated vehicles or equipment off-site or in the designated wash area.</i> • <i>Locate on-site wash area a minimum of 50 feet away or as far as practicable from storm drain inlets, open drainage facilities, or water bodies.</i> • <i>Runoff from the on-site concrete wash area shall be contained in a temporary pit or level bermed area where the concrete can set.</i> • <i>Design the area so that no overflow can occur due to inadequate wash area sizing or precipitation.</i> • <i>The temporary pit shall be lined with plastic to prevent seepage of wash water into the ground.</i> • <i>Allow wash water to evaporate or collect wash water and all concrete debris in a concrete washout system bin.</i> • <i>Do not dump liquid wastes into storm drainage system.</i> • <i>Dispose of liquid and solid concrete wastes in compliance with federal, state, and local standards.</i> • <i>See Waste Management, Concrete Wash and Waste Management Section SM-4 for additional requirements.</i> 	<i>See Waste Management, Concrete Wash and Waste Management Section SM-4</i>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
<i>Sediment Track-Out</i>	<ul style="list-style-type: none"> • <i>Include Stabilized Construction Entrance at all points that exit onto paved roads.</i> • <i>A sediment trapping device is required if a wash rack is used in conjunction with the stabilized construction entrance/exit.</i> • <i>The pavement shall not be cleaned by washing down the street.</i> • <i>If sweeping is ineffective or it is necessary to wash the streets, wash water must be contained either by construction of a sump, diverting the water to an acceptable disposal area, or vacuuming the wash water.</i> • <i>Use BMPs for adjacent drainage structures.</i> • <i>Remove sediment tracked onto the street by the end of the day in which the track-out occurs.</i> • <i>Restrict vehicle use to properly designated exit points.</i> • <i>Include additional BMPs that remove sediment prior to exit when minimum dimensions cannot be met.</i> <p><i>See Stabilized Construction Entrance/Exit Section SC-11 for additional requirements.</i></p>	<i>See Stabilized Construction Entrance/Exit Section SC-11</i>
<i>Irrigation Water</i>	<ul style="list-style-type: none"> • <i>Consider irrigation requirements.</i> • <i>Where possible, avoid species which require irrigation.</i> • <i>Design, timing and application methods of irrigation water to eliminate the runoff of excess irrigation water into the storm water drainage system.</i> <p><i>See Seeding and Planting Section EC-12 and California Stormwater BMP Handbook SD-12 Efficient Irrigation included in SWPPP Attachment A for additional requirements.</i></p>	<i>See Seeding and Planting Section EC-12 and California Stormwater BMP Handbook SD-12 Efficient Irrigation</i>
<i>Hydrotesting Effluent</i>	<ul style="list-style-type: none"> • <i>If work includes removing, relocation or installing waterlines, and Contractor elects to flush waterline or discharge hydrotesting effluent into State waters or drainage systems, the Contractor shall prepare and obtain HDOT acceptance of a NOI/NPDES Permit Form F application for HDOT submittal to DOH CWB at least 30 calendar days prior to the start of Hydrotesting Activities if necessary. Site specific BMPs will be included in the NOI/NPDES Permit Form F submittal.</i> 	<i>Site specific BMPs will be included in the NOI/NPDES Permit Form F submittal.</i>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
<i>Dewatering Effluent</i>	<i>If excavation or backfilling operations require dewatering, and Contractor elects to discharge dewatering effluent into State waters or existing drainage systems, Contractor shall prepare and obtain HDOT acceptance of a NOI/NPDES Permit Form G application for HDOT submittal to DOH CWB at least 30 calendar days prior to the start of Dewatering Activities if necessary. See Site Planning and General Practices, Dewatering Operations Section SM-18 for additional requirements.</i>	<i>See Dewatering Operations SM-18. Site specific BMPs will be included in the NOI/NPDES Permit Form G submittal.</i>
<i>Saw-cutting Slurry</i>	<ul style="list-style-type: none"> • <i>Saw cut slurry shall be removed from the site by vacuuming.</i> • <i>Provide storm drain protection during saw cutting. See Paving Operations Section SM-20 for additional requirements.</i> <i>Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.</i>	<i>See Paving Operations Section SM-20, Storm Drain Inlet Protection SC-1, Perimeter sediment controls where applicable</i>
<i>Concrete Curing Water</i>	<ul style="list-style-type: none"> • <i>Avoid overspraying of curing compounds.</i> • <i>Apply an amount of compound that covers the surface, but does not allow any runoff of the compound.</i> <i>See California Stormwater BMP Handbook NS-12 Concrete Curing included in SWPPP Attachment A for additional requirements.</i>	<i>See California Stormwater BMP Handbook NS-12 Concrete Curing</i>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
Plaster Waste Water	<ul style="list-style-type: none"> • Direct all washwater into a leak-proof container or leak-proof pit. The container or pit must be designed so that no overflows can occur due to inadequate sizing or precipitation. • Locate on-site wash area a minimum of 50 feet away or as far as practicable from storm drain inlets, open drainage facilities, or water bodies. • Any significant residual materials remaining on the ground after the completion of construction shall be removed and properly disposed. If the residual materials contaminate the soil, then the contaminated soil shall also be removed and properly disposed of. • Plaster waste water shall not be allowed to flow into drainage structures or State waters. See Material, Storage and Handling Use SM-2, Stockpile Management Use Section SM-3, and Hazardous Materials and Waste Management Section SM-9 for additional requirements. 	See Material, Storage and Handling Use Section SM-2, Stockpile Management Use Section SM-3, and Hazardous Materials and Waste Management Section SM-9
Water-Jet Wash Water	<ul style="list-style-type: none"> • For Water-Jet Wash Water used to clean vehicles, use off site wash racks or commercial washing facilities when practical. • See Vehicle and Equipment Cleaning Section SM-11 for additional information. • For Water-Jet Wash Water used to clean impervious surfaces, the runoff shall not be allowed to flow into drainage structures or State Waters. 	See Vehicle and Equipment Cleaning Section SM-11
Sanitary/Septic Waste	<ul style="list-style-type: none"> • Locate Sanitary facilities in a convenient place away from drainage facilities. • Position sanitary facilities so they are secure and will not be tipped over or knocked down. • Wastewater shall not be discharged to the ground or buried. • A licensed service provider shall maintain sanitary/septic facilities in good working order. • Schedule regular waste collection by a licensed transporter. • See Sanitary Waste Section SM-7 for additional requirements. 	See Sanitary Waste Section SM-7.

590
591
592

“

END OF SECTION 209

**BR-019-2(072)
209-28a**

1-14-22

1 Amend Section 503 – Concrete Structures to read as follows:

2

3

“SECTION 503 CONCRETE STRUCTURES

4

5

6 **503.01 Description.** This section describes the construction of concrete bridges,
7 grade separations, box culverts, head walls, retaining walls, and other concrete
8 structures.

9

10 **503.02 Materials.**

11

12 Structural Concrete 601

13

14 Reinforcing Steel 602

15

16 Joint Filler 705.01

17

18 Joint Sealer 705.04

19

20 Flashing Compound 705.05

21

22 Waterproofing 705.06

23

24 Waterstops 705.07

25

26 Dowels 709.01(E)

27

28 Curing Materials 711.01

29

30 Admixtures 711.03

31

32 Bearing Devices and Related Materials 712.09

33

34 Grout 712.04

35

36 Concrete materials and production methods must be selected so that the
37 concrete temperature at delivery complies with the specified temperature limits.

38

39 Ensure that the materials, means, and methods used prevent plastic
40 shrinkage cracks from forming.

41

42 All concrete must comply with the concrete CO₂ footprint reduction
43 requirements of Section 601 – Structural Concrete.

44

45

46

47 **503.03 Construction.**

48
49 **(A) Foundation.** Excavate and backfill foundations in accordance with
50 Section 205 - Excavation and Backfill for Bridge and Retaining Structures,
51 Section 206 – Excavation and Backfill for Drainage Facilities, and as
52 indicated in the Contract Documents.
53

54 The elevation of the bottom of the footings shown is approximate only.
55 Upon completion of excavation work, request that the Engineer inspect the
56 foundation excavation. The Engineer may order changes in dimensions or
57 elevations of footings as may be necessary to secure a satisfactory
58 foundation.
59

60 Backfill unauthorized excavation made below required footing
61 elevation or beyond lines shown, with Class D concrete. When the
62 foundation requires redesign because of unauthorized excavation, the
63 Contractor must engage the services of a Hawaii Licensed Structural
64 Engineer to prepare detailed drawings of a redesigned footing. Submit a
65 redesign proposal and after the Engineer reviews and accepts the proposal,
66 construct redesigned foundation at no additional increase in the contract
67 price or contract time. Claim for delay or additional cost resulting from
68 foundation redesign will not be allowed. The State will deduct costs to review
69 the redesign from the Contractor.
70

71 Place pilings in accordance with Section 505 - Piling. Place drilled
72 shafts in accordance with Section 511 – Drilled Shafts.
73

74 **(B) Falsework, Formwork, or Centering.** Falsework, formwork, or
75 centering is temporary construction work on which other work is wholly or
76 partially supported until permanent construction is strong enough to support
77 itself. This includes form lining and sheathing, as well as necessary
78 supporting members, hardware, and bracing.
79

80 Submit falsework and centering erection plans including soil bearing
81 value, stress sheets, superstructure placing diagram and sequence,
82 falsework and centering removal procedures, and design calculations for
83 falsework and centering, as a complete package, stamped and signed by a
84 Hawaii Licensed Structural Engineer. Submit manufacturer's certificates or
85 perform tests, as necessary, to demonstrate the adequacy of devices
86 proposed for use or to verify design assumptions.
87

88 Do not start falsework, formwork, or centering construction until the
89 Engineer has accepted drawings and calculations. Acceptance of drawings
90 or inspections of the system by the Engineer does not relieve the Contractor
91 from the responsibility of results obtained by using such drawings and
92 calculations.

93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138

Use AASHTO LRFD Bridge Specifications For The Design of Falsework, Formwork, or Centering. For allowable stresses not specified in AASHTO, the Contractor's structural engineer may use UBC/ICBO industry specifications or codes upon acceptance. Avoid cantilevered falsework members. Limit maximum deflection due to the weight of dead and live loads to 0.4 percent of the span. Provide camber strips to compensate for deflections or other movements greater than 1/4 inch.

Take the length of spans to be the smaller of the center-to-center distance between supports or clear span plus member depth. Design formwork for the bottom slab of box girders to carry dead and live loads of both top and bottom slabs, as well as loads of webs, unless calculations indicate the bottom slab is to carry loads of top slabs temporarily imposed upon it.

Arrange a falsework system so that loads imposed produce symmetrical and approximately equal reactions. Submit falsework soil pressure, pile capacity, and ground preparation, with supporting data and documentation. Show these items on working drawings. When structures cross over waterways and other flood-prone areas, use special consideration in the design of supporting falsework to prevent the reduction in support capacity due to the effects of flood and standing water.

The design load for falsework or centering includes dead and live vertical loads, slope load of the structure, and lateral loads. The minimum vertical live load to be used in the design is 50 pounds per square foot of surface area plus 150 pounds per linear foot, applied at the outside edge of cantilevered members. Add minimum vertical live load to the actual weight of required construction equipment. Use minimum lateral load in design to be the greater of either 3 percent of total dead load or 150 pounds per linear foot. Apply minimum lateral load at the top surface of falsework support.

When falsework, scaffolding, or work is over or adjacent to existing roadways, install the aforementioned to withstand vehicle impact. Maintain falsework, scaffolding, or work until its removal. When the aforementioned is within the clear zone install a barrier system with appropriate deflection and of sufficient length with a terminal impact attenuator. Both must have successfully passed a MASH TL-3 crash test. The falsework, formwork, centering, working platform, or work must be constructed so it does not allow any objects, e.g., water, debris, dust, tools, or material to fall on the traveling public, pedestrians, roadway, roadside, etc.

Show stresses and deflections of the load-supporting members in design calculations. Show anticipated total settlements of falsework and forms on falsework drawings, including falsework footing pressure and

139 settlement, and joint take-up. Construct deck slab form between girders with
140 no allowance for settlement relative to girders. Do not exceed 1 inch for
141 anticipated settlements of falsework. Provide tell-tales attached to soffit
142 forms, readable from the ground, at sufficient locations to determine total
143 settlements resulting from concrete placement. Discontinue concrete
144 placement when settlements deviate more than $\pm 3/8$ inch from those
145 indicated on falsework drawings. In such affected areas, provide corrective
146 measures before the initial set of concrete. Remove unacceptable concrete.

147
148 In designing falsework and centering, assume the weight of 160
149 pounds per cubic foot for concrete. Design and construct falsework to
150 provide the necessary rigidity and to support loads without appreciable
151 settlement or deformation. Use screw jacks or hardwood wedges to take up
152 settlement in formwork either before or during the placement of concrete.
153 Design falsework for support of superstructure to support loads that would be
154 superimposed as if the entire superstructure were placed at once. Design
155 vertical falsework members supporting spans with a single hinge, or double
156 hinges within a span, for twice tributary falsework requirements at a distance
157 of 10 feet on each side of hinges, measured parallel to the centerline of the
158 girder. Apply requirements to conventionally reinforced and prestressed
159 concrete structures. Design falsework for prestressed concrete structures for
160 additional loads caused by prestressing.

161
162 Place falsework or centering upon footing safe against undermining
163 and softening when footing-type foundations are to be used. Show the
164 bearing value of soil in shop drawings of falsework or centering.

165
166 When used; space, drive, and remove falsework piling as accepted by
167 the Engineer. Set falsework to give finished structure camber specified.
168 Construct arch centering in accordance with centering plans accepted by the
169 Engineer. Make provisions for the gradual lowering of centers and for
170 rendering the arch self-supporting. Use jacks to correct slight settlements
171 that may occur during the placement of concrete.

172
173 In the design of bottom slab plywood forms and timber joists for
174 concrete box girders, top slab loads may be omitted when placing the top
175 slab separately from the webs and bottom slab.

176
177 If the lost post method of concrete box girder deck forming is used, 2
178 by 6 continuous mudsills beneath posts will not be required when 2 by 4 or
179 smaller timber posts, with soft wood wedges, are used for supports.

180
181 Use manufactured items complying to AASHTO standards. When
182 items are not covered by AASHTO, use standards of nationally known
183 organizations such as AISC for steel, ACI for concrete, and NFPA for lumber.
184 In all cases, furnish data listing the manufacturer's design criteria complying

185 to design specifications and recommendations, or perform tests, as
186 necessary, to show the adequacy of the proposed device.

187
188 Install falsework lighting in accordance with Section 633 – Falsework
189 Lighting.

190
191 **(C) Forms.**

192
193 **(1) Construction.** Use wood or metal forms that are mortar tight
194 and sufficiently rigid to prevent distortion due to pressure of concrete
195 and other loads, including vibration, incidental to construction.
196 Construct and maintain forms to prevent joints from opening.

197
198 Unless otherwise indicated in the Contract Documents, place a
199 minimum 3/4 inch by 3/4 inch chamfer at sharp corners. Give girder
200 and coping forms a bevel or draft to ensure easy removal.

201
202 Set and maintain forms true to lines designated. When forms
203 appear to be unsatisfactory, either before or during concrete
204 placement, the Engineer may stop work until defects are corrected.

205
206 When forms are submerged in water and concrete is placed in
207 the dry, make forms watertight below high water level.

208
209 Cover knotholes and damaged areas in wood forms with metal
210 patches.

211
212 Control rate of depositing concrete in forms to prevent form
213 deflection or form panels that exceed permitted deflections. When
214 structure height is greater than 6 feet, submit the rate of depositing
215 concrete.

216
217 Use forms for concrete surfaces not completely enclosed or
218 hidden below the permanent ground surface that complies with
219 requirements, in this subsection, for exposed-surface forms. Interior
220 surfaces of underground drainage structures will be considered
221 completely enclosed surfaces.

222
223 Before using forming systems for exposed surfaces, submit
224 form design and materials data for each system.

225
226 Design and construct forms for exposed concrete surfaces so
227 that the formed surface of concrete does not undulate excessively
228 between studs, joists, form stiffeners, form fasteners, or walls.
229 Undulations exceeding either 3/32 inch or 1/270 of the center-to-
230 center distance between studs, joists, form stiffeners, form fasteners,

231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276

or walls will be considered to be excessive. The Engineer will reject portions of concrete structure with surface undulations over limits specified herein.

Form exposed surfaces of each concrete structure element with the same forming material or with materials that produce similar concrete surface textures, color, and appearance.

For exposed surfaces, provide form panel facing consisting of continuous sections of form facing material, unbroken by joint marks, against which concrete is placed.

(2) Form Lumber. Use form lumber, except for curved and special surfaces, of five-ply panel boards or dressed shiplap, used with or without form liners. Rough lumber may be used for unexposed surfaces in the finished structure. Three-ply panel boards may be used for forming soffit of unexposed portions of box girder top slabs.

Use plywood complying to the latest edition of "United States Product Standard PS-1 for Construction and Industrial Plywood" for forms. Place form panels in uniform widths of not less than 36 inches and of uniform lengths of not less than 6 feet, except where dimensions of members formed are less than specified panel dimensions. Place plywood panels with the grain of outer plies in direction of the span.

Place form panels in a neat, symmetrical pattern, subject to acceptance of the Engineer. Place panels with long dimensions horizontal and with horizontal joints level and continuous. Stagger and position perpendicular to vertical joints, as shown in the Contract Documents.

(3) Form Ties. Use form ties of sufficient strength and number to hold the form securely in place and prevent the spreading of forms during concrete placement. The following will not be allowed:

(a) Ties consisting of twisted wire loops to hold forms in position.

(b) Non-metallic forming ties, anchorages, forming supports, or other accessories that may be embedded permanently in concrete.

(c) Driven-type anchorages for fastening forms or form supports to concrete.

277 Construct form ties or anchorages within forms to permit
278 removal to a depth of at least 1 inch from the face, without injury to
279 concrete. Design fittings for form ties or anchorages so that, upon
280 removal, cavities left are of the smallest possible size. Fill cavities
281 completely with cement mortar and leave surface sound, smooth,
282 even, and uniform in color.

283

284 **(4) Walls.** For narrow walls and columns where the bottom of the
285 form is inaccessible, leave lower form boards loose.

286

287 **(5) Surface Treatment.** Immediately before each use, clean and
288 treat forms with non-staining form oil that will permit the ready release
289 of forms and will not discolor concrete.

290

291 **(6) Metal Forms.** Specifications for forms regarding design,
292 mortar tightness, filleted corners, beveled projections, bracing,
293 alignment, removal, reuse, and oiling apply to metal forms. The metal
294 thickness used for forms must be such that forms will remain true to
295 shape. Countersink bolts and rivet heads. Design clamps, pins, or
296 other connecting devices to hold forms rigidly together and to allow
297 removal without injury to concrete. Metal forms that are rough or
298 crooked will not be allowed.

299

300 **(7) Reuse of Forms.** Maintain shape, strength, rigidity, water
301 tightness, and surface smoothness of reused forms. Resize warped
302 or bulged lumber before using.

303

304 **(D) Removal of Falsework and Forms.** Before removing shoring
305 beneath beams or girders, remove forms from columns to allow the Engineer
306 to inspect the condition of column concrete.

307

308 Remove supports using a method that permits concrete to uniformly
309 and gradually take stresses caused by its weight.

310

311 In continuous or rigid frame structures, release falsework only after the
312 last concrete (excluding concrete above the bridge deck) in that span and the
313 first adjoining spans on each side have been in place for 14 days. For
314 falsework removal, consider spans with a single hinge within the span to be
315 continuous. Consider hinges of suspended spans within a bridge, as ends of
316 the bridge, for determining shoring requirements. In structures of these
317 types, remove falsework gradually and uniformly over the whole length.

318

319 After placing concrete, remove or release falsework and forms no
320 earlier than removal times specified in Table 503.03-1 – Removal of
321 Falsework and Forms. The Engineer will determine the exact removal time.

322

323
324

TABLE 503.03-1 - REMOVAL OF FALSEWORK AND FORMS						
Railing and Barriers – 4 Hours and Concrete Has Hardened						
Centering Under Beams, Arches, And Other Members - 14 Days						
Slabs With Maximum Thickness of (Inches)	9		12		more than 12	
Removal Time (Days)	7		10		14	
Walls, Columns, and Vertical Sides of Beams With Maximum Height of (Feet)	2	5	10	20	30	40 or More
Removal Time (Days)	0.5	1	2	3	5	7
Note: Where forms also support vertical or horizontal loads imposed on slab or beam soffits, use longer requirements for removal time.						

325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344

Do not release falsework for cast-in-place prestressed portions of structures until after prestressing steel has been tensioned.

Do not release falsework supporting overhangs and girder stems that slope 45 degrees or more off vertical until 7 days after placing deck concrete. If a reshoring system is installed, falsework supporting sides of girder stems that slope less than 45 degrees off vertical may be removed before placing deck slab concrete. Design reshoring system, consisting of lateral supports, to resist rotational forces acting on the stem, including those caused by the placement of deck slab concrete. Install reshoring system immediately after each form panel is removed and before the release of supports for adjacent form panel.

Do not remove falsework and forms supporting the bottom slab of box girders until 14 days after the final top slab is placed. Remove forms for webs of box girders before placing the deck slab. Forms supporting concrete top slab of box girder may be left in place. Completely remove interior forms in box girders except those permitted to remain in place. Where minimum crawl space dimensions and unobstructed access to enclosed utilities are

345 provided, interior forms of box girders may be left in place. Clear and sweep
346 loose material from inside of box girder.

347 Removal time of falsework may be reduced to 10 days when concrete
348 test specimens develop compressive strengths equal to or greater than the
349 required 28-day compressive strength. Cure concrete test specimen in
350 accordance with paragraph 9.4 of AASHTO T 23.

351
352 After removing forms of railing or barriers, protect exposed concrete
353 surfaces from damage after form removal.

354
355 Falsework for concrete box culverts and other concrete structures with
356 top slabs or decks lower than roadway pavement and with spans of 14 feet or
357 less, may be released when concrete strength reaches 1,500 psi, provided
358 the top slab is reshored and the curing of the concrete is not interrupted. Do
359 not impose loads (including backfill) on the structure until the concrete attains
360 the required 28-day compressive strength.

361
362 **(E) Loading.** Inducing loading, outside its own weight, onto any part of a
363 structure, except abutment walls and wing walls, will not be allowed until the
364 following conditions have been met: at least 15 days have elapsed since
365 placing concrete; and test specimens show that concrete has developed
366 compressive strength of either 3,000 psi or required 28-day compressive
367 strength, whichever is greater.

368
369 Material storage of any kind on structure, within 15 days of concrete
370 placement, will not be allowed. After a minimum of 15 days has elapsed
371 since concrete placement, materials weighing no more than 50 percent of the
372 design live load may be stored on the structure. Submit shop drawings
373 showing locations and weights of stored materials.

374
375 Release falsework before placing loads on the structure.

376
377 Live loads will not be allowed on completed portions of the structure
378 when such live loads will produce more than allowable stresses permitted by
379 AASHTO LRFD *Bridge Design Specifications*.

380
381 Backfill abutment and wing walls in accordance with Section 205 -
382 Excavation and Backfill for Bridge and Retaining Structures.

383
384 **(F) Placing Concrete.**

385
386 **(1) General.** Place and consolidate concrete by methods that
387 must not cause aggregate segregation or unsound concrete and must
388 result in dense, homogeneous concrete, free of voids, rock pockets,
389 and other defects. Use concrete while it is plastic and has sufficient
390 workability for placement. Retempering or remixing concrete that has

391 partially hardened will not be allowed. Allow no more than a 30-
392 minute interval between placement of two consecutive batches or
393 partially hardened will not be allowed. Allow no more than a 30-
394 minute interval between the placement of two consecutive batches or
395 loads of concrete.

396
397 Do not deviate from the schedule for placing concrete without
398 permission from the Engineer.

399
400 The project site's addition of water to concrete ready-mix
401 concrete in a truck mixer after the arrival at the location of concrete
402 placement **IS LIMITED**. The addition of water above the amount in
403 the accepted mix design mixture may affect the concrete properties,
404 such as the water/cementitious (W/C) ratio which may result in a
405 reduction of concrete strength, aggregate segregation, durability,
406 increased shrinkage, mix uniformity and the increased its susceptibility
407 to cracking. These unwanted properties may cause a reduction in
408 service life and may increase the possibility of catastrophic failure of
409 the structure. Hence, exceeding the W/C ratio is prohibited.

410
411 When a truck mixer is used for mixing or the delivery of
412 concrete, no water from the truck system or elsewhere will be allowed
413 to be added after the initial introduction of mixing water for the batch.
414 The additional water may be added to the concrete mix when all the
415 following conditions exist:

- 416
417 • Job site water must be started to be added not later than
418 15 minutes after the concrete ready-mix truck had arrived at
419 the project site. Parking the ready-mix truck off the project site,
420 waiting in a queue or both will be considered arriving on the
421 project site.
- 422
423 ○ The addition of water later than 15 minutes may
424 be requested only before use from the Engineer when
425 justified with additional data. The additional time
426 needed and justification must be stated in the request.
- 427
428 • The slump of the concrete is less than that specified in
429 the accepted mix design.
- 430
431 • The water added will not exceed the total amount of
432 water specified in the accepted mix design or specification, i.e.,
433 exceeds the accepted water/cementitious (W/C) ratio
434 (W=weight of water in batch, in pounds; and C= weight of
435 cementitious materials in batch, in pounds).
- 436

437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482

- The temperature of the concrete has not exceeded the amount set in the Contract Documents.

The maximum amount of water that may be added to the concrete at the project site must be the smallest amount of water used to obtain the result of the following three restrictions:

- Bring the slump up to the accepted mix design or specified level, or
- Must not exceed 1½ gallons of water per cubic yard of concrete, or
- Must not cause the total amount of water to exceed the amount of water in the accepted mix design, i.e., change the W/C.

For example: If 1½ gallons of water per cubic yard of concrete increases the W/C beyond the accepted W/C then 1½ gallons of water must not be used. The maximum amount of water that can be added must be limited to the amount of water that would bring the mix to the accepted W/C even though the design mix slump has not been reached.

Adjustments are usually made to achieve the design mix slump requirements and must not exceed the accepted design mix's maximum slump.

The addition of water within the initial 15 minutes at the project site must be injected into the mixer under pressure and direction to assure uniformity. The drum or blades must be turned an additional 30 revolutions or more, if necessary, at mixing speed, until the uniformity of the concrete is assured. **WATER MUST NOT BE ADDED TO THE BATCH AT ANY LATER TIME!**

When macro or micro fibers are part of the mix design, excessive rotation of the drum may cause a deleterious effect on the concrete fiber mix. The fiber manufacturer's recommendations must be followed.

Pertinent Required Controlling Measures:

- Maximum allowable slump established from the accepted concrete design mixtures and job specifications.
- The concrete slump from the first portion of concrete

483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528

discharged from the truck needs to be estimated or determined. The estimated concrete discharged must be subtracted from the W/C calculation. For example, 10 yds of concrete is in the truck, and 1/4 cy is discharged. The delivery tag indicates 1 gal/cy can be added to the mix without exceeding the accepted W/C. The maximum amount of water that can be added is 9¾ gal providing the addition of that amount of water does not cause the slump to be more than the accepted concrete mix design's slump requirement. The addition of water to obtain workability and meet job specifications is the contractor's responsibility. However, the quantity of water added must be documented on the collected delivery tickets. The delivery tags must note the amount of water that can be added at the project site and still not exceed the total amount of water in the accepted concrete mix design, i.e., held back water. When the amount of held back water is not shown on the delivery tag it will be assumed that the concrete mix has the maximum total water allowed by the accepted mix design and no additional water will be allowed to be added at the project site.

- Do not allow water to be added to the concrete if the maximum slump is already obtained, or more than 1/4 cubic yard has been discharged from the mixer.
- 1½ gallons of water or less per cubic yard may be used to obtain the desired slump. The slump must not exceed the maximum design slump and job specifications. The added water must not cause the batch's accepted W/C to increase.
- Tests for the acceptance of concrete based on slump must be made in accordance with AASHTO T 141 & T 119. Tests must be made after the addition of water at the project site to determine if the concrete's slump is compliant.
- When the concrete mix does not meet the requirements of this Section the concrete will be considered non-conforming, i.e., non-compliant. The action taken will comply with Subsection 105.12 Removal of Non-Conforming and Unauthorized Work.

This portion of the Section applies to most ready mixed concrete delivered. Special concrete mixes, e.g., Superplasticized concrete, mixes that have conditions that do not fall in a normal range of concrete as determined by the Engineer or require a special sequence are not applicable without a prior written request with

529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574

supporting documentation, e.g., the admixture manufacturers' and ready-mix supplier's recommendations and approval. The request must be submitted before its use to the Engineer for its acceptance. The Engineer has the right to unilaterally accept or reject the request and rescind its acceptance.

Water blast laitance and foreign material and moisten interface surfaces with water immediately before placing concrete over subgrade or construction joint. Leave no ponding water or have the surface glistening. Remove excess water by vacuuming or dry, oil-free compressed air.

Submit method and sequence of concrete placement. Place concrete on the structure only after forms have been cleared of debris and the Engineer has checked and accepted forms and reinforcing steel.

Place concrete for foundations, bottom slabs of box culverts, and aprons on the ground that is free from water. Dewater, sheath, place filter material, and do other work, as required by field conditions, to ensure saturated surface dry foundation bed. Costs for obtaining a saturated surface dry foundation bed will be included in the price for structure excavation.

Excavate and place sides of concrete or masonry footings not supported on piles or rock in neat lines.

Begin placing concrete at the low point and proceed in the upgrade direction. Remove struts, stays, braces, or blockings when concrete placed has reached elevation rendering them unnecessary.

Deposit concrete in approximately horizontal layers to avoid flowing along the forms. When less than a complete layer is placed in one operation, terminate the layer at a vertical bulkhead. Layer depth must not exceed 20 inches and must be such that the succeeding layer must be placed before the previous layer has attained its initial set. Place concrete in layers that can be satisfactorily consolidated with vibrators.

Thoroughly work the external surface of the concrete with a vibrator. Work to force coarse aggregate from the surface and to bring mortar against forms, producing a smooth finish, nearly free from water and air pockets, and honeycomb.

Fill each part of the form by depositing concrete as close to the final position as possible. Work coarse aggregate back from forms

575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620

and around reinforcement without displacing bars. After the initial set of concrete, do not jar forms and do not place stress on the ends of projecting reinforcing.

After concrete placement stops, remove accumulations of mortar on reinforcing steel and surfaces of forms before the next concrete placement. If concrete is wet, prevent dried mortar chips, other foreign material, and dust from falling onto the wet concrete surface. If the concrete has set, clean reinforcing steel in a manner that will not be detrimental to concrete to reinforcing steel bond.

(2) Box Culverts. Place and allow base slab or footings of box culverts to set at least 12 hours before constructing the remainder of the culvert. Monolithically construct sidewalls and a top slab of box culverts 4 feet or less, in height.

When constructing box culverts that are more than 4 feet in height, place and allow concrete in walls to set at least 12 hours before placing the top slab. Provide appropriate keys in sidewalls for anchoring the top slab.

(3) Box Girder Spans. Place bottom slab of box girder spans monolithically with girder stems.

The top slab of box girders may be placed 10 days after placing bottom slabs and stems, provided concrete test specimens of the bottom slab and stem concrete have attained compressive strength equal to or greater than 3,000 psi. Cure concrete test specimens in accordance with paragraph 9.4 of AASHTO T 23.

Place concrete in columns in one continuous operation.

Allow the concrete to set at least 12 hours before placing columns, caps, or beams.

Do not place horizontal members or sections until concrete in supporting vertical members or sections has consolidated and shrinkage has occurred. When plans require construction joints, allow at least 12 hours to elapse between concrete placements.

Do not place concrete in the superstructure until column forms have been stripped sufficiently to determine the character of column concrete. Do not allow superstructure loads to be placed on bents or piers until bents have been in place for at least 14 days.

Do not place concrete in suspended span until adjacent

621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666

continuous spans are complete in place.
In structures with one or two hinges in a span, place supporting ends of hinges, including top slabs, before placing the supported end.
Do not place concrete sidewalks and curbs not monolithic with bridge deck until falsework for spans has been released.
(4) Chutes and Troughs. The use of aluminum for chutes, tremies, troughs, or pipes will not be allowed. Place concrete to avoid segregation of materials and displacement of reinforcement.
When plans require steep slopes, equip chutes with baffle boards, or furnish chutes in short lengths that reverse the direction of movement.
Use of long troughs, chutes, and pipes of a minimum 6-inch diameter will be allowed only with written authorization by the Engineer. Incline chutes or pipes to allow concrete to flow at the required consistency. The addition of water to the concrete mix to promote free flow in chutes of low inclination must not be allowed.
Do not drop concrete into forms from a vertical distance of more than 5 feet unless confined by closed chutes or pipes.
Keep chutes, troughs, and pipes clean and free from coatings of hardened concrete by thoroughly flushing them with water after each run. Discharge flushing water away from in-place concrete.
(5) Vibrating. Consolidate concrete, except for concrete placed underwater, using high-frequency internal vibrators. The minimum transmitted vibration frequency must be 4,500 impulses per minute and must be such as to visibly affect the mass of concrete (radius of influence) of a 1-inch slump over a radius of at least 18 inches. Use a sufficient number of vibrators to properly consolidate incoming concrete within 15 minutes after depositing concrete in forms. Make at least two vibrators available at the structure site when placing more than 25 cubic yards of concrete. One vibrator must be used at the place where concrete is being deposited. This first vibrator must level the poured concrete and it must follow the depositing chute as it moves. During leveling the concrete is temporarily liquefied due to the rapid oscillatory motion transmitted to the concrete by the vibrator and the concrete flows into the corners of the forms and around the reinforcement.
The second vibrator must consolidate and de-aerate the concrete removing the entrapped air bubbles making them rise to the

667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712

surface and escape. Have at least one additional vibrator in reserve in addition to the two being used to level and consolidate the concrete. Apply vibrators at a center-to-center insertion spacing approximately 1.5 times the radius of influence. Minimize lift lines by totally inserting the vibrator vertically at the depth of the lift being vibrated plus 6 inches into the previous lift. Insert vibrators in a vertical position, perpendicular to the concrete surface, at a uniform spacing over the entire concrete placement area. Dragging vibrators through concrete to another vibration point must not occur. Attaching vibrators to or holding them against forms or reinforcing steel must also not be allowed.

External vibrators accepted by the Engineer may be used to consolidate concrete when concrete is inaccessible for adequate consolidation, provided forms are constructed sufficiently rigid to resist displacement or damage from external vibration.

When required, supplement vibration by hand spading with suitable tools to ensure proper and adequate compaction. Manipulate vibrators to work concrete thoroughly around reinforcement and embedded fixtures, and into corners and angles of forms. Do not use vibrators to cause concrete to flow or run into position, instead of placing the concrete and vibrating it. Vibrate sufficiently to compact but avoid prolonging vibration to the point where segregation occurs.

(6) Depositing Concrete Underwater. Do not deposit concrete underwater except cofferdam seals, tremie concrete, and drilled shaft concrete. Use seal concrete complying with Section 601 – Structural Concrete unless specified otherwise, for cofferdam seal concrete deposited underwater. Deposit drilled shaft concrete underwater in accordance with Section 511 – Drilled Shafts.

Place concrete underwater in a compact mass in its final position by tremie or closed-bottom-dump bucket. Do not disturb deposited concrete after placement. Maintain still water at the point of deposit.

Tremie consists of a tube having an inside diameter at least 6 times the maximum size of aggregate used in concrete mix and not less than 10 inches, constructed in sections having flanged couplings, fitted with gaskets. Tremie must not contain aluminum parts that will come in contact with concrete, including pump and discharge lines. Equip tube with receiving hopper at the top and device that closes discharge end to prevent water from entering the tube, while the tube is being charged with concrete. Support tremie to permit free movement of discharge end over the entire top surface of work and

713 rapid lowering, when necessary, to retard or stop the flow of concrete.
714 Close and seal discharge end entirely at the start of work to
715 prevent water from entering the tube. Keep the tremie tube full to the
716 bottom of the hopper. When a batch is dumped into the hopper,
717 induce concrete flow by slightly raising the discharge end, always
718 keeping the discharge end in deposited concrete. Maintain
719 continuous flow until work is completed.

720
721 Use an underwater bucket with open top and bottom doors that
722 open freely outward, when tripped. Completely fill and slowly lower
723 the bucket, to avoid backwash. Discharge bucket only when bucket
724 rests on the surface upon which concrete is to be deposited. After
725 discharge, raise the bucket slowly until well above concrete. The use
726 of bottom dump buckets for the bottom seal around foundation piling
727 will not be allowed.

728
729 Submit concrete seal design calculations and working
730 drawings, prepared, stamped, and signed by Hawaii Licensed
731 Structural Engineer. The exact thickness of the concrete seal must
732 depend upon the hydrostatic head, bond, pile spacing, and cofferdam
733 size. Construct a concrete seal after the Engineer accepts the design.
734 Allow seal to remain in place for not less than 7 days before
735 dewatering. After sufficient time has elapsed, dewater the cofferdam,
736 and remove scum, laitance, and sediment from the concrete. Before
737 depositing fresh footing concrete, remove local high spots, as
738 necessary, to ensure proper clearance for footing reinforcing steel.

739
740 **(7) Hot Weather Concreting.** When the ambient temperature is
741 expected to meet or exceed 75 degrees F or the concrete construction
742 involves flatwork concrete construction, ACI 305 R-20 Guide to Hot
743 Weather Concreting or its latest edition or variant must be part of the
744 Contractor's means and methods. Handling, placing, protection, and
745 curing procedures must limit the concrete temperatures or water
746 evaporation, or both that can reduce the strength, serviceability, and
747 durability of the member or structure. Submit a Hot Weather
748 Concreting action plan to the Engineer for review and acceptance. Do
749 not place concrete where the temperature is above 90 degrees F
750 unless the design mix and placement method comply with ACI 305 R-
751 20 Guide to Hot Weather Concreting or its latest edition or variant.

752
753 Weather conditions, e.g., rain, temperature, wind, and humidity,
754 must be monitored and addressed. Include the assumed temperature
755 of concrete to be used in the initial calculation of the evaporation rate
756 using the ACI 305 R's evaporation rate chart or ACPA's Evaporation
757 Rate Calculator. Have action plans that are to be used should bad
758 weather conditions, e.g., high wind, rain, high temperature, occur or

759 will occur during pour and under what condition weather conditions
760 must cause a cancellation or delay of the concrete placement.
761 Measurements of the conditions used to determine the evaporation
762 rate must be taken at the location where the concrete is currently
763 being placed, e.g., near the chute, the concrete bucket, the discharge
764 nozzle of the concrete pump, etc. List make and model of weather
765 monitoring instruments, to be used at the location of concrete
766 placement, to measure the ambient air temperature, relative humidity,
767 and wind velocity to determine the on-site real-time evaporation rate.
768 All-in-one meters that utilize the ACI 305 R's chart or other accepted
769 method for determining evaporation rate may be used if found
770 acceptable by the Engineer. Submit catalogs of weather monitoring
771 instruments. Submit weather reports with evaporation rates within 48
772 hours of the completion of the concrete pour. Weather reports must
773 be in a format and have information acceptable to the Engineer.
774

775 If the evaporation rate is, or is likely to become, or trending to
776 be 0.05 lb/ft²/hr or greater, employ the measures to prevent moisture
777 loss such as but not limited to the application of evaporation retarder,
778 application of supplemental moisture by fogging or reduction of the
779 concrete temperature during batching, reduction of wind velocity or
780 other means accepted by the Engineer that was included in the
781 accepted hot weather concreting plan. Check evaporation rate every
782 15 minutes during and after placement until the concrete has taken a
783 final set or use ACI 305 R-20's or its latest edition or variant if
784 inspection requirements are more frequent.
785

786 If the temperature of any of the surfaces the concrete may
787 come in contact with, e.g., reinforcement, embedments, forms has a
788 temperature greater than 100°F, or is 10°F greater than the concrete's
789 temperature that is being placed, use a fogger to moisten and cool the
790 hot surfaces to below whichever temperature is lower. Remove all
791 standing or ponding water immediately before placing concrete. If
792 compressed air is used to remove the water the air must be oil-free.
793

794 **(8) Evaporation Retarders and Finishing Aids.** Evaporation
795 retarders and finishing aid solutions may be used when accepted by
796 the Engineer. Adjust dilution rates to fit the local climate following the
797 manufacturer's recommendations and receiving the Engineer's
798 acceptance. Evaporation retarders and finishing aids must be "stand-
799 alone" products. Products that are both evaporation retarder and
800 finishing aid must NOT be used. They must be designed for highway
801 pavement use. Evaporation retarders and finishing aids must not
802 deleteriously change the water to cementitious material ratio (W/CM),
803 i.e., water to cement ratio (W/C) of the concrete's surface, or affect the
804 physical properties of the surface it is being applied to causing

805 defects, e.g., chalking, color change, dusting, weaken surface,
806 popouts, brittleness, spalling, cracking, or other unacceptable
807 properties, submit test results that show compliance to these
808 requirements. Evaporation retarders and finishing aid solutions must
809 have different tints and tints must not be noticeable on the hardened
810 cured concrete. Apply solutions with equipment that is labeled in a
811 manner that easily identifies them from a distance.

812
813 Evaporation retarders must be allowed to form their protective
814 film before the finishing aid solution is applied. Evaporation retarders
815 and finishing aids must not be used interchangeably, using them
816 interchangeably will damage the concrete surface. Misuse or adverse
817 effects occurring to the concrete attributed to the evaporation
818 retarders or finishing aids or both by the Engineer may result in the
819 withdrawal of the Engineer's acceptance of the product and the
820 immediate halting of the use of the product at no cost or increase in
821 Contract time. The concrete will be considered non-compliant and
822 must be removed or an Engineer accepted remedial repair be
823 performed. The Engineer will solely decide what work method is to be
824 used.

825
826 **(9) Certified Concrete Flatwork Finisher Requirement.** Perform
827 the placement and finishing operations of concrete flatwork with a
828 minimum ratio of one certified ACI Concrete Flatwork Finisher and
829 Technician with 4,500 hours of acceptable work experience (certified
830 craftsman) per three concrete finishers (concrete finishers without ACI
831 Concrete Flatwork Finisher and Technician certification and 4,500
832 hours of acceptable work experience) at each location on the project
833 site having flatwork done. The concrete flatwork must be under the
834 direct supervision of a certified craftsman. Designate the certified
835 craftsman who will be supervising and responsible for determining the
836 quality of the finish of the concrete flatwork being performed. No
837 flatwork must be performed without the required amount of certified
838 craftsmen present.

839
840 **(a)** Flatwork concrete is defined as any concrete work that
841 requires tools or machines to be used during the placement
842 and finishing operations of concrete. Concrete flatwork
843 includes concrete work that requires a specified finishing,
844 smoothness, or rigid surface tolerances such as sidewalks,
845 walkways, portland cement concrete pavement, concrete
846 white-topping, girder seats, pier caps, bridge decks, on-grade
847 concrete slabs, approach slabs, concrete overlays, and
848 concrete repairs which exceed one square foot per day.

849
850 **(b)** Areas that are not considered flatwork concrete are the

851 top of foundations or structures that will have backfill material
852 placed directly on the concrete surface.

853
854 **(c)** Submit copies of the craftsman's current ACI
855 certification 30 days before concrete flatwork begins for the
856 Engineer's review and acceptance. The Engineer has the right
857 to require the removal, replacement, retraining, and re-
858 certification of a certified craftsman if that person does not, in
859 the opinion of the Engineer, demonstrate the ability to place
860 and finish concrete in accordance with the practices
861 recommended in the ACI Concrete Flatwork Finisher
862 Certification Program and to meet the finishing standards
863 required by the Contract Documents.

864
865 **(d)** Any cost or impact to the contractor in providing,
866 training, certification, retraining, replacement, or re-certification
867 is incidental to the contract items that require concrete flatwork.

868
869 **(G) Joints.**

870
871 Before backfilling with earth or other materials against the joints, all
872 construction, expansion, contraction, and control joints must be waterproofed
873 with flashing compound waterproofing as detailed in the Standard Plans

874
875 **(1) Construction Joints.** Place construction joints only at
876 locations indicated in the Contract Documents, perpendicular to
877 principal lines of stress, and at points of minimum shear.

878
879 Before placing concrete on substrate concrete at the
880 construction joint, the following work must be performed:

881
882 **(a)** Remove laitance, loose particles, dust, dirt, impervious
883 membrane curing compound, and any other material foreign to
884 the construction joint and the projecting reinforcement.

885
886 **(b)** Roughen horizontal construction joint by abrasive blast
887 cleaning, hydrodemolition, or other Engineer accepted
888 methods to the full amplitude of approximately ¼ inch."

889
890 Before placing new concrete, draw forms tightly against the
891 concrete already in place. Thoroughly clean, high-pressure water
892 blast laitance and foreign material, and saturate the old surface with
893 water to a saturated surface-dry condition immediately before placing
894 new concrete. Place concrete in substructures so that horizontal
895 construction joints are truly horizontal. Where possible, place joints
896 such that they will be hidden from view in the finished structure.

897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942

Where vertical construction joints are necessary, extend reinforcing bars across joints to make the structure monolithic. Do not place construction joints through paneled wing walls or other large surfaces that are to be treated architecturally.

When a construction joint is necessary because of an emergency, furnish and place reinforcing steel across the construction joint as ordered by the Engineer, at no increase in the contract price or contract time.

(2) Expansion Joints. Construct expansion joints of type and in the location indicated in the Contract Documents. Expansion joints may be of friction, open, filled compression, mortise, or special type.

(a) Metal Friction Joints. Metal friction joints include cast iron or bronze plates. Anchor plates in the correct position. Plane sliding surfaces are true and smooth by following the direction of movement of the structure with the planing tool. Do not impede movement by allowing surfaces to make contact, except for bearing surfaces.

(b) Open Joints. Construct open joints of removable bulkheading forms so that forms may be removed without damage to concrete.

(c) Filled Compression Joints. Construct filled compression joints with premolded expansion joint filler. Cut preformed joint filler to the same shape as the area to be covered. Furnish one-piece, preformed joint filler, sized to leave a 1/4-inch gap along exposed surfaces. When specified, punch holes to accommodate dowels. Fix preformed joint filler firmly against the surface of concrete already in place with cold asphalt roofing cement complying to ASTM D 4586. Do not nail the premolded expansion joint filler to the concrete or use a fastening method that will not compress more than the thickness of the premolded expansion joint filler. When necessary use more than one piece to cover the surface, fasten and hold abutting ends in shape by stapling. Cover joint between separate pieces with a layer of two-ply roofing felt and cover one side with cold asphalt roofing cement complying to ASTM D 4586. Fill 1/4-inch space along edges at exposed faces with wooden strips of the same thickness as joint material. Saturate wooden strips with oil and provide sufficient draft to make wooden strips readily removable after placing concrete. Immediately after removing forms, inspect the expansion joint. Clean and remove concrete or mortar that

943 may have been sealed across the joint.

944

945 **(d) Mortised Joints.** Construct mortised joints where
946 indicated in the Contract Documents. Mortised joints include a
947 concrete or metal part sliding in a concrete or metal socket.
948 Construct joint to be watertight, rustproof, and free to move in
949 two directions.

950

951 **(e) Steel Joints.** Steel joints include plates, angles, or
952 other structural shapes. Shape steel joints accurately at the
953 shop to conform to the section of the concrete deck. Fabricate
954 and paint steel joints in accordance with requirements
955 indicated in the Contract Documents. When specified,
956 zinc-coat material instead of painting. Keep the surface of the
957 finished plate true and free of warping. Maintain joints in the
958 correct position during concrete placement. Set opening at
959 expansion joints as indicated in the Contract Documents.
960 Avoid impairment of joint clearance.

961

962 Place metal joints so that they are free from kinks. Rivet
963 and solder joints. At bends, use a one-piece strip.

964

965 Remove stones, forms, and other foreign matter that
might interfere with joint efficiency.

966

967 **(f) Waterstops.** When required, furnish, and install
968 waterstops as indicated in the Contract Documents. Position
969 waterstops correctly in formwork, so that bulb is aligned and
970 centered with the joint opening. Vibrate concrete surrounding
971 embedded waterstops to attain impervious concrete near
972 joints. Cut and splice waterstops at changes in direction, as
973 necessary, to avoid buckling or distortion of web or flange.
974 Field splice waterstops in accordance with Subsection 705.07 -
Waterstop.

975

976 **(3) Contraction Joints.** Contraction joints in walls and other
977 structures must be spaced at not more than 20 feet on centers and
978 must be spaced, at abrupt changes in height or thickness and obtuse
979 corners unless otherwise directed by the Engineer.

980

981 **(H) Waterproofing.** Make concrete surfaces smooth and free from holes
982 and projections that might puncture the waterproofing membrane. Dry and
983 clean surfaces thoroughly of dust and loose materials before waterproofing.
984 Do not waterproof in wet weather or when the temperature is below 65
985 degrees F or does not comply with the accepted manufacturer's
986 recommendations.

987

988 Waterproofing includes a coat of primer applied to a concrete surface,

989 a firmly bonded membrane composed of two layers of saturated fabric
990 complying to ASTM D 1668, and three uniform mopping coats of
991 waterproofing asphalt or an accepted method of waterproofing.

992
993 Apply a uniform coat of primer to the surface, extending 12 inches on
994 each side of the joint. Allow the primer to dry before the first application of
995 asphalt. Heat asphalt to a temperature between 300 degrees F and 350
996 degrees F. Mop asphalt thoroughly onto the surface with no holidays.

997
998 Place an 18-inch-wide strip of fabric immediately on hot asphalt.
999 Carefully press the fabric into place to eliminate trapped air bubbles and to
1000 obtain close complete contact with the surface.

1001
1002 Apply a second uniform layer of asphalt onto the fabric, 3 inches
1003 beyond the edges. Immediately following that operation, press the second
1004 layer of fabric into place on top of the first layer.

1005
1006 Apply a third and final uniform layer of asphalt onto the fabric, 3 inches
1007 beyond the edges. Use 12-inch laps at the ends of the fabric.

1008
1009 Apply the uniform coat of primer to the concrete surface at a rate of
1010 one gallon per 100 square feet. Apply a uniform coat of asphalt at a rate of
1011 15 gallons per 100 square feet of finished work.

1012
1013 **(I) Joint Sealing.**

1014
1015 **(1) Joint Seal (Poured) for Bridge Deck.** Immediately before
1016 applying a joint sealer, clean joints thoroughly by abrasive blasting.
1017 Remove mortar, laitance, scale, dirt, dust, oil, and other foreign
1018 matter, then blow out the joint with high pressure, oil-free, dry
1019 compressed air to remove residue.

1020
1021 Apply joint sealer after the Engineer inspects and accepts the
1022 joint; and only when concrete and ambient temperatures are not less
1023 than 50 degrees F and no greater than the temperature allowed by the
1024 manufacturer.

1025
1026 Apply joint sealer so that joints are filled without forming air
1027 holes and discontinuities. The top of the joint sealer must be 1/4 inch
1028 below the finished surface.

1029 Remove joint sealer that does not do the following: cure to
1030 homogeneous and rubber-like compound; bond to joint faces; or
1031 comply with other requirements of this section.

1032
1033 Reclean joint and remove non-compliant joint sealer then place
1034 new joint sealer at no increase in the contract price or contract time.

1035
1036
1037
1038
1039
1040
1041
1042
1043
1044
1045
1046
1047
1048
1049
1050
1051
1052
1053
1054
1055
1056
1057
1058
1059
1060
1061
1062
1063
1064
1065
1066
1067
1068
1069
1070
1071
1072
1073
1074
1075
1076
1077
1078
1079
1080

After completion of joint sealing, prohibit vehicles from traveling over joints until the Engineer grants permission.

(2) Joint Seal (Preformed) for Bridge Deck. Immediately before installing a joint sealer, clean the joint thoroughly to remove mortar, laitance, scale, dirt, dust, oil, and other foreign matter from the joint with high pressure, oil-free, dry compressed air.

Install seal so that it will not be abraded by traffic and will effectively keep foreign material from entering the joint. Correct spalls and protrusions in joint before installation.

Install preformed seal in one continuous piece without field splices.

Place seal so that its top edge is 1/4 inch below the riding surface, and in a plane normal to the sides of the groove.

Place the top edge of the gasket in contact with the vertical walls of the joint. Repair spalls and other unsound concrete. Depress seal below minor spalls so that its top edge is in contact with the vertical wall of the joint.

Twisting, curling, and nicking of the seal will not be allowed.

Protect joint from the intrusion of earth, gravel, mortar, or other foreign matter so that structure can expand, and contract as designed.

The groove width indicated in the Contract Documents is the width of the expansion joint at the time of concrete placement. When the width is less than the manufacturer's minimum width for proper installation of the joint seal, defer installation until the concrete has been placed. Install seal after increasing joint width to width equal to or greater than the minimum width recommended by the manufacturer.

Steel angle protective nosing assembly must extend beyond the curb line and must terminate 1 inch from the edge of the deck.

(3) Flashing Compound for joints. At retaining wall joints and other construction joints indicated in the contract documents in contact with soil, apply flashing compound as recommended by the manufacturer.

(J) Concrete Exposed to Sea Water. In concrete structures exposed to

1081
1082
1083
1084
1085
1086
1087
1088
1089
1090
1091
1092
1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1126

seawater, construction joints will not be allowed between levels of extreme low water and extreme high water, as indicated in the Contract Documents, or as found in accepted reference documents. Between these levels, leave forms in place for at least 30 days.

(K) Protection and Curing. Protect concrete from mechanical damage and damage caused by exposure to the sun, rain, and flowing water. Do not allow concrete to dry out from the time of concrete placement until the end of the minimum curing period. The minimum curing period must be as follows:

- (1) Cure structures for at least 7 days. Maintain a temperature of structural concrete at not less than 45 degrees F for 72 hours after placing. Maintain temperature at not less than 40 degrees F for an additional 4 days. Submit a written outline of the proposed method for protecting concrete.
- (2) Cast-in-place parts of a structure to be submerged permanently in freshwater, may be cured for a period sufficient to prevent washing out of cement, and then submerged immediately.
- (3) Cast-in-place parts of a structure to be submerged in freshwater, let cure for at least 5 days. Cast-in-place parts of a structure to be submerged in brackish or seawater must leave the forms in place for at least 30 days to cure in accordance with Subsection 503.03(J) - Concrete Exposed to Sea Water.

(L) Curing Methods. Cure concrete for cast-in-place structures, other than bridge decks, by water curing, impervious membrane curing, or forms-in-place curing. Cure full width of concrete bridge decks using a combination of impervious membrane curing and water curing. Cure concrete surfaces that are to receive Class 2 Rubbed Finish, by water curing or forms-in-place curing. Cure surfaces of construction joints by application of water curing or non-membrane curing compound that seals concrete without reducing interface bonding capacity. Submit proposed curing methods, including copies of test results and manufacturer's catalog no later than 30 working days before the first concrete pour. There must be no concrete pouring until the Engineer accepts the curing method including the curing compound and its application method. The procedures for protecting and curing concrete will be considered adequate if (a) or (b) is satisfied:

- (a) Average strength of field-cured cylinders at test age designated for determination of $f'c$ is equal to or at least 85 percent of that of companion standard-cured cylinders
- (b) Average strength of field-cured cylinders test age exceeds $f'c$ by more than 500 psi

1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1140
1141
1142
1143
1144
1145
1146
1147
1148
1149
1150
1151
1152
1153
1154
1155
1156
1157
1158
1159
1160
1161
1162
1163
1164
1165
1166
1167
1168
1169
1170
1171
1172

If the curing method does not meet one of the aforementioned criterions the curing method must be modified or changed until it is compliant.

Precast concrete members may be steam cured in accordance with Subsection 504.03(G) - Curing.

(1) Water Curing. Water cure by keeping concrete continuously wet with fresh water, using water fogging, acceptable water-saturated coverings, or ponding. Keep wood forms that remain in place sufficiently damp to prevent opening at joints and drying of concrete.

After surface water has evaporated, apply moisture to the concrete surface using a fog spray. Continue applying moisture to the surface until regular curing begins. Use adequate water supply and sufficient moisture to fog and water cure concrete without damaging the surface or texture of concrete. The temperature of water used must be at least 50°F and not be more than 35°F colder than the surface temperature of the concrete at the time the water and concrete come in contact.

Begin water curing for bridge decks after the curing compound is applied and immediately after the concrete surface is hard enough to receive water without damaging the surface or texture of the concrete. Continue water curing until the end of the specified curing period.

Prevent curing water from falling on traveled roadways under a structure or into waterways. Channel curing water away from falsework and structure foundations.

(2) Impervious Membrane Curing. Seal the concrete surface thoroughly with a liquid membrane-forming compound. Apply compound uniformly in two or more applications. Use for each coat a ratio of at least 1 gallon for every 100 square feet of concrete surface. The impervious membrane curing compound must be applied to the concrete following the surface finishing operation. Start the application of the curing compound immediately before the moisture sheen disappears from the surface, but before any drying shrinkage or craze, cracks begin to appear. In the event of any drying or cracking of the surface, increase the humidity in the area by using a fog spray with an atomizing nozzle as specified in Subsection 503.03(F)(7) "Hot Weather Concreting", fogging must be started immediately, and must all be continued until the application of the compound is resumed or started; however, the compound must not be applied over any resulting freestanding water. Do not blend the free-standing water into the concrete surface, allow it to evaporate, If the free-standing

1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189
1190
1191
1192
1193
1194
1195
1196
1197
1198
1199
1200
1201
1202
1203
1204
1205
1206
1207
1208
1209
1210
1211
1212
1213
1214
1215
1216
1217
1218

water is due to the foggers, stop them and adjust the foggers so they comply with the Contract Documents. Should the film of the compound be damaged from any cause before the expiration of 7 days after the concrete is placed in the case of structures and 72 hours in the case of pavement, the damaged portion must be repaired immediately with an additional application of two coats of compound.

Use curing compounds that will not permanently darken concrete on exposed hardened surfaces of the concrete structure. Do not apply membrane curing compound on surfaces to which concrete is to be bonded or to which waterproofing or epoxy is to be applied or will be deleterious to future work.

Keep concrete surfaces moist before applying the impervious membrane. If membrane film is broken or damaged during the specified curing period, apply new treatment to the affected area, duplicating the first application.

(3) Forms-In-Place Curing. Cure formed surfaces of concrete by retaining forms in place. Maintain forms in place for a minimum period of 7 days after concrete placement. Keep all form joints and joints between the end of forms and concrete, moisture-tight during the curing period. Reseal cracks in forms and cracks between forms and concrete by methods accepted by the Engineer.

(4) Lithium Curing Compound. If the construction joint requires that it bonds with the concrete poured against it a lithium curing compound will be acceptable as a curing compound. Lithium curing compound must not be used on the horizontal surface in place of other aforementioned curing methods unless specifically called for by the Contract Document, or a waiver is granted by the Engineer. A lithium sealer will not be accepted as a curing compound. The lithium curing compound must meet or exceed the requirements of ASTM C-309, and ASTM C-1315 and be a 28-day water cure equivalent. All work must comply with the manufacturer's recommendations.

(M)Finishing Concrete Surfaces. Apply the following requirements to several classes of surface finishes that ordinarily apply to various parts of concrete structures.

No additional water must be applied to the concrete surfaces to aid in the finishing operation. The application of water to aid the finishing operation will result in the concrete being non-compliant with the contract requirements and result in the rejection of the concrete pour. Finishing aids or evaporation retarders may be used only with written authorization by the Engineer. Only stand-alone finishing aids must be used to finish the concrete surface and only stand-alone evaporation retarders are used to minimize the evaporation

1219
1220
1221
1222
1223
1224
1225
1226
1227
1228
1229
1230
1231
1232
1233
1234
1235
1236
1237
1238
1239
1240
1241
1242
1243
1244
1245
1246
1247
1248
1249
1250
1251
1252
1253
1254
1255
1256
1257
1258
1259
1260
1261
1262
1263
1264

rate of the plastic concrete. These solutions must not be used interchangeably.

(1) Class 1 Ordinary Surface Finish. Apply ordinary surface finish to concrete surfaces, either as a final finish or preparatory to applying a higher-class finish. On surfaces to be buried underground or that are enclosed, such as cells of box girders, removal of fins and form marks and rubbing of mortared surfaces to obtain a uniform color will not be required.

After removing forms, remove form bolts and ties to a depth of at least 1 inch below the concrete surface. Clean, wet, and fill resulting holes or depressions with mortar. Mortar must consist of one part cement to two parts sand by volume. Add white cement to mortar in sufficient quantity to tint mortar a shade lighter than the surrounding concrete. Use mortar that is not more than 1 hour old and that bonds indistinguishably with concrete. After the mortar has thoroughly hardened, rub the surface with a carborundum stone to obtain the same color mortar as in the surrounding concrete. Remove fins caused by form joints and other projections. Remove stains and discolorations visible from the travel way.

Clean and fill pockets with mortar, except for those scattered pockets or pinholes less than 1/2-inch long or wide and less than 3/8-inch deep or have exposed reinforcing steel. Pockets must not affect the strength of the structure or shorten the life of steel reinforcement. Fill pockets on surfaces visible to pedestrian traffic and surfaces exposed to streamflow, salt air, and saltwater. Use mortar for filling pockets, as specified for bolt and tie holes. When rock pockets affect the strength of a structure materially or shorten the life of the structure or steel reinforcement, the Engineer will declare concrete unacceptable and require removal and replacement of the affected structure.

Clean, wet, and fill with mortar, all holes or depressions in surfaces that are to receive Class 2 Rubbed Finish. Clean, wet, and fill at least 7 days before starting Class 2 Rubbed Finish.

(2) Class 2 Rubbed Finish. Apply Class 2 Rubbed Finish to the following surfaces:

(a) Surfaces of bridge superstructures, including pedestrian overpasses, except for the following: inside vertical surfaces of "T" girders; slab soffits of interior bays of "T" girders; enclosed surfaces of box girders; top surfaces of bridge decks; walkway

1265
1266
1267
1268
1269
1270
1271
1272
1273
1274
1275
1276
1277
1278
1279
1280
1281
1282
1283
1284
1285
1286
1287
1288
1289
1290
1291
1292
1293
1294
1295
1296
1297
1298
1299
1300
1301
1302
1303
1304
1305
1306
1307
1308
1309
1310

surfaces; and median strips.

(b) Surfaces of the bridge and pedestrian overpass piers, piles, columns, pier caps, abutments, wing walls, and retaining walls above finished ground, to at least 1 foot below finished ground.

(c) Surfaces of open-spandrel arch rings, spandrel columns, and abutment towers.

(d) Surfaces above finished ground of culvert headwalls, and endwalls, when visible from a traveled way.

(e) Surfaces of inside box culvert barrels having a height of 4 feet or more, for a distance inside the barrel equal to the height of culvert or as far as is visible from a Traveled Way, whichever is greater.

(f) Surfaces of concrete railings, end posts, and curbs.

After completing Class I Ordinary Surface Finish, sand with power sanders areas that do not exhibit a smooth, even surface of uniform texture and appearance. Sand with power sanders areas to a smooth, even surface of uniform texture and appearance.

Use power carborundum stones or disks to remove unsightly bulges or irregularities.

The intent is to secure a smooth, even surface of uniform appearance and to remove unsightly bulges or depressions due to form marks and other imperfections. Scattered pockets or pinholes permitted under ordinary finish will not be considered to affect uniformity or texture. The extent of sanding and grinding must be as specified.

The final operation for this finish consists of removing powder on the surface resulting from sanding and grinding. When additional repairs are made after sanding and grinding, repeat sanding and grinding after a repair has cured. Leave the finished surface free from powder and other foreign matter by power washing and wiping with a clean cloth. Collect and dispose of wash water.

(3) Class 6 Float Finish. Attain Class 6 Float Finish as follows:

(a) Finishing Bridge Decks and Bridge Approach Slabs. For bridge decks and bridge approach slabs, obtain a smooth

1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330
1331
1332
1333
1334
1335
1336
1337
1338
1339
1340
1341
1342
1343
1344
1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355
1356

riding surface of uniform texture, true to the required grade and cross-section.

Place concrete in bridge decks and bridge approach slabs at a minimum finished deck placement rate of 20 linear feet per hour. Measure rate along the centerline of the roadway. Employ experienced operators and concrete finishers to finish the deck. Keep necessary finishing tools and equipment on hand at the worksite and in satisfactory condition for use.

Complete finishing operations only during daylight hours unless acceptable lighting facilities are provided.

Immediately before placing bridge deck concrete, check falsework and wedges. Minimize settlement and deflection due to added weight of bridge deck concrete. Furnish suitable instruments, such as settlement gages, to permit ready measurement of settlement and deflection by the Engineer.

When a settlement or other unanticipated events occur, stop deck concrete placement until corrective measures have been submitted and accepted. If accepted corrective measures have not been provided before the initial concrete set, stop concrete placement, and install the bulkhead at a location designated by the Engineer. Remove concrete placed beyond the bulkhead.

Place the bridge deck and bridge approach slab concrete in a uniform heading, approximately perpendicular to the roadway centerline. Limit the rate of concrete placement to that which can be finished before the beginning of the initial set. Do not place deck surface concrete more than 10 feet ahead of strike-off. Spread concrete during its initial deposit on the deck forms to a uniform height, and it requires a strike-off that does not exceed 3 inches of concrete.

Finish bridge decks and bridge approach slabs with concrete wearing surfaces in accordance with Subsection 503.03(M)(3)(a)1. - Machine Finishing.

Bridge decks and bridge approach slabs with asphalt-wearing surfaces may be finished as described in this subsection.

During the finishing operation while concrete is still

1357
1358
1359
1360

1361
1362
1363
1364
1365

1366
1367
1368
1369
1370

1371
1372
1373
1374
1375

1376
1377
1378

1379
1380
1381
1382

1383
1384
1385

1386
1387
1388

1389
1390
1391
1392
1393
1394
1395
1396
1397
1398
1399

plastic, test the surface with a 12-foot straight edge. Test surface from the side or from transverse finishing bridges, in presence of the Engineer. Make necessary corrections to attain the required tolerance after the concrete has hardened.

After the concrete has hardened sufficiently, test the finished surface in presence of the Engineer with a 10-foot straight edge. The surface for the concrete deck finish must not vary more than 1/8 inch from the lower edge of a straight edge.

Where concrete of bridge deck and bridge approach slab is to be covered with a minimum 1-inch-thick layer of bituminous surfacing, earth, or another cover, the surface of the concrete must not vary more than 1/4 inch from the lower edge of a 10-foot straight edge.

Grind high areas in the hardened surface, leaving a finished texture that is not smooth or polished. Produce final surface with a uniform texture of longitudinal grooves, with tine dimensions in accordance with Subsection 503.03(M)(3)(a)1. - Machine Finishing.

Submit method of correcting low areas. Begin remediation of low spots only after the Engineer accepts remedial repair submittal.

Strike off bridge deck surfaces under curbs, railings, and sidewalks to the same plane as the roadway. Leave bridge deck surfaces under curbs, railings, and sidewalks undisturbed when future widening is shown on Plans.

When deck width is 4 feet or less, finishing methods other than those specified herein may be used, provided the completed deck surface complies to specified requirements.

Perform remedial measures on completed bridge decks and bridge approach slabs not meeting specified requirements, at no increase in the contract price or contract time.

1. Machine Finishing. Strike-off and finishing machines must be of the self-propelled types, operating on rails and complying to specified requirements.

Use elevation-adjustable screed rails. Set screed to elevations, with allowances for anticipated settlement, camber, and deflection, as required to form the surface of the bridge deck and bridge approach slab to specified line and grade. Screed rails must not deflect appreciably under applied loads.

1400
1401
1402
1403
1404
1405
1406
1407
1408
1409
1410
1411
1412
1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429
1430
1431
1432
1433
1434
1435
1436
1437
1438
1439
1440
1441
1442
1443
1444
1445

The screed rails must be adjustable for elevations. The screed must be set to elevations, with allowances for anticipated settlement, camber, and deflection, as required to form the surface of the bridge deck to the line and grade shown in the contract. The Contractor must install screed rail type such that the rails must not deflect appreciably under the applied loads. The supports for the screed rails must not be placed within the full width of the bridge.

The Contractor must not apply any additional water to the deck surface to aid his finishing operation. The unauthorized application of water will result in the rejection of that day's concrete placement.

Before beginning concrete operations, operate strike-off and finishing machines over the full length of the bridge segment to be paved. Test run with screed and the float-adjusted to their finishing positions. While testing machines, perform the following: check screed rails for deflection; make required adjustments; measure cover on slab reinforcement; check controlling dimensions of slab reinforcement and forms.

During the test run, use the same number of machines and finishing bridges, also, machines must be loaded with the same material and personnel that will be used during the production concrete placement, i.e., carrying production loads. Make necessary corrections at this time.

After placing and consolidating concrete, strike off the surface of concrete carefully, using the strike-off machine. Make uniform deck surface, true to required grade and cross-section.

When a strike-off machine has a wheelbase greater than 6 feet, float concrete by the following means: hand-operated longitudinal float board, or finishing machine equipped with longitudinal float, or a rotating element followed by a drag float pan.

Use longitudinal float on finishing machine not less than 8 feet or more than 12 feet long. When both strike-off and floating are to be performed by machines, provide two separate machines with separate operators,

1446
1447
1448
1449
1450
1451
1452
1453
1454
1455
1456
1457
1458
1459
1460
1461
1462
1463
1464
1465
1466
1467
1468
1469
1470
1471
1472
1473
1474
1475
1476
1477
1478
1479
1480
1481
1482
1483
1484
1485
1486
1487
1488
1489
1490
1491

one for strike-off and one for floating. Perform final float pass as far back of strike off as concrete workability will permit.

When a strike-off machine has a wheelbase of 6 feet or less, provide two separate hand-operated float boards or a finishing machine accepted by the Engineer. Place the first, hand-operated float in operation as soon as concrete surface condition permits. Operate the second, hand-operated float as far back from the first float as concrete workability permits. Apply provisions in this subsection on hand-operated float boards, to the two separate float boards specified for longitudinal floating.

Use longitudinal floats, either hand-operated or machine-operated, with the long axis of float parallel to the bridge's roadway centerline. Operate longitudinal floats with combined longitudinal and transverse motion. Operate rotating float with rotational and transverse movements. Use floats to plane off high areas and float material removed into low areas. Lap each pass with the previous pass by half-length of float. Continue floating until a smooth riding surface is obtained. Meet surface tolerances as specified herein.

In place of separate machines for strike-off and finishing, a single machine equipped with a rotating auger for strike-off and rotating element followed by a drag float pan for consolidating and finishing may be used or the Contractor may request acceptance of the use of substitute machines and methods from the Engineer. Submit previous project experience demonstrating that the proposed machine is capable of meeting specified requirements for satisfactory bridge deck and bridge approach slab finishing. When requested by the Engineer, submit three copies of manufacturer's operators and parts manual for dual-purpose alternative machine or other Engineer requested information. Operate the machine in accordance with the manufacturer's manual.

Hand-operated float boards and transverse finishing bridges must meet requirements in accordance with Subsection 503.03(M)(3)(a)2. - Manual Finishing.

1492
1493
1494
1495
1496
1497
1498
1499
1500
1501
1502
1503
1504
1505
1506
1507
1508
1509
1510
1511
1512
1513
1514
1515
1516
1517
1518
1519
1520
1521
1522
1523
1524
1525
1526
1527
1528
1529
1530
1531
1532
1533
1534
1535
1536
1537

Use not less than two transverse finishing bridges unless directed otherwise by the Engineer. The Contractor may request a waiver from this requirement upon justification and acceptance from the Engineer.

Texture surfaces to meet skid resistance requirements. Submit proposed surface treatment methods to form skid-resistant texture. The Engineer may conduct skid resistance testing.

At an appropriate time, produce uniform, transverse pavement grooves by combing with a single row of spring metal tines. Make tines as follows: 1/32 inch in thickness; 3/32 inch in width; approximately 4 inches in length; and 3/4 inch centers along the row.

Position tines so that their widths are perpendicular to the groove direction. Make grooves 1/8 to 3/16 inch in depth.

After the surface sheen has disappeared; texture the pavement surface without tearing it. Texture final surface using artificial turf drag followed immediately by metal comb grooving device.

Use artificial turf made of molded polyethylene with synthetic turn blades measuring approximately 0.85 inches long and containing approximately 7,200 individual blades per square foot. Submit a sample of artificial turf at least twenty working days before placing PCC pavement.

Attach artificial turf to self-propelled equipment having external alignment control. The device must be a separate piece of equipment to be used exclusively for texturing operation and must not be attached to other paving-train equipment. Artificial turf must be full pavement width and of sufficient size that during finishing operation, approximately 2 feet of turf, parallel to pavement centerline, is in constant contact with the pavement surface. Maintain downward pressure on pavement surface with turf, to achieve uniform texturing without measurable variations in pavement profile. The artificial turf drag must not be wavy and must be parallel to the centerline of the pavement.

1538
1539
1540
1541
1542
1543
1544
1545
1546
1547
1548
1549
1550
1551
1552
1553
1554
1555
1556
1557
1558
1559
1560
1561
1562
1563
1564
1565
1566
1567
1568
1569
1570
1571
1572
1573
1574
1575
1576
1577
1578
1579
1580
1581
1582
1583

In addition to the artificial turf drag, grooving (tining) must be done immediately after the artificial turf drag is performed. It must be done by a self-propelled mechanical device (grooving device) having an external alignment control and capable of grooving the entire width of pavement being paved in a single pass at a uniform speed. The grooving device must be a separate piece of self-propelled equipment to be used exclusively for texturing operation and must not be attached to other paving-train equipment. The metal comb which creates the tining marks must include a single line of evenly spaced, tempered spring steel tines of size and stiffness sufficient to produce grooves of specified dimensions in plastic concrete without edge slumping and severe surface tearing. Operate grooving device to produce a uniform pattern of grooves parallel to pavement centerline. The tines must not be left in the concrete when the tining machine stops. The tines must be lifted off the concrete and when ready to move in a forward motion lowered the tines down again. Leaving the tines in the fresh concrete can leave an indentation in the surface which must not be allowed. Attach the metal comb to a mechanical device capable of traversing the entire pavement width in a single pass at a uniform speed. Grooves in the hardened pavement surface must have a minimum spacing of 0.75 inches and must be 0.125 -inches wide by 0.125-inches deep. Provide hand combs with steel tines to use in event of mechanical comb breakdown.

Ramps, tapers, and miscellaneous areas may be textured manually when requested from the Engineer and accepted. Indicate in the paving plan the areas that will be manually textured.

Concrete bridge decks, concrete sleeper slabs, and concrete approach slabs must be textured longitudinally by mechanical grooving. Grooves must be cut into the hardened concrete using a mechanical water-cooled diamond edge blade saw device which must produce straight uniformly spaced grooves spaced at 3/4 inch. The groove width must be 1/8 inch plus or minus 0.02 inch and the groove depth must be 1/8 inch plus 1/16 inch or minus zero inches. If grooves cannot be cut into a continuous longitudinal operation, the continuation of grooves must be aligned such that joints

1584
1585
1586
1587
1588
1589
1590
1591
1592
1593
1594
1595
1596
1597
1598
1599
1600
1601
1602
1603
1604
1605
1606
1607
1608
1609
1610
1611
1612
1613
1614
1615
1616
1617
1618
1619
1620
1621
1622
1623
1624
1625
1626
1627
1628
1629

are not visible. If the bridge deck texture is required to be Next Generation Concrete Surface (NGCS) the concrete sleeper slabs, and concrete approach slabs must be textured using NGCS texture.

Before grooves are cut into the accepted hardened concrete, the upper 1/8 inch of the concrete surface for the bridge deck, approach slabs, and sleeper slabs must be removed by grinding. Grooving must be done after the concrete has attained sufficient strength to prevent spalling and raveling, and before the structure is opened to traffic.

A working drawing to control, collect and dispose of run-off water at an accepted off-site facility must be submitted to the Engineer.

The requirements of Section 411.03(N) Surface Test must apply to concrete bridge decks and concrete approach slabs. If additional grinding is required to achieve the specified profile index, or IRI the grinding must be performed before the mechanical grooving and must be done only in the longitudinal direction.

2. Manual Finishing. After placing and consolidating concrete, finish providing a uniform surface.

Use template or strike board to alternately tamp and strike off concrete and move forward with combined longitudinal and transverse motions. Leave uniform mortar or grout film of suitable consistency on the concrete surface after the last pass of the template or strike board.

Use template or strike board of rigid construction, capable of resisting deflection and distortion when in use.

Set supports or headers to required elevations to form bridge deck and bridge approach slab surfaces to line and grade indicated in the Contract Documents. Allow for anticipated settlement, camber, and deflection when computing elevations.

Furnish and install supports or headers such that

1630
1631
1632
1633
1634
1635
1636
1637
1638
1639
1640
1641
1642
1643
1644
1645
1646
1647
1648
1649
1650
1651
1652
1653
1654
1655
1656
1657
1658
1659
1660
1661
1662
1663
1664
1665
1666
1667
1668
1669
1670
1671
1672
1673
1674
1675

they must not deflect under applied loads.

Supports or headers for concrete deck placement must be completely in place for the full length of concrete placement and must be secured before placing deck concrete.

Following the completion of the preliminary finish float the deck's concrete wearing surface from transverse bridges in a direction parallel to the roadway centerline.

Transverse finishing bridges, from which floats are to be operated, must completely span the bridge roadway area to be floated. Provide easily moveable finishing bridges of rigid construction, free of wobble and springing during floating operation. Use a sufficient number of finishing bridges to permit the floating operation to follow preliminary finishing operations without undue delay. Use not less than two transverse finishing bridges unless otherwise allowed by the Engineer.

Float with two separate floats made of acceptable material, each between 12 to 16 feet long. Use float boards 1 inch thick and 4 to 8 inches wide, with rigid ribs. Provide adjusting screws at not more than 24-inch centers between rib and float board. Maintain float board flat and true. Equip each float with adjustable handles at each end. Rib and truss each float, as necessary, to ensure the float board has a true, rigid surface.

Operate floats with combined longitudinal and transverse motions, planing off high areas and floating material removed into low areas. Lap each pass with the previous pass by half-length of float. Continue floating until a smooth surface is obtained.

Place the first float into operation as soon as the concrete surface condition permits. Keep the first float in continuous operation until subsidence has taken place.

Operate the second float as far back of the first float as concrete workability permits.

1676
1677
1678
1679
1680
1681
1682
1683
1684
1685
1686
1687
1688
1689
1690
1691
1692
1693
1694
1695
1696
1697
1698
1699
1700
1701
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
1712
1713
1714
1715
1716
1717
1718
1719
1720
1721

After completing the floating operation, the texture deck surface must be in accordance with Subsection 503.03(M)(3)(a)1. - Machine Finishing.

(b) Sidewalks and Median Strips. Provide final finish for concrete sidewalks and median strips using wooden float and broom finish. Do not plaster the surface. Use an edging tool with a ¼-inch radius to finish the outside edges of the sidewalk. Finish sidewalk as a plane surface with 2-percent (allowable construction tolerance of plus or minus 0.4 percent maximum) cross slope towards the roadway or as shown in the Contract Documents. Test surface of concrete sidewalk with 12-foot straightedge. Correct any deviation above ¼ inch.

Wet down the base or ground onto which the concrete will be placed just before concrete placement. Remove any ponds or puddles or standing water before placing concrete.

For top surfaces of decks, ramps, and approach ramps for pedestrian structures and top surfaces of sidewalks provide an abrasive coating to the surface.

Create abrasive coating by sprinkling 1/4 pound of grain per square foot, uniformly, on fresh concrete. Finish the surface with a wooden float.

If reinforcement is required, the reinforcement must be supported off the base or ground to the location shown in the Contract Documents before the concrete placement starts. Enough support must be given so there is no sag in the reinforcement. Pulling up the reinforcement during the concrete placement or supporting the reinforcement with piles of concrete is not an acceptable method of support and all concrete placed in such a manner must be removed and replaced at the Contractor's cost.

(N) Cleaning Up. Upon completion of finishing operation and before prefinal inspection of the structure, remove falsework, excavated or useless material, rubbish, temporary structures, facilities, and temporary buildings. Replace or restore public or private fences or property damaged during prosecution of work. Leave bridge site and adjacent highway in neat and presentable condition. Remove excavated material or falsework placed in the stream channel during construction before the pre-final inspection.

1722
1723
1724
1725
1726
1727
1728
1729
1730
1731
1732
1733
1734
1735
1736
1737
1738
1739
1740
1741
1742
1743
1744
1745
1746
1747
1748
1749
1750
1751
1752
1753
1754
1755
1756
1757
1758
1759
1760
1761
1762
1763
1764
1765
1766

(0) Tolerance for Concrete Construction and Materials. Comply with the stricter tolerances specified in the specifications, ACI 117 Standard Specifications for Tolerance for Concrete Construction and Materials, PCI Tolerance for Precast and Prestressed Concrete, and PCI MNL-116 Manual for Quality Control of Plants and Production of Structural Precast Concrete Products

503.04 Measurement. The Engineer will not measure concrete when contracted on a lump sum basis.

The Engineer will not make deductions for the volume occupied by reinforcing steel, piles, floor drains, weepholes, timber bumpers, pipes less than eight (8) inches, conduits, or expansion joint materials.

503.05 Payment. The Engineer will pay for the accepted quantities of concrete complete in place and the accepted mechanical grooving and grinding at the contract lump sum price for the pay items listed below and contained in the proposal.

The contract lump sum amount paid shall be full compensation for the concrete; for placing, curing and finishing; for furnishing materials including admixtures and cement (including extra cement added to concrete deposited under water); for furnishing and installing drains, scuppers, premolded joint fillers, joint seals, waterproofing at construction joints, waterstops, pipes and conduits; for furnishing and installing metal rockers, anchor bolts, structural shapes for expansion joints and other similar items; for timber bumpers, forms, form lining and falsework or centering, bearing pads, structural steel bearing plates; and for equipment, tools, labor, materials and incidentals necessary to complete the work.

The Engineer will pay for the following pay item when included in the proposal schedule:

Pay Item	Pay Unit
Concrete for _____ (Class _____ if applicable)	Lump Sum

The Engineer will pay for excavation and backfill for foundations in accordance with and under Section 205 – Excavation and Backfill for Bridge and Retaining Structures and Section 206 – Excavation and Backfill for Drainage Facilities.”

END OF SECTION 503

1 Make the following section a part of the Standard Specifications:
2

3 **“SECTION 512 – MICROPILES**
4
5

6 **512.01 Description.** This section shall govern constructing micropiles to the
7 required locations, capacity and dimensions, in place complete, as indicated on the Plans
8 and as specified herein.
9

10 **(A) Definition.** Micropiles shall be defined as small diameter, high capacity
11 drilled and grouted piles. Each pile shall consist of cement grout-to-ground contact
12 area (bonded zone), inner steel reinforcement (central reinforcing bar),
13 centralizers, and cement grout that is tremied into the drill holes as the steel casing
14 are withdrawn and/or injected during post grouting. The micropiles shall be of
15 Type A or Type B classification as defined in FHWA-SA-97-070 (June 2000).
16

17 **(B) Design Requirements.**

18 **(1) General.** Micropiles shall have an ultimate capacity of at least 380
19 kips per pile.
20

21 **(2)** The bonded section of the micropile shall extend to the estimated tip
22 elevations indicated on the plans.
23

24 **(3)** The micropile shall satisfy or exceed the ultimate capacity of the
25 micropile.
26

27 **512.02 Materials.** Materials shall conform to the following:
28

29 **(A)** Portland cement shall conform to ASTM C150, Type I or Type II.
30

31 **(B)** Grout shall consist of pre-bagged neat cement (Portland cement and water)
32 non-shrink grout with silica fume admixture in conformance with ASTM C1107.
33 Grout shall achieve a minimum 8,000 psi compressive strength at 28-days in
34 accordance with ASTM C109. The grout shall contain suitable admixtures to
35 control bleeding, improve flowability, and reduce the potential for washout.
36

37 **(C)** Water shall be clean, fresh, potable, and free from injurious amounts of
38 mineral and organic substances.
39

40 **(D)** Central reinforcing steel shall be high strength threadbar conforming to
41 ASTM A722 (150 ksi) and shall be hot-dip zinc galvanized in accordance with
42 ASTM A123.
43

44 **(E)** Centralizers shall be a manufactured plastic assembly, sized for the hole
45 diameter, and intended for this application. Wood shall not be used. The
46 centralizer shall be able to support the reinforcing so the bar is centralized in the

47 hole, and a minimum of 1-½ inches of grout cover is provided and shall permit
48 grout to freely flow up the drill hole.

49
50 **(F)** Casings shall be ASTM A 500, Grade B, structural tubing, ASTM A53 Grade
51 B pipe, or API-5CT N80 casing pipe and shall be hot-dip zinc galvanized in
52 accordance with ASTM A123.

53
54 **512.03 Construction.**

55
56 **(A) Qualifications of Micropile Contractor.** The Micropile Contractor shall
57 have the following minimum experience.

58
59 **(1) Micropile Experience.** Because of the expertise required to successfully
60 complete the micropile according to contract, a qualified Micropile
61 Contractor shall install the micropiles. The Micropile Contractor shall have
62 installed permanent micropiles, mini-piles, or pin piles for at least five (5)
63 years with at least two projects having similar diameters and depths as the
64 current one.

65
66 **(B) Preconstruction Requirements.**

67
68 **(1) Protection of Existing Structures.** Verify locations of existing
69 underground utilities and structures prior to micropile work. If obstructions
70 are encountered in the drilling work, the Contractor shall stop operations in
71 such areas and immediately notify the Engineer.

72
73 **(2) Experience Information.** The Micropile Contractor shall submit the
74 following to the Engineer within 30 days after award of contract:

75
76 **(a)** List containing at least five (5) projects on which they have installed
77 micropiles, mini-piles, or pin piles. A description of each project including a
78 reference person who can verify the Micropile Contractor's participation on
79 the project. The references shall include the individual's name, current
80 phone number, and company name.

81
82 **(b)** Detailed narrative with his proposal describing the construction
83 means and methods to be used and all aspects of this work.

84
85 **(c)** List identifying the drill operators and on-site supervisors who will be
86 assigned to this project. The list shall contain a summary of each
87 individual's experience in sufficient detail that the Engineer could determine
88 if the individual has satisfied at least one year of experience in installing
89 micropiles, mini-piles, or pin piles and direct experience on at least two (2)
90 piling projects similar to the scope of work as this project.

92 The use of consultants and/or manufacturer's representatives does not
93 satisfy the above qualification requirements. Micropile work shall not start
94 nor shall materials be ordered until the Engineer has approved the
95 Contractor's qualifications.

96 The Engineer may suspend the micropile construction if the micropile
97 Contractor substitutes unqualified personnel for approved personnel during
98 construction. If work is suspended due to substitution of unqualified
99 personnel, the Contractor shall be fully liable for additional costs resulting
100 from the suspension of work and no adjustment in contract time resulting
101 for the suspension of work will be allowed.

102
103 **(3)** Prior to the start of the micropile construction, the Contractor shall submit
104 the following to the Engineer for review:

105
106 **(a)** Detailed plans showing their proposed installation method, which
107 includes drilling, reinforcement installation, and grout placement.

108
109 **(b)** Mill test reports of the piling steel components (reinforcement,
110 bearing plates, etc).

111
112 **(c)** Certificate of test reports of the piling steel components (casing).

113
114 **(d)** Proposed load test frame and associated equipment including
115 calibration data for each test jack, pressure gauge and load cell to be used.
116 The calibration tests shall be performed on the jack and pressure gauge as
117 a unit by an independent testing laboratory. Calibration tests of the load
118 cell and jack/pressure gauge unit shall be performed within 60 calendar
119 days of the static load testing.

120
121 **(e)** Proof test equipment including instrumentation and calibration data
122 for hydraulic jack, pump pressure gauge, and load cell to be used for the
123 proof testing. The calibration tests shall be performed on the jack and
124 pressure gauge as a unit by an independent testing laboratory. Perform
125 and submit calibration of jack and pressure gauge, and load cell within 180
126 calendar days of the proof testing.

127
128 **(C) Construction Details.**

129
130 **(1) Protection of Existing Structures.** The Contractor shall control his
131 operations to prevent damage to existing structures and utilities. Preventive
132 measures shall include, but are not limited to, selecting construction
133 methods and procedures that will reduce the amount of cave-ins, over-cuts,
134 and excessive grout losses, and monitoring and controlling the vibrations
135 from construction activities such as drilling or the driving of casing.

136
137 **(2) Construction Requirement.**

138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183

(a) General. The Contractor shall perform the micropile installations through whatever materials are encountered, to the locations, capacity, static load test and proof test requirements, and dimensions as shown in the plans or otherwise required by the specifications and SPECIAL PROVISIONS. The Contractor's methods and equipment shall be suitable for the intended purpose and material encountered.

During micropile installations, the Engineer will maintain the following information during micropile installation:

1. Drilling records and logs of the date of drilling, equipment used, driller's name, actual hole sizes and depths, subsurface materials encountered, drilling rates and any unusual conditions.
2. Grouting records indicating the grouting dates, cement type, quantity injected, and grout pressures at the point of injection, including any post grouting performed.
3. As-built drawings showing the micropile locations, elevations of top and bottom of steel casing and reinforcing steel, total pile length and bond length, and casing size.

Immediately report to the Engineer any unusual conditions encountered during the micropile construction.

(b) Drilling equipment. The drilling equipment for the micropiles may consist of rotary drilling, core drilling, percussion drilling, hollow stem auger drilling, or driven casing and shall be capable of drilling through hard basalt formation and other subsurface conditions as indicated on the boring logs. It shall have suitable drilling bit and other appropriate equipment to drill into the various subsurface materials anticipated at this site. The use of bentonite or drilling mud will not be allowed.

(c) Grouting equipment. Grout shall be produced with high-speed, high shear mixers. The grouting equipment shall be equipped with a pressure gauge to monitor grout pressures. An additional in-line pressure gauge shall be installed at the point of injection. Both pressure gauges shall be capable of measuring pressures of at least twice the actual grout pressures anticipated by the Contractor. The grouting equipment shall be capable of thoroughly mixing and producing a grout free of lumps and undispersed cement, and shall be able to pump the grout in a continuous operation.

(3) Soil Cuttings and Fluids. Suitable equipment and approved methods shall be used to contain and treat the soil cuttings and fluids from the drilling and

184 grouting to prevent environmental impacts to existing structures. The soil cuttings
185 and fluids from the drilling shall be disposed of by the Contractor.

186
187 **(4) Central Reinforcing Steel Placement.** The central reinforcing steel
188 consists of a single longitudinal bar within each micropile. Non-corrosive
189 centralizers shall be used for the reinforcing bars. The centralizer shall be placed
190 at spacings not exceeding 10 feet. In addition, the centralizer directly above the
191 bond zone shall be located within 5 feet of the top of the bond zone, and the lower
192 centralizer shall be located not more than one foot above the bottom of the
193 reinforcing bar.

194
195 Reinforcing steel shall only be spliced with mechanical couplers specifically
196 manufactured for splicing Grade 105 hot-dip galvanized bars and capable of
197 achieving the full ultimate strength of the bar. The coupler shall also be hot-dip
198 galvanized. Contractor to submit mechanical coupler data to the Engineer for
199 approval.

200
201 **(5) Grouting.** The grout in each micropile shall be placed by starting from the
202 deepest point in the drill hole and working upward. It shall be pumped through
203 grout tubes, pipes, or drill rods. The grout pressures and grout takes shall be
204 controlled to reduce the amount of ground heave and excessive grout takes.
205 Additional post grouting shall be performed as determined by the Contractor, to
206 obtain the required pile capacity. After completing the grouting, the grout tube or
207 pipe may remain in the hole, but it shall be filled with grout of equal or greater
208 strength than the grout used in the installations.

209
210 **(6) Grout Quality Control.** One set of grout specimens shall be taken for every
211 micropile installed. Each set shall consist of 6 cubes. Grout specimens shall be
212 cured under laboratory conditions. Cubes shall be tested in accordance with
213 ASTM C109. Strength tests shall be made for 3 cubes at 7 days and for 3 cubes
214 at 28 days. If the strength tests of one or more cubes of a set from a pile are at 10
215 percent or more below the required compressive strength required at 28 days, the
216 pile shall be abandoned and replaced by a pile placed adjacent to the abandoned
217 pile as directed by the Engineer at the Contractor's expense. All tests shall be
218 made by an independent testing laboratory approved by the Engineer and paid for
219 by the Contractor.

220
221 **(7) Construction Tolerance.** The following construction tolerances apply to
222 micropiles:

223
224 **(a)** The micropile shall be within two (2) inches of plan position in the
225 horizontal plane at the plan elevation for the top of the pile.

226
227 **(b)** The vertical alignment of the micropile shall not deviate from plumb
228 by more than one-quarter ($\frac{1}{4}$) of an inch per foot of depth. The alignment

229 of a battered micropile shall not vary by more than one-half (1/2) of an inch
230 per foot of depth from the prescribed batter.

231
232 **(c)** After grouting, the top of the central reinforcing steel shall be no more
233 than six (6) inches above and no more than three (3) inches below plan
234 position.

235
236 **(d)** The top elevation of the micropile shall have a tolerance of ± one-
237 half (1/2) inch from the plan top of pile elevation.

238
239 **(e)** The dimensions of casings are subject to American Pipe Institute
240 tolerances applicable to regular steel pipe.

241
242 **(f)** Micropiles not constructed within the required tolerances are
243 unacceptable. Submit correction plan of replacement micropiles to the
244 Engineer.

245
246 The approval of correction procedures is dependent on analysis of
247 the effect of the degree of misalignment, improper positioning, and/or
248 mis-location of the unacceptable micropile. Correction methods may be
249 approved as design analyses indicate. Redesign drawings and
250 computations shall be signed by a Structural Engineer licensed in the State
251 of Hawaii. Materials and work necessary, including engineering analysis
252 and redesign and construction, to effect corrections for unacceptable
253 micropiles shall be furnished at no cost to the State.

254
255 **(8) Pre-Production Micropiles and Load Tests.** Before the installation of the
256 production micropiles, one (1) vertical pre-production pile shall be installed at each
257 abutment (where micropiles will be installed) for a total of two (2) pre-production
258 piles using the equipment and methods proposed by the Contractor. The
259 Contractor shall load test both pre-production pile in tension to the ultimate load in
260 accordance with ASTM D 3689. The Contractor shall install additional reaction
261 piles or anchors for the load tests, and shall provide all necessary load test
262 equipment, hydraulic jack, pump, load cell, and instrumentation in accordance with
263 ASTM D 3689 Quick Load Test Method For Individual Piles. Design the loading
264 frame apparatus to ease the maximum load plus and adequate safety factor. The
265 Engineer will observe the load test and take readings of the instruments and
266 gauges during the load tests.

267
268 The maximum load in this test shall be maintained for at least 8 hours or until the
269 settlement is less than or equal to 0.01 inches per hour, but not less than 4 hours.
270 Deflection readings on the pile top shall be referenced to a constant elevation
271 benchmark sufficiently far away from the test. Allow 7 working days after
272 completing the last load test before the Engineer provides estimated bond lengths
273 for the production micropiles.

275 Do not perform the load test until the grout has cured for at least 7 days and
276 attained a minimum unconfined compressive strength of 4,000 psi.

277
278 After completing the test, cut off the pre-production micropile and reaction piles at
279 an elevation two feet below the finished ground surface. The portion of the
280 micropiles cut off and removed shall remain the property of the Contractor.

281
282 **(9) Revised Installation Procedure.** Should the pre-production load test piles
283 fail to produce acceptable test results, the Contractor shall modify his installation
284 procedures and install a replacement pile or piles and perform additional load tests
285 at his expense until results are obtained.

286 Contractor shall submit a revised installation procedure to the Engineer for review
287 and approval. Installation of the micropiles will not be permitted to continue until
288 the revised procedure is accepted by the Engineer.

289
290 **(10) Proof test two (2) production micropile per abutment location.** The
291 Engineer will observe the proof test (tension) and take records of the instruments
292 and gauges during the proof test. Perform the proof testing by incrementally
293 loading the micropile to be tested in accordance with the following loading
294 schedule:

295
296 Proof Test Schedule

297
298 0.05P
299 0.25P
300 0.50P
301 0.75P
302 1.00P

303
304 where P = maximum test load of 380 kips

305
306 Except at the maximum proof test load, increase the loads from one increment to
307 the next immediately after recording the micropile movement. Measure and record
308 the micropile movement at the top of the pile for each load increment to the nearest
309 0.001 inches with the respect to a constant elevation bench mark located
310 sufficiently far away from the pile being tested so as not to be affected by the test.
311 Monitor the load with a load cell. At each load increments, hold the load just long
312 enough to measure the micropile movement, but not more than one minute.

313
314 At the maximum proof test load, a creep test shall be conducted in a manner as
315 described herein. The creep test shall start as soon as the maximum test load is
316 applied. Hold the maximum test load for ten (10) minutes. Periodically pump the
317 jack as necessary to maintain a constant load. Start the load-holding period as
318 soon as the maximum test load has been applied and record the micropile
319 movements at 1, 2, 3, 4, 5, 6, 8, and 10 minutes.

320

321 If the micropile movements between the one minute and ten (10) minute readings
322 exceeds 0.04 inches, hold the maximum test load for an additional 50 minutes and
323 record micropile movements at 15, 20, 25, 30, 45 and 60 minutes.
324

325 Submit the results of micropile proof testing within two (2) workdays of the
326 completion of each test. Include a plot of micropile movements versus load with
327 the test data.
328

329 Proof testing of micropiles with ten (10) minute load-holding periods is acceptable
330 if the total movement measured between one minute and 10 minutes is less than
331 0.04 inches, and the total movement at the maximum test load exceeds 80 percent
332 of the theoretical elongation of the unbonded length of the pile being tested.
333

334 Proof testing of micropiles with sixty (60) minute load-holding periods is acceptable
335 if the creep rate does not exceed 0.08 inches per log cycle of time and the total
336 movement at the maximum test load exceeds 80 percent of the theoretical elastic
337 elongation of the unbonded length of the pile being tested.
338

339 If a micropile fails the proof testing, the Contractor shall modify his installation
340 procedures to provide micropiles with acceptable results. Any modifications to the
341 micropile design and construction will be at the Contractor's expense.
342

343 **512.04 Measurement.**
344

345 (A) Furnishing micropile drilling and grouting equipment will be paid on a lump
346 sum basis. Measurement will not apply.
347

348 (B) The Engineer will measure the load test per each successfully completed
349 and accepted.
350

351 (C) The Engineer will measure the micropile per linear foot complete in place
352 based on the design cutoff elevation and the authorized micropile tip elevation
353 installed.
354

355 (D) The Engineer will measure the proof test per each successfully completed
356 and accepted.
357

358 **512.05 Payment.**
359

360 (A) The Engineer will pay for furnishing micropile drilling and grouting
361 equipment. The price includes full compensation for furnishing and moving the
362 drilling equipment to the project; setting up at the locations; removing the
363 equipment to the project; setting the equipment up at the locations; removing the
364 equipment from the project; and furnishing labors, materials, tools, and incidentals
365 necessary to complete the work. The Engineer will pay for 60% of the amount bid
366 for this item when the micropile installation equipment is on the job site,

367 assembled, and ready to install micropiles. The Engineer will pay for the remaining
368 40% of the amount bid when the Contractor has installed and proof tested all the
369 required micropiles.
370

371 **(B)** The Engineer will pay for the accepted load tests at the contract unit price
372 per each. The price includes full compensation for installing the load test micropile
373 and reaction micropiles (as needed), costs related to the performance of the load
374 test, furnishing labor, materials, tools, equipment, and incidentals necessary to
375 complete the work.
376

377 **(C)** The Engineer will pay for the accepted micropile (bond and unbonded
378 length) at the contract unit price per linear foot for the diameter specified. The
379 price includes full compensation for furnishing, and installing the steel casing,
380 reinforcement bar, and grout within the bonded and unbonded length, furnishing
381 labor, materials, tools, equipment, and incidentals necessary to complete the work.
382

383 **(D)** The Engineer will pay for the accepted proof test per each. The price
384 includes full compensation for costs related to the performance of the proof test,
385 furnishing labor, materials, tools, equipment, and incidentals necessary to
386 complete the work.
387

388
389 The Engineer will make payment under:
390

391 Pay Item	392 Pay Unit
393 Furnishing Micropile Drilling and Grouting Equipment	394 Lump Sum
395 Load Test of Pre-Production Micropiles	396 Each
397 Production Micropiles	398 Linear Feet
399 Proof Test of Production Micropiles	400 Each”

401
402
403 **END OF SECTION 512**

1 Make the following Section a part of the Standard Specifications:
2

3 **“SECTION 577 – FIBER REINFORCED POLYMER SYSTEMS**
4

5 **577.01 Description.** The work includes the furnishing of all materials,
6 labor, tools, equipment, transportation, necessary storage, access, supervision,
7 submittals, and services for the supply, installation and finish of all structural
8 strengthening using externally bonded FRP composite systems.
9

10 **577.02 Materials.** Materials for the FRP systems shall be carbon fiber and
11 conform to ACI 440.2R, Guide for the Design and Construction of Externally
12 Bonded FRP Systems for Strengthening Concrete Structures and the AASHTO
13 Guide Specifications for Design of Bonded FRP Systems for Repair and
14 Strengthening of Concrete Bridge Elements. In addition, the materials shall
15 conform to the following minimum test properties:
16

17 **(A) Dry Fiber Properties**

- 18
19 (1) Tensile Strength – 580,000 psi
20
21 (2) Tensile Modulus – 33.4×10^6 psi
22
23 (3) Ultimate Elongation – 1.7%
24

25 **(B) Composite Gross Laminate Properties of one layer**

- 26
27 (1) Ultimate Tensile Strength – 143,000 psi ASTM D3039
28
29 (2) Tensile Modulus – 13.9×10^6 psi – ASTM D3039
30
31 (3) Elongation at Break – 1.0% - ASTM D3039
32
33 (4) Nominal Laminate Thickness – 0.04 in. or as otherwise
34 noted on the plans and in accordance with ASTM D1777
35

36 **(C) Anchor Properties**

- 37
38 (1) Ultimate Tensile Strength – 100,000 psi – ASTM D7205
39
40 (2) Tensile Modulus – 11.9×10^6 psi – ASTM D7205
41
42 (3) Ultimate Elongation – 0.8% - ASTM D7205
43
44 (4) Density – 0.025 lb/in³ (Weight per Inch Length)
45

46 **577.03 Construction.**

47
48 **(A) Submittals.**

- 49
50 (1) Manufacturer’s manual indicating product standards,
51 physical and chemical characteristics, technical specifications,

52 limitations, installation instructions, maintenance instructions and
53 general recommendations regarding each individual material.

54
55 **(2)** A list of no fewer than 10 successful installations and 5 years
56 of experience by the certified applicator's onsite supervisor and/or
57 foreman. The certified applicator shall have written consent from
58 the material manufacturer stating that they have been fully trained
59 and certified to install the proposed system. The certifications shall
60 be current (dated within one-year of the project schedule).

61
62 **(3)** Shop drawings detailing the type, locations, dimensions,
63 numbers of layers, and orientation of all FRP materials, fiber anchor
64 locations, embedment depths, diameter, and splay details, as well
65 as the coatings to be installed. Design shall follow criteria in the
66 latest ACI 440.2R and AASHTO Guide Specifications for Design of
67 Bonded FRP Systems for Repair and Strengthening of Concrete
68 Bridge Elements.

69
70 **(4)** Manufacturer's product data sheets indicating physical,
71 mechanical, and chemical characteristics of all materials used in
72 the FRP system. Include independent laboratory testing
73 substantiating the required ASTM D7565 and/or ASTM D3039
74 (ultimate and design tensile modulus, stress and strain).

75
76 **(5)** FRP system shall be compliant with testing requirements per
77 ICC AC125 and provide a current ICC Evaluation Service Report,
78 compliant with the latest locally adopted International Building Code
79 (IBC). The submitted Evaluation Service Report shall cover the type
80 of element to be strengthened (i.e. columns, beams) and the type
81 of strengthening required (i.e. shear, flexure, axial), including
82 seismic loading.

83
84 **(6)** Independent laboratory testing verifying the submitted fiber
85 anchor design properties. A minimum of 20 specimens of each
86 anchor type (i.e. GFRP or CFRP) shall be submitted.

87
88 **(7)** Manufacturer's Material Safety Data Sheets (MSDS) for all
89 materials to be used.

90
91 **(8)** Certification by the manufacturer that supplied products
92 comply with local regulations controlling use of volatile organic
93 compounds (VOC's).

94
95 **(9)** Submit durability test results for physical and mechanical
96 properties as outlined in the AASHTO Guide Specifications for
97 Design of Bonded FRP Systems for Repair, Section C2.2.4.4 with
98 the exception of the Freeze-Thaw testing as well as certification
99 that the durability tests conform to ACI 440.2R.

100
101 **(10)** Submit paint manufacturer's paint product data information
102 with specified paint color and gloss level.

103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153

(11) Submit work access platform design and calculations.

(12) Polymer-modified repair material for patching concrete defects at locations that will received FRP strengthening and at hole locations installed for work access platform.

(B) Surface Preparation.

(1) "Contact Critical" Applications:

(a) The surface to receive the composite shall be free from fins, sharp edges and protrusions that will cause voids behind the installed FRP system or that, in the opinion of the Engineer will damage the fibers. Existing uneven surfaces to receive composite shall be filled with the system epoxy filler or other material approved by the Engineer. The contact surfaces shall have no free moisture on them at the time of application. If moisture is present, use the manufacturer suggested wet prime epoxy, if available.

(b) Repair all damaged concrete, spalls, and irregular surfaces to create a flat, or slightly convex, surface. Fill surfaces with thickened epoxy to eliminate air surface voids greater than 0.5 inch diameter.

(c) Round off sharp and chamfered corners to a minimum radius of 0.75 inch or as otherwise noted on the plans by means of grinding or forming with the system's thickened epoxy. Variations in the radius along the vertical edge shall not exceed 0.5 inch for each 12 inch of the members length.

(2) "Bond-Critical" Applications:

(a) Surface preparation shall be in accordance with recommendations of ACI 546R and ICRI 03730 by means of abrasive blasting or grinding to remove existing laitance and expose the aggregate.

(b) Surfaces to receive FRP composite shall be prepared to a minimum ICRI CSP-3 concrete surface profile.

(c) Round off sharp and chamfered edges/corners (to be wrapped around) and pre-drilled anchor holes (where required) to a minimum radius of 0.75" by means of grinding or forming with the system's thickened epoxy. Variations in the radius along the edge shall not exceed 0.5 inch for each 12 inch of the members length.

(d) Pressure inject any cracks larger than 0.010 inch wide with epoxy.

154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204

(e) All substrates shall be clean, sound, and free of surface moisture. Remove dust, laitance, grease, curing compounds, waxes, impregnations, foreign particles, and other bond inhibiting materials from the surface. All contact surfaces shall then be cleaned by hand or with compressed air within 24 hours of receiving FRP application.

(3) Contractor shall prepare a min. 2'-0" x 2'-0" sample area of concrete to the roughness and cleanliness requirements of the specification and plans for review and acceptance by the Engineer prior to commencing with application of the FRP.

(C) **Installation.** Construction of the FRP system shall conform to the latest version of ACI 440.2R and AASHTO Guide Specifications for Design of Bonded FRP Systems for Repair. A representative of the FRP system manufacturer shall initially and periodically observe and monitor all aspects of surface preparation, mixing, and application of materials.

(1) Prepare the epoxy matrix by combining components at a weight (or volume) ratio specified by the manufacturer. The components of epoxy resin shall be mixed with a mechanical mixer until uniformly mixed, typically 5 minutes at 400-600 revolutions per minute.

(2) Saturation of the carbon fiber fabric shall be performed and monitored according to the manufacturer's specified fiber-epoxy resin ratio. Fabric shall be completely saturated prior to application to contact surface in order to ensure complete impregnation. Saturation shall be supervised and checked by the certified installer. Both the epoxy resin and fabric shall be measured accurately, combined, and applied uniformly at the rates shown on the approved working drawings and per manufacturer's recommendations.

(3) After preparing surfaces, use a roller or trowel to apply one prime coat of epoxy resin to the substrate (2 mil min.). Allow primer to become tacky to the touch.

(4) Fill any uneven surfaces or recesses with thickened epoxy.

(5) Apply saturated fabric to substrate surface by hand lay-up, using methods that produce a uniform, constant tensile force that is distributed across the entire width of the fabric, and ensure proper orientation of the fabric. Under certain application conditions, the system may be placed entirely by hand methods assuring a uniform, even final appearance. Gaps between composite bands may not exceed 0.5 inch width in the fabric's transverse joint unless otherwise noted on project drawings. A lap length of at least 6 inches per ply

205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255

is required at all necessary overlaps in the primary fiber direction of the fabric.

- (6) Orient fabric as designated by the designer. Fabric alignment shall not exceed 3 degrees misalignment from planned alignment.
- (7) Apply subsequent layers, continuously or spliced, until designed number of layers is achieved, per shop drawings.
- (8) Use a roller or hand pressure to release or roll out entrapped air, and ensure that each individual layer is firmly embedded and adhered to the preceding layer or substrate.
- (9) Detail all fabric edges, including termination points and edges, with thickened epoxy.
- (10) Feather all edges and seams. Finish, as specified below, between 24 and 72 hours after final application of epoxy. If finish is provided beyond 72 hours of the application of the epoxy, the surface must be roughened by hand sanding or brush blasting, prior to finishing. The finish shall be in accordance with subsection 577.03(G) - Finishing.
- (11) Protect the FRP system from environment contamination, disturbance and damage during application and curing of the system
- (12) Ambient and substrate temperature shall be between 40° F to 100° F during installation.
- (13) **Installation Instructions for FRP Drill and Epoxy Anchors:**
 - (a) Drill holes for FRP anchors to the depth and diameter as specified on the plans using a hammer drill with an appropriately sized carbide drill bit.
 - (b) Remove concrete dust by inserting a blow pipe nozzle to the bottom of the hole and blowing oil-free and water-free compressed air at a minimum of 90 psi and for a minimum of 4 seconds while rotating and withdrawing the nozzle simultaneously. Repeat this step for a total of 2 cycles.
 - (c) Clean the walls of the hole with an appropriately sized steel wire brush. Brush should provide resistance when inserted. Insert brush to the bottom of the hole and withdraw while slightly rotating. Repeat this step for a total of 2 cycles.
 - (d) Repeat blowing operation by reinserting a blow pipe nozzle to the bottom of the hole and blowing oil-free and

256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305

water-free compressed air at a minimum of 90 psi and for a minimum of 4 seconds while rotating and withdrawing the nozzle simultaneously. Repeat this step for a total of 2 cycles.

(e) Fill the hole 1/2 to 2/3 full with an injectable anchoring epoxy as provided by the FRP manufacturer. Begin injecting the epoxy from the bottom of the hole to prevent air pockets. Withdraw the injection nozzle as the hole fills up. For horizontal or overhead applications, an adhesive retaining cap shall be used.

(f) Insert FRP anchor into the epoxy filled hole. Rotate anchor 180 degrees as the anchor is pushed to the bottom of the hole. Do not disturb until the epoxy is fully cured.

(D) Inspection and Testing

(1) Monitor and record the mixing of all epoxy components for proper ratio and adherence to manufacturer's recommendations, batch numbers for fabric and epoxy used each day, and note locations of installation. Measure square footage of fabric and volume of epoxy used each day. Submit report to the Engineer.

(2) Direct tension adhesion testing shall be conducted using the method described by ASTM D7522 and/or ASTM D4541. A minimum of two tests shall be performed for each day's work area or for every 500 square feet of surface area to be covered by the FRP application, whichever is smaller. Pull-off tests shall be performed on a representative adjacent area to the area being strengthened whenever possible. Tests shall be performed on each type of substrate or for each surface preparation technique used.

(3) The epoxy bonded to the prepared surface shall be allowed to cure as per manufacturer's requirements before execution of the direct tension pull-off test. The locations of the pull-off tests shall be representative and on flat surfaces. If no adjacent areas exist, the tests shall be conducted on areas of the installed FRP system subjected to relatively low stress during service.

(4) The minimum acceptable value for any pull-off test is 175 pounds per square inch. The average of the tests shall not be less than 200 pounds per square inch. Additional tests may be performed to qualify the work at each identified area. Each pull-off test is to exhibit a failure mode in the substrate and not the epoxy-to-substrate bond plane.

- 306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
- (5) ASTM D7522-D4541 testing is only required for “Bond-Critical” applications of the FRP system (i.e. bond of FRP-to-concrete is critical to strengthening performance of the system)
 - (6) Prepare a minimum of one “sample batch” daily consisting of two 12 inch by 12 inch samples of cured composite. Each sample of the “sample batch” will be taken at appropriate times during the day as to ensure the maximum material deviance in the components of the FRP composite.
 - (7) Prepare sample on a smooth, flat, level, surface covered with polyethylene sheeting, or 16 mil plastic film, prime with epoxy resin. Then place one layer of saturated fabric and apply additional topping of epoxy. Cover with plastic film and squeegee out all bubbles. Samples shall be stored in a sample box and not moved for a minimum 48 hours after casting. The prepared, identified samples shall be given to a pre-approved and experienced independent testing laboratory approved by the Engineer. The laboratory shall then precondition samples for 48 hours at 140° F before testing.
 - (8) A minimum of fifteen-percent of all 12-inch-by-12-inch sample panels shall be tested by the laboratory approved by the Engineer. Testing specimens shall be cut from samples and tested for ultimate tensile strength, tensile modulus and percentage elongation as per ASTM D7565 and/or ASTM D3039 in the longitudinal fiber direction. Tensile and all other material properties must meet or exceed FRP composite system properties as required by structural calculations. If one coupon does not achieve the design properties, additional coupons from the same sample shall be tested. If these coupons fail (on average), coupons from the other 12-inch-by-12-inch sample, from the same batch for that day, shall be tested. If all tested samples of the sample batch do not meet the conditions of acceptance, 25 percent of all samples shall be tested. Testing results shall be submitted to the Engineer not later than three weeks after testing.
 - (9) FRP design values must be lower than the calculated mean determined from the test results received from the ASTM D7565 and/or ASTM D3039 field test specimens. Acceptable minimum values for ultimate tensile strength, tensile modulus, and elongation shall not be below the submitted design values unless calculations are performed using the tested values that exhibit an acceptable capacity as per the original design demands and concept. Small voids and bubbles on the order of 3 inch diameter and voids and delaminations on the order of 6 inches in diameter or an

357 area of 5 inch x 5 inch shall require remediation prior to
358 acceptance by the Engineer.
359

360 **(E) Repair of Defective Concrete.** Contractor shall submit a repair
361 plan which gives the locations and types of defective work. The plan shall
362 propose repair procedures and materials for each type of work. The plan
363 will be accepted by the Engineer prior to commencing with repair works.
364 Repairs shall meet accepted industry standards for each type of defect
365 and equal or exceed the values of the designed strengthening.
366

367 **(F) Installation of Work Access Platform.** The contractor is
368 responsible for providing a work access platform that is appropriate for the
369 work being performed. The work access platform shall be designed with
370 containment devices to catch all fugitive material that is generated during
371 the surface preparation and FRP application processes so that it does not
372 fall into the surrounding environment below. Dead loads, live loads, and
373 member capacities for the work access platform shall comply with an
374 appropriate nationally recognized design code or guide specification as
375 well as the loading requirements contained in Standard Specification
376 503.03 Subsection (B) – Falsework, Formwork, or Centering but shall not
377 be designed for less than the anticipated loads needed for the platform.
378 Holes drilled into the existing concrete members shall have the inserts and
379 hardware completely removed and patched with a polymer-modified repair
380 mortar approved by the Engineer.
381

382 **(G) Finishing.** FRP surface shall be finished with a high build epoxy
383 primer and mid-coat and an aliphatic polyurethane topcoat. Prior to
384 painting, FRP shall be cleaned and prepared according to manufacturer's
385 recommendations. Acceptable coatings shall be as follows or as otherwise
386 approved by the Engineer:
387

388	Primer:	TYFO PWC (epoxy coating) @ 5 mils DFT
389	Mid Coat:	TYFO PWC (epoxy coating) @ 5 mils DFT
390	Initial Top Coat:	TYFO U (aliphatic polyurethane) @ 3-5 mils DFT
391	Final Top Coat:	TYFO U (aliphatic polyurethane) @ 3-5 mils DFT

392

393 No field thinning of the paint will be allowed.
394

395 Color of the top Coat shall be Concrete Grey. Sheen of the top coat shall
396 be flat or satin.
397

398 Submit material data sheets for all finishing work to the Engineer for
399 review and acceptance prior to ordering of materials. Contractor shall
400 provide a finish test section of a minimum 6 square feet for acceptance by
401 the Engineer. Redo test section until accepted by Engineer. Production
402 finish shall closely match test section.
403

404 **577.04 Measurement.**
405

406 (A) **Installation of Work Access Platform.** Installation of work access
407 platform will be paid on a lump sum basis. Measurement for
408 payment will not apply.

409 (B) **Externally Bonded Carbon Fiber Reinforced Polymer (CFRP)**
410 **Composite System.** The Engineer will measure externally bonded
411 CFRP composite system per square feet. Quantity is calculated
412 based on the area of CFRP required for coverage, multiplied by the
413 number of layers required, as appropriate.

414 (C) **Carbon Fiber Reinforced Polymer Anchors.** The Engineer will
415 measure carbon fiber reinforced polymer anchors per each.

416 (D) **Finish for CFRP System.** Finish for CFRP system will be paid on a
417 lump sum basis. Measurement for payment will not apply.

418
419 **577.05 Payment.**

420
421 (A) **Installation of Work Access Platform.** The Engineer will pay for
422 accepted installation of work access platform on a contract lump
423 sum basis. Payment will be full compensation for work prescribed in
424 this section and contract documents.

425 (B) **Externally Bonded Carbon Fiber Reinforced Polymer (CFRP)**
426 **Composite System.** The Engineer will pay for accepted externally
427 bonded CFRP composite system at the contract unit price per
428 square feet. Payment will be full compensation for work prescribed
429 in this section and contract documents.

430 (C) **Carbon Fiber Reinforced Polymer Anchors.** The Engineer will
431 pay for accepted carbon fiber reinforced polymer anchors at the
432 contract unit price per each. Payment will be full compensation for
433 work prescribed in this section and contract documents.

434 (D) **Finish for CFRP System.** The Engineer will pay for accepted finish
435 for CFRP system on a contract lump sum basis. Payment will be
436 full compensation for work prescribed in this section and contract
437 documents.

438
439 The Engineer will pay for each of the following pay items when
440 included in the proposal schedule:

441	Pay Item	Pay Unit
442		
443		
444	Installation of Work Access Platform	Lump Sum
445	Externally Bonded Carbon Fiber Reinforced Polymer (CFRP)	Square Feet
446	Composite System	
447	Carbon Fiber Reinforced Polymer Anchors	Each
448	Finish for CFRP System	Lump Sum"
449		

450
451

END OF SECTION 577

1
2 **DIVISION 600 - MISCELLANEOUS CONSTRUCTION**
3

4 Amend **Section 601 - STRUCTURAL CONCRETE** to read as follows:
5

6 **“SECTION 601 - STRUCTURAL CONCRETE**
7

8 **601.01 Description.** This section describes structural concrete consisting of
9 Portland Cement, fine aggregate, coarse aggregate, and water. It may also include
10 adding admixtures for the purpose of entraining air, retarding, or accelerating set,
11 tinting, and other purposes as required or permitted. All concrete designs for
12 structural concrete to be placed on HDOT Highway projects must use technology to
13 reduce the embodied carbon footprint of concrete used in the highway infrastructure.
14 e.g., carbon dioxide mineralization or equivalent technology such as C-S-H
15 nanoparticle-based strength-enhancing admixture (CSH-SEA), or technology or
16 material that allows the reduction in the size of the carbon footprint of the mix, e.g.,
17 strength improving admixtures, supplementary cementitious materials (SCMs), or
18 blended hydraulic cements such as Portland-limestone cement, or other Engineer
19 accepted methods that can reduce the embodied carbon footprint of the concrete.
20

21 **601.02 Materials.**

22		
23	Portland Cement	701.01
24		
25	Fine Aggregate for Concrete	703.01
26		
27	Coarse Aggregate for Portland Cement Concrete	703.02
28		
29	Admixtures	711.03
30		
31	Water	712.01
32		

33 Use coarse aggregate for lightweight concrete conforming to ASTM C330
34 except Sections 5, 7 and 9.
35

36 **601.03 Construction.**
37

38 **(A) Quality Control.** Portland Cement concrete production requires
39 Contractor responsibility for quality control of materials during handling,
40 blending, mixing, curing, and placement operations.
41

42 Sample, test, and inspect concrete to ensure quality control of
43 component materials and concrete. Sampling and testing for quality control in
44 accordance with standard methods shall be performed by certified ACI
45 Concrete Field Technician Grade I. Perform quality control tests for slump, air
46 content, temperature, and unit weight during production of structural concrete

47 other than concrete for incidental construction. Submit quality control test
48 results.

49
50 **(B) Design and Designation of Concrete.** Design concrete mixture for
51 concrete work specified. Submit mix design using State Highways Division
52 form DOT 4-151 or an Engineer accepted equivalent form. Do not start work
53 until the Engineer accepts mix design. The Engineer will accept concrete mix
54 design using information given in Table 601.03-1 - Design of Concrete, and
55 other pertinent requirements.

56
57 Whenever 28-day compressive strength, f'_c , is 4,000 psi or greater,
58 designate concrete by required minimum 28-day compressive strength.

59
60 The 28-day compressive strength, f'_c , less than 4,000 psi listed in Table
61 601.03-1 – Design of Concrete, is for design information and designation of
62 class only.

63
64 Proportion concrete designated by compressive strength such that
65 concrete conforms to required strength.

66
67 Design concrete placed in bridge decks and pavements exposed to
68 traffic wear, with air content of 3 percent, including entrapped and entrained
69 air. Maintain air content for plastic concrete within tolerance of 1 percent air
70 content, plus or minus, during the work.

71
72 Use concrete Type SBD where specified in the plans with special
73 requirements as listed below:

74
75 **(a)** A shrinkage reducing admixture (SRA), Master Life SRA35 by
76 BASF or Eclipse by W.R. Grace & Co., or approved equal shall be
77 added to the concrete. The minimum dosage requirement shall be 128
78 ounces per cubic yard of concrete.

79
80 **(b)** A migrating, corrosion-inhibiting, amine-carboxylate, water-based
81 admixture shall be added to the concrete. The minimum dosage shall
82 be 24 ounces per cubic yards of concrete.

83
84 **(c)** The concrete shall have a maximum water to cement ratio of
85 0.40. The weight of the SRA shall be included in the total water when
86 computing the water to cement ratio. The maximum amount of water
87 shall be 268 pounds per cubic yard.

88
89 **(d)** The 28 day compressive strength of the concrete shall be not
90 less than 6,000 psi.

91
92 **(e)** The concrete shall contain 15 pounds of alkali resistant structural

glass fiber such as CEMFIL ANTI-CRAK HP67/36 or approved equal per cubic yard.

(f) The concrete shall have a maximum shrinkage strain of .00006 at 28 days and .000145 at 56 days according to ASTM C512.

(g) The final concrete mix design shall be based on field trial batches to determine the most suitable materials and proportions that will provide a concrete mixture having the least amount of segregation and bleeding, and at the same time provide the necessary workability to meet placing requirements

Type SBD concrete shall utilize CO₂ Mineralization technology, Supplementary cementitious materials (SCMs), CSH-SEA, or equivalent as stated in this section.

Class A concrete shall be used when type of concrete is not indicated in the contract documents.

Design concrete as specified in Table 601.03-1 – Design of Concrete.

TABLE 601.03-1 - DESIGN OF CONCRETE (800 Maximum Cement Content lbs./c.y.)					
Class of Concrete	28-Day Strength f'_c, psi.	Minimum Cement Content lbs./c.y.	Maximum Water-Cement Ratio, lb./lb.	Minimum Cement Content with Mineralized CO₂ lbs./c.y.	Maximum Water-Cement Ratio with Mineralized CO₂ lb./lb.
A	3000	532	0.59	504	0.62
B	2500	475	0.66	450	0.70
C	2000	418	0.75	396	0.79
D	1500	380	0.85	360	0.87
SEAL	3000	610	0.55	NA	NA
Designated by Strength f' _c or *f' _r	As Specified	610	0.49	NA	NA
*f' _r = Specified Modulus of Rupture					

Concrete Design – Projects on Oahu will utilize CO₂ Mineralization technology or equivalent. Supplementary cementitious materials (SCMs), CSH-SEA or equivalent or combination thereof the previously mentioned methods may also be used. Concrete design shall allow a reduction of

119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144

portland cement content while maintaining the concrete design strength, durability and other requirements. See Table 601.03-1 Design of Concrete specified limits for adjusted minimum cement content and water cement ratio when using CO₂ mineralization. Material certifications for the above shall include a list of at least 3 projects that used the technology, SCMs, admixtures or combination thereof.

Use the absolute volume method to proportion concrete materials in accordance with requirements of concrete designated by class, cement content in pounds per cubic yards, or specified 28-day compressive strength. Use absolute volumetric proportioning methods as outlined in the American Concrete Institute (ACI) Standard 211.1, "Recommended Practices for Selecting Proportions for Normal and Heavyweight Concrete."

Use coarse aggregate size No. 57 (one inch to No. 4) or No. 67 (3/4 inch to No. 4) for concrete. For concrete placed in bottom slabs and stems of box girders, use No. 67 size aggregate. Smaller size aggregates may be permitted when encountering limited space between forms and reinforcement or between reinforcement when accepted by the Engineer in writing. Maximum aggregate size shall not be greater than 1/3 of the space between reinforcing steel bars or reinforcing steel and the form.

Use the following standard methods in Table 601.03-2 – Standard Methods for determining compliance with requirements indicated in this subsection:

TABLE 601.03-2 – STANDARD METHODS	
Sampling Fresh Mixed Concrete	AASHTO T 141
Mass Per Cubic Meter (Cubic Foot) Yield and Air Content (Gravimetric) of Concrete	AASHTO T 121
Slump of Hydraulic Cement Concrete	AASHTO T 119
Air Content of Freshly Mixed Concrete by the Pressure Method	AASHTO T 152
Specific Gravity and Absorption of Fine Aggregate	AASHTO T 84
Specific Gravity and Absorption of Coarse Aggregate	AASHTO T 85
Temperature of Freshly Mixed Portland Cement Concrete	ASTM C1064
Making and Curing Concrete Test Specimens in the Field	AASHTO T 23

Compressive Strength of Molded Concrete Cylindrical Specimens	AASHTO T 22 (4 inch by 8 inch or 6 inch by 12 inch cylinders)
Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)	AASHTO T 97

When concrete is designated by compressive strength, f'_c , or flexural strength, f'_r , or includes CO₂ Mineralization technology, CSH-SEA or SCMs, the Engineer will require prequalification of materials and mix proportions proposed for use before placing such concrete. The Engineer will prequalify concrete based on past performance records using statistical computations of population sizes and (n-1) weighting, or trial batch test reports in compliance with computed minimum average strength for material and mix proportions. The Engineer will determine minimum average strength on probability of not more than one in 20 tests falling below specified strength for the following conditions:

(1) When past performance records are available, furnish the following documented performance records:

(a) Minimum of 15 consecutive 28-day strength tests from projects having same materials and mix proportions.

(b) Two groups totaling 30 or more test results representing similar materials in which mix proportion strengths are within 20 percent of specified strength, from data obtained within one year of proposed use.

The Engineer will analyze performance records to establish standard deviation.

(2) When sufficient past performance records are not provided, the Engineer will assume current standard deviation to be 500 psi for compressive strength, f'_c , and 50 psi for flexural strength, f'_r .

Unless sufficient performance records are available from other projects at DOT Materials Testing and Research Branch, submit test performance records or trial test reports for prequalifications, based on data of most recent tests made on concrete of proposed mix design, and data obtained within one year of proposed use.

When shrinkage reducing admixtures are used, submit test results showing compliance to the Contract Documents' requirements.

Include the following information in test data and trial batch test reports:

185 date of mixing; mixing equipment and procedures used; size of batch in cubic
186 yards and weight, type, and source of ingredients used; slump of concrete; air
187 content of concrete when using air entraining agent; age at time of testing; and
188 strength of concrete cylinders tested.

189
190 Show that concrete strength tests equal or exceed minimum average
191 strength in trial test reports. Test is average 28-day test results of five
192 consecutive concrete cylinders or concrete beams taken from single batch. No
193 cylinder or beam shall have strength less than 85 percent of minimum average
194 strength.

195
196 Submit test data and trial test reports signed by official of firm that
197 performed tests.

198
199 The Engineer reserves the right to stop work when a series of low
200 strength tests occur. Do not continue concrete work until cause is established
201 and the Engineer is informed of and accepts, necessary corrective action to be
202 taken.

203
204 **(C) Batching.** Measure and batch materials in accordance with the
205 following provisions:

206
207 **(1) Portland Cement.** Either sacked or bulk cement may be used.
208 Do not use fraction of sack of cement in concrete batch unless cement
209 is weighed.

210
211 Weigh bulk cement on weighing device accepted by the Engineer. Seal
212 and vent bulk cement-weighing hopper properly to preclude dusting
213 during operation. Do not suspend discharge chute from weighing
214 hopper. Arrange discharge chute so that cement will not lodge in
215 hopper or leak from hopper.

216
217 Batching accuracy shall be within 1 percent, plus or minus, of
218 required weight.

219
220 **(2) Water.** Measure water by volume or by weight. Use readily
221 adjustable device for measurement of water, with accuracy within 1
222 percent, plus or minus, of quantity of water required for batch. Arrange
223 device so that variable pressure in water supply line does not affect
224 measurements. Equip measuring tanks with outside taps and valves or
225 other accepted means to allow for checking calibration.

226
227 **(3) Aggregates.** When storing and stockpiling aggregates, avoid
228 separation of coarse and fine particles within each size, and do not
229 intermix various sizes before proportioning. Protect stored or stockpiled
230 aggregates from dust or other foreign matter. Do not stockpile together,

231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276

aggregates from different sources and of different gradations. When transporting aggregates from stockpiles or other sources to batching plant, ensure uniform grading of material is maintained. Do not use aggregates that have become segregated or mixed with earth or foreign matter. Stockpile or bin aggregates at least 12 hours before batching. Produce or handle aggregates by hydraulic methods and wash and drain aggregates. If aggregates exhibit high or non-uniform moisture content, the Engineer will order storage or stockpiling for more than 12 hours.

Proportion aggregates by weight, with the exception that aggregates in concrete for minor structures, curbs, and sidewalks may be proportioned by either volume or weight. For volumetric proportioning, use measuring boxes of known capacity to measure quantity of each aggregate size.

Use batch weight based on dry materials plus total weight of moisture (both absorbed and surface) contained in aggregate. Measure individual aggregates to within 2 percent, plus or minus, of required weight, and total weight of aggregates to within 1 percent, plus or minus, of required weight.

(4) Admixtures. All admixtures shall be compatible with each other. Admixtures which significantly increase the drying shrinkage or creep in the concrete may be rejected by the Engineer. Store, proportion, and dispense admixtures in accordance with the following provisions:

(a) Liquid Admixtures. Dispense chemical admixtures, air entraining admixtures, and corrosion inhibiting admixtures in liquid form. Use mechanical dispensers for liquid admixtures with sufficient capacity to measure prescribed quantity for each batch of concrete. Include graduated measuring unit in each dispenser to measure liquid admixtures to within 5 percent, plus or minus, of prescribed quantity for each batch. Read graduations accurately from point of measuring unit, and control proportioning operations to permit visual check of batch accuracy before discharging. Mark each measuring unit clearly for type and quantity of admixture.

Arrange with supplier to provide sampling device consisting of valve located in safe and accessible location for sampling admixtures.

When using more than one liquid admixture for concrete mix, use separate measuring unit for each liquid admixture and dispense separately to avoid interaction that may interfere with

277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322

admixture efficiency and adversely affect concrete. Dispense liquid admixture by injecting so as not to mix admixture at high concentrations.

When using liquid admixtures in concrete that is completely mixed in paving or continuous mixers, operate dispensers automatically with batching control equipment. Equip such dispensers with automatic warning system that shall provide visible or audible signals at points where proportioning operations are controlled, when the following occurs:

- a. Quantity of admixture measured for each batch of concrete varies from pre-selected dosage by more than 5 percent; or
- b. Entire contents of measuring unit from dispenser is not emptied into each batch of concrete.

Unless liquid admixtures are added to batch with pre-measured water, discharge liquid admixtures into stream of water that disperses admixtures uniformly throughout batch. An exception is that air-entraining admixtures may be dispensed directly into moist sand in batching bins, provided adequate control of concrete air content can be maintained.

Measure and disperse special admixtures, as recommended by admixture manufacturer, and as accepted by the Engineer. Special admixtures include high-range water reducers requiring dosages greater than capacity of conventional dispensing equipment. For site-added, high-range water reducers, use calibrated, portable dispenser supplied by manufacturer.

(b) Mineral Admixtures. Protect mineral admixtures from exposure to moisture until used. Pile sacked material of each shipment to permit access for tally, inspection, and identification.

Provide adequate facilities to ensure that mineral admixtures meeting specified requirements are kept separate from other mineral admixtures and that only specified mineral admixtures are allowed to enter into the work. Provide safe and suitable facilities for sampling mineral admixtures at weigh hopper or in feed line immediately in advance of hopper.

Incorporate mineral admixtures into concrete using equipment conforming requirements for Portland Cement weigh hoppers and charging and discharging mechanisms specified in

323 ASTM C94 and Subsection 601.03(C) - Batching.
324

325 When concrete is completely mixed in stationary paving
326 or continuous mixers, weigh mineral admixture in separate
327 weigh hopper. Introduce mineral admixture and cement
328 simultaneously into mixer, proportionately with aggregate.
329

330 When interlocks are required for cement-charging
331 mechanisms, and cement and mineral admixtures are weighed
332 cumulatively, interlock their charging mechanisms to prevent
333 introduction of mineral admixture until mass of cement in weigh
334 hopper is within tolerances specified in Subsection 601.03(C)(1)
335 - Portland Cement.
336

337 In determining maximum quantity of free water that may
338 be used in concrete, consider mineral admixture and
339 supplementary cementitious materials (SCMs) to be cement.
340

341 **(5) Bins and Scales.** At batching plant, use individual bins,
342 hoppers, and scale for each aggregate size. Include separate bin,
343 hopper, and scale for bulk cement and fly ash.
344

345 Except when proportioning bulk cement for pavement or
346 structures, cement weigh hopper may be attached to separate scale for
347 individual weighing or to aggregate scale for cumulative weighing. If
348 cement is weighed cumulatively, weigh cement before other
349 ingredients.
350

351 When proportioning for pavement or structures, keep bulk
352 cement scale and weigh hopper separate and distinct from aggregate
353 weighing equipment.
354

355 Use springless-dial or beam-type batching scales. When using
356 beam-type scales, make provisions to show operator that required load
357 in weighing hopper is approaching. Use devices that show condition
358 within last 200 pounds of load and within 50 pounds of overload.
359

360 Maintain scale accuracy to 0.5 percent throughout range of use.
361 Design poises to lock to prevent unauthorized change of position. Use
362 scales inspected by the State Measurement Standards Branch of the
363 Department of Agriculture to ensure their continued accuracy. Provide
364 not less than ten 50-pound weights for testing scales.
365

366 Batching plants may be equipped to proportion aggregates and
367 bulk cement by automatic weighing devices.
368

369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414

(6) Batching and Hauling. When mixing is to be performed at work site, transport aggregates from batching plant to mixer in batch boxes, vehicle bodies, or other containers of adequate capacity and construction. Use partitions to separate batches and prevent spilling from one compartment to another while in transit or during dumping.

Transport bulk cement to mixer in tight compartments carrying full quantity of cement required for batch. Once cement is placed in contact with aggregates, batches shall be mixed and placed within 1-1/2 hours of contact. Cement in original shipping packages may be transported on top of aggregates. Ensure that each batch contains number of sacks required by job mix.

Deliver batches to mixer intact. Charge each batch into mixer without loss of cement. When carrying more than one batch on truck, charge batch into mixer without spilling material from one batch compartment into another.

(D) Mixing. Mix concrete in mechanically operated mixers.

Use stationary or truck mixers that distribute materials thoroughly and produce concrete uniform in color and appearance. When there is variation in mixed concrete attributable to worn pickup or throw-over blades, the Engineer will inspect mixer. If inspection reveals that blades are worn more than one inch below original height of manufacturer's design, repair or replace blades. Upon request, make copy of manufacturer's design, showing dimensions and arrangement of blades.

Charge batches into central or truck mixers so that portion of mixing water enters ahead of cement and aggregates. Deliver uniform flow of water. Place entire amount of batch water in mixer by end of first quarter of mixing period. When mixers with multiple compartment drums are used, time required to transfer material between compartments will be included as mixing time. Use drum rotation speed as designated by manufacturer. If mixing does not produce concrete of uniform and smooth texture, provide additional revolutions at same speed until thorough mixing of each concrete batch is attained. Begin measuring mixing time from time cement, aggregates, and 60 percent of water are in drum. Do not exceed manufacturer's rated capacity for volume of concrete mixed in each batch.

Equip central or truck mixers with attachment for automatically timing mixing of each concrete batch. Timing device shall include automatic feature for locking discharge chute and device for warning operator when required mixing duration has been met. If timing or locking device fails to operate, immediately furnish clock or watch that indicates seconds, to mixer operator. If timing device is not repaired within three days after becoming inoperative, shut

415 down batching operation until timing device is repaired.

416

417

418

419

420

421

422

423

424

425

426

427

428

429

430

431

432

433

434

435

436

For stationary mixers, use mixing time between 50 seconds and 5 minutes. Select mixing time, as necessary, to produce concrete that meets uniformity criteria when tested in accordance with Section 11.3.3 of ASTM C94. The Contractor may designate mixing time for which uniformity tests are to be performed, provided mixing time is not less than 50 seconds or more than 5 minutes. Before using concrete for pavements or structures, mix concrete to meet specified uniformity requirements. The Contractor shall furnish labor, sampling equipment, and materials required for conducting uniformity tests of concrete mixture. The Engineer will furnish required testing equipment, including scales, cubic measure, and air meter; and will perform tests. The Engineer will not pay separately for labor, equipment, materials, or testing, but will consider the costs incidental to concrete. After batching and mixing operational procedures are established, the Engineer will not allow changes in procedures without the Contractor re-establishing procedures by conducting uniformity tests. Repeat mixer performance tests whenever appearance of concrete or coarse aggregate content of samples is not conforming to requirements of ASTM C94. For truck mixers, add four seconds to specified mixing time if timing starts as soon as skip reaches its maximum raised position.

437

438

439

440

441

442

443

Unless otherwise indicated in the contract documents or accepted by the Engineer, concrete shall be mixed at proportioning plant. Operate mixer at agitating speed while in transit. Concrete may be truck-mixed only when cement or cement and mixing water are added at point of delivery. Begin mixing truck-mixed concrete immediately after introduction of mixing water to cement and aggregates, or introduction of cement to aggregates.

444

445

446

447

448

449

Inclined-axis, revolving drum truck mixers shall conform to Truck Mixer, Agitator and Front Discharge Concrete Carrier Standards TMMB 100-01, 15th Revision, published by Truck Mixer Manufacturers Bureau. Truck mixers shall produce thoroughly mixed and uniform mass of concrete and shall discharge concrete without segregation.

450

451

452

453

454

455

Manufacturer's standard metal rating plate shall be attached to each truck mixer, stating maximum rating capacity in terms of volume of mixed concrete for various uses and maximum and minimum mixing speeds. When using truck mixers for mixing, adhere to maximum capacity shown on metal rating plate for volume of concrete in each batch.

456

457

458

459

460

Operate truck mixers at mixing speed designated by manufacturer, but at not less than 6 or more than 18 revolutions per minute. Mix truck-mixed concrete initially between 70 and 100 revolutions at manufacturer-designated mixing speed, after ingredients, including water, are in mixer. Water may be added to mixture not more than two times after initial mixing is completed.

461 Each time that water is added, turn drum an additional 30 revolutions or more
462 at mixing speed until concrete is mixed uniformly.

463
464 When furnishing shrink-mixed concrete, transfer partially mixed
465 concrete at central plant to truck mixer. Apply requirements for truck-mixed
466 concrete. The Engineer will not credit number of revolutions at mixing speed
467 for partial mixing in central plant.

468
469 When accepted by the Engineer, hand mixing may be allowed. The
470 entire concrete placement at one location shall not exceed 1/3 cubic yard. It
471 shall be hand mixed on a watertight, level platform. Use no aluminum to
472 construct platform. Measure proper amount of coarse aggregate in measuring
473 boxes and spread on platform. Spread fine aggregate on that coarse
474 aggregate layer. Limit coarse and fine aggregate layers to total depth of one
475 foot. Spread dry cement on this mixture. Turn whole mass not less than two
476 times dry. Add sufficient clean water, distributed evenly. Turn whole mass
477 again, not less than three times, not including placing in carriers or forms.

478
479 **(E) Transporting Mixed Concrete.** Transport central-mixed concrete to
480 delivery point in truck agitators or truck mixers operating at speed designated
481 by equipment manufacturer as agitating speed; or in non-agitating hauling
482 equipment, provided consistency and workability of mixed concrete upon
483 discharge at delivery point is suitable for placement and consolidation in place;
484 and provided mixed concrete after hauling to delivery point conforms to
485 uniformity criteria when tested as specified in ASTM C94.

486
487 For revolving drum truck mixers transporting central-mixed concrete,
488 limit concrete volume to manufacturer's rated capacity for agitator operation.
489 Maintain agitating speed for both revolving drum mixers and revolving blade
490 type agitators as designated on manufacturer's data plate. Equip truck mixers
491 or truck agitators with electrically or mechanically actuated counters. Actuate
492 counters after introducing cement to aggregates.

493
494 Bodies of non-agitating hauling equipment shall be smooth, watertight,
495 metal containers equipped with gates to permit control of concrete discharge.
496 Protect open-topped haul vehicle against weather with cover accepted by the
497 Engineer.

498
499 When hauling concrete in non-agitating trucks, complete discharge
500 within 30 minutes after introducing mixing water to cement and aggregates.
501

502 When truck mixer or agitator is used for transporting central-mixed
503 concrete to delivery point, complete discharge within 1-1/2 hours, or before
504 250 revolutions of drum or blades, whichever comes first after introduction of
505 mixing water to cement and aggregates, or cement to aggregates. For truck-
506 mixed concrete, complete concrete discharge within 1-1/2 hours, or before 300
507 revolutions of drum or blades, whichever comes first. These limitations are
508 permitted to waived if concrete is of such slump after the 1-1/2 hour time or
509 300-revolution limit has been reached, that it can be placed, without addition of
510 water to the batch.

511
512 Submit delivery tickets from manufacturers of truck-mixed concrete and
513 central-mixed concrete with each truckload of concrete before unloading at
514 jobsite. Printed, stamped, or written delivery ticket shall include the following
515 information:

- 516
517 (1) Name of concrete plants.
- 518
519 (2) Serial number of ticket.
- 520
521 (3) Date and truck number.
- 522
523 (4) Name of Contractor.
- 524
525 (5) Specific project, route, or designation of job (name and location),
526 and truck overweight permit number when required.
- 527
528 (6) Specific class or designation of concrete in accordance with
529 contract documents.
- 530
531 (7) Quantity of concrete in cubic yards.
- 532
533 (8) Time of loading batch or mixing of cement and aggregates.
- 534
535 (9) Water added by receiver of concrete and receiver's initials.
- 536
537 (10) Information necessary to calculate total mixing water added by
538 producer. Total mixing water includes free water on aggregates, water,
539 and water added by truck operator from mixer tank.
- 540
541 (11) Readings of non-resettable revolution counters of truck mixers
542 after introduction of cement to aggregates, or introduction of mixing
543 water to cement aggregates.
- 544
545 (12) Supplier's mix number or code.
- 546

547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564

Furnish additional information designated by the Engineer and required by job specifications upon request.

(F) Consistency. Regulate quantity of water used in concrete mixes so that concrete consistency, as determined by AASHTO T 119 test method, is within nominal slump range specified in Table 601.03-3 - Slump for Concrete or as stated on the accepted concrete mix design. If concrete slump exceeds nominal slump, adjust mixture of subsequent batches. If slump exceeds maximum slump, the Engineer will reject concrete unless deemed satisfactory for its use.

The Engineer will also reject harsh or unworkable concrete that cannot be properly placed. Remove rejected concrete at no increase in contract price or contract time.

Slump for concrete shall be as specified in Table 601.03-3 – Slump for Concrete.

TABLE 601.03-3 - SLUMP FOR CONCRETE		
Type of Work	Nominal Slump Inches	Maximum Slump Inches
Concrete Pavements	0 – 3	3-1/2
Reinforced Concrete Structures: Sections Over 12 Inches	0 – 4	5
Sections 12 Inches Thick or Less	2 – 5	6
Non-Reinforced Concrete Facilities	1 – 3	4
Concrete Placed Underwater	6 – 8	9
Bridge Decks	4 – 6	7

565
566
567
568
569
570
571
572
573
574
575
576
577
578
579

If the slump of the ready mix concrete upon delivery is below the design slump, water may be added provided:

- (1)** Water shall not be added to the concrete if more than ¼ cubic of concrete has been discharged from the mixer.
- (2)** Water may be added only up to 30 minutes after the average travel time to the jobsite.
- (3)** The maximum slump, the maximum water/cement ratio, and the maximum water per cubic yard shall not be exceeded.
- (4)** Not more than 1 ½ gallons of water per cubic yard shall be added to the concrete, but not more than the amount of “held-back”

580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610

water.

(5) The amount of “held-back” water from the approved mix design shall be shown on the delivery ticket.

In adverse or difficult conditions that may affect placement of concrete, the above slump limitations may be exceeded for placement workability, with the addition of admixture conforming to Subsection 711.03 - Admixtures, if accepted by the Engineer in writing and provided water-cement ratio is maintained. Provide additional cement and water, or admixture at no increase in contract price or contract time.

(G) Forms. Construct forms in accordance with applicable sections.

(H) Placing Concrete. Place concrete in accordance with applicable sections.

(I) Finishing Concrete Surfaces. Finish concrete surfaces in accordance with applicable sections.

(J) Curing Concrete. Cure concrete in accordance with applicable sections.

601.04 Measurement. The Engineer will measure concrete in accordance with the applicable sections.

601.05 Payment. The Engineer will pay for the accepted concrete under the applicable sections.”

END OF SECTION 601

27 **(IV)** Amend **Subsection 602.03(E)(3) Butt-Joined Splices** by replacing the
28 last sentence of the first paragraph between lines 262 and 263 with the following
29 sentence:

30
31 “Completed butt splices shall develop not less than the specified tensile
32 strength of the unspliced bars.”

33
34 **(V)** Amend **Subsection 602.03(E)(3)(b) 1. General** by deleting the words “of
35 125 percent of specified yield strength” in subparagraph d. at lines 443 and 444.

36
37 **(VI)** Amend **Subsection 602.04 Measurement** by deleting the last paragraph
38 and Table 602.04-1 – Bar Designation, Weight, and Area between lines 806 and
39 809.

40
41
42
43
44
45
46

END OF SECTION 602

SECTION 606 – GUARDRAIL

Make the following amendment to said Section:

(I) Amend **606.04 - Measurement** by replacing lines 116 to 118 to read:

“606.04 Measurement. The Engineer will measure guardrail per linear foot in accordance with the contract documents.

The Engineer will measure from center to center of end posts. If the Contractor makes end connections to masonry or steel structures, the Engineer will measure to the face of such structures.”

(II) Amend **606.05 – Payment** by revising lines 120 to 138 to read as follows:

“606.05 Payment. The Engineer will pay for the accepted pay items listed below at contract price per linear foot, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	Pay Unit
Reset Guardrail	Linear Foot”

END OF SECTION 606

1 **SECTION 607 – CHAIN LINK FENCES AND GATES**

2
3 Make the following amendment to said Section:

4
5 **(I) Amend 607.04 - Measurement** by replacing lines 105 to 106 to read:

6
7 **“607.04 Measurement.** The Engineer will not measure fence when contracted
8 on a lump sum basis.”

9
10
11 **(II) Amend 607.05 – Payment** by revising lines 108 to 115 to read as follows:

12
13 **“607.05 Payment.** The Engineer will pay for the accepted quantities of
14 fence complete in place at the contract lump sum price for the pay items listed
15 below and contained in the proposal.

16
17 The contract lump sum amount paid shall be full compensation for the
18 fence; for removing and replacing to match the existing condition; and for
19 equipment, tools, labor, materials and incidentals necessary to complete the
20 work.

21
22 The Engineer will pay for following pay items when included in proposal
23 schedule:

24

Pay Item	Pay Unit
_____ - Feet, Chain Link Fence	Lump Sum”

25
26
27
28
29
30

31 **END OF SECTION 607**

SECTION 611 — HAND-LAID RIPRAP

Make the following amendments to said Section:

(I) Amend **611.02 - Materials** line 8 to read as follows:

"Geotextiles for Stabilization Applications 716.06"

(II) Amend **611.04 - Measurement** lines 28 to 29 to read as follows:

"611.04 Measurement. The Engineer will measure hand-laid riprap per cubic yard in accordance with the contract documents."

(III) Amend **611.05 - Payment** lines 31 to 43 to read as follows:

"611.05 Payment. The Engineer will pay for the accepted pay item listed below at contract price per pay unit, as shown in the proposal schedule.

Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for the following pay item when included in the proposal schedule:

Pay Item	Pay Unit
Hand-Laid Riprap	Cubic Yard
<p>(1) 40% of the contract unit price upon completion of excavating to the required depth and preparing the foundation bed.</p>	
<p>(2) 20% of the contract unit price upon completion of installing geotextile fabric.</p>	
<p>(3) 40% of the contract unit price upon completion of placing and distributing stones and removing and replacing displaced or damaged geotextile fabric damaged during riprap placement."</p>	

END OF SECTION 611

1 Amend Section 628 – Shotcrete to read as follows:

2
3 **“SECTION 628 – SHOTCRETE**

4
5 **628.01 Description.** This work includes furnishing all materials and labor
6 required for placing and securing geocomposite drainage material, weep holes,
7 reinforcing steel, Welded-Wire Reinforcing, and all layers of shotcrete for the
8 construction of the soil nail wall as shown on the plans. The work also includes any
9 preparatory trimming and cleaning of soil/rock surfaces, taping of geocomposite
10 drain strips, tooling of control joints, and surface prep of shotcrete cold joints to
11 receive new shotcrete. Shotcrete work shall conform to all requirements of the
12 latest ACI 506.2 specification published by ACI, except as modified by these
13 contract documents.

14
15 **628.02 Materials.**

16		
17	Structural Concrete	601
18		
19	Reinforcing Steel	602
20		
21	Portland Cement	701.01
22		
23	Welded Wire Fabric Reinforcement	709.01(C)
24		
25	Admixtures	711.03
26		
27	Water	712.01
28		

29 Use fine aggregate conforming to Subsection 703.01 – Fine Aggregate for
30 Concrete, except maximum percentage for material passing the No. 100 sieve
31 shall be 15 percent. Use fine aggregate with minimum sand equivalent of 60.

32
33 Concrete mix shall contain coarse aggregate. Sand only mixes will not be
34 allowed.

35
36 If admixtures are proposed, submit type, quantity, and manner of admixture
37 incorporation.

38
39 Materials shall be delivered, stored and handled to prevent contamination,
40 segregation, corrosion or damage. Store liquid admixtures to prevent evaporation
41 and freezing.

42
43 Geocomposite drain strips shall be a chimney drain composed of a dimpled
44 polymeric perforated core fully wrapped in a nonwoven geotextile such as
45 American Wick Drain Sitedrain C-184 or approved equal. Geocomposite drain
46 strips shall be provided in 24” wide rolls wrapped with a protective covering and

47 stored in a manner that protects the fabric from mud, dirt, dust, debris, and
48 shotcrete rebound. Protective wrapping shall not be removed until immediately
49 before the geotextile or drain strip is installed. Extended exposure to ultra-violet
50 light shall be avoided. Each roll of geotextile or drain strip in the shipment shall be
51 labeled to identify the production run.

52

53 At the base of every chimney drain, the Contractor shall install a
54 manufactured Geo Outlet, provided by the same manufacturer as the chimney
55 drain, and solvent weld the Geo Outlet to the PVC drain pipe (weep hole). The
56 Contractor shall not attempt to connect the chimney drain directly to the weep hole.

57

58 PVC drain pipe (weep hole) shall be ASTM D1785 Schedule 40, solid wall,
59 cell classification 12454-B or 12354-C, wall thickness SDR 35, with solvent welded
60 joints.

61

62 **628.03 Construction Requirements**

63

64 **(A) Construction Submittals. No shotcreting shall be performed**
65 **until the following submittals and requirements are accepted by the**
66 **Engineer:**

67

68 The shotcrete contractor shall be capable of performing the work
69 specified herein. The qualifications of the shotcrete Contractor shall
70 conform to the minimum experience requirements below.

71

72 Full documentation of the construction crew, including resumes of
73 lead personnel (superintendent), lists of specific personnel to be used, and
74 details of each listed person's experience and abilities to perform all phases
75 of construction under this work to the Engineer's satisfaction. The assigned
76 project on-site supervisor's resume shall show a minimum of three (3) years'
77 experience on the management of project crews of no less than five (5)
78 persons, as well as experience in coordination with other trades in the
79 completion of shotcrete projects.

80

81 The workers handling the nozzle employed for the work shall be
82 competent operators with at least two years of experience in this type of
83 work. The person handling the nozzle may be an apprentice with at least 6
84 months of experience. The foreman in charge shall have at least two years
85 of experience handling the nozzle.

86 The State reserves the right to reject non-qualified subcontractor,
87 based on review qualification submittals and, at their opinion, review of past
88 work and references.

89

90 At least 30 days before the planned start of shotcrete placement,
91 submit 8 copies of the following information, in writing, to the Engineer for
92 review and acceptance:

93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138

- (1)** Written documentation of the shotcrete contractor's qualifications. Written documentation of the nozzlemen's qualifications, including proof of ACI certification.
- (2)** Proposed methods of shotcrete placement and of controlling and maintaining facing alignment and location and shotcrete thickness.
- (3)** Shotcrete mix design including:
- (a)** Type of Portland cement.
 - (b)** Aggregate source and gradation.
 - (c)** Proportion of mix by weight and water-cement ratio.
 - (d)** MSDS data sheets.
 - (e)** Proposed admixtures, manufacturer, dosage, and technical literature.
 - (f)** Previous strength test results for the proposed shotcrete mix, tested in accordance with ASTM C1604 and C39, and conducted within one year of the start of production shotcreting. These results, if accepted by the Engineer may be utilized for initial verification of the required compressive strengths at start of production work, in lieu of producing the preconstruction unreinforced material test panels. Reinforced test panels for grading the nozzleman shall still apply.
- (4)** Curing compound technical product data sheet (PDS) and safety data sheet (SDS).
- (5)** Certificates of Compliance, Manufacturers' engineering data and installation instructions for the geocomposite drain strip, outlet connection, and accessories.
- (6)** Equipment list, including but not limited to: Air compressor, concrete pump, hoses, nozzle, blowpipe, etc.
- (7)** A written statement of independent site evaluation.
- (8)** Preconstruction Material Test Panels. Required unless previous strength test results for proposed shotcrete mix are submitted and found acceptable by the Engineer.

139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184

(9) Preconstruction Nozzleman Qualification Panels.

(10) Preconstruction Aesthetic Sample Panels. Required for higher degrees of shotcrete finish work. Applicable when an aesthetic sculpted shotcrete finish is specified as part of the contract documents.

(B) General. The Contractor shall utilize the wet mix process of shotcreting as follows:

(1) Wet Mix Process.

(a) Provide good quality, thoroughly mixed, concrete in accordance with the contract documents and these specifications. Slump shall be appropriate for the work being performed.

(b) Introduce the concrete into the chamber of the delivery pump equipment.

(c) Meter the concrete into the delivery hose and convey the concrete by compressed air or other means to a nozzle.

(d) Inject additional air at the nozzle to increase the velocity and improve the gunning pattern.

(e) Jet the concrete from the nozzle at high velocity onto the surface that the nozzleman will shotcrete.

(C) Equipment. Submit the equipment that will be used on the project for acceptance by the Engineer. Operate the equipment according to the manufacturer's recommendations. Submit the manufacturer's specifications and operating instructions for acceptance by the Engineer.

(1) Wet Mix Process. The wet mix delivery equipment shall be of a design and size that has produced good results in similar work. The wet mix process shall have the capacity to deliver the pre-mixed concrete accurately, uniformly and continuously through the delivery hose. The material delivery through the nozzle shall be non-pulsating and non-surging. Follow the manufacturer's recommendations as to:

(a) the type and size of nozzle. (Do no cut or make modifications to manufactured nozzle),

(b) cleaning the equipment,

185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230

- (c) inspecting the equipment and
- (d) maintaining the equipment.

Deliver a continuous, conical shaped, smooth stream of uniformly mixed material at the proper velocity to the discharge nozzle. Distortion of this stream or nonuniform appearance shall be cause to stop the work until the Contractor has corrected the situation.

Maintain a supply of clean oil-free air adequate for providing sufficient nozzle velocity for parts of the work and for the simultaneous operation of a blow pipe for cleaning away rebound.

Provide air compressor capable of performing to the job requirements and wet-mix equipment manufacturer’s recommendations. Concrete construction practices shall conform to this section and Section 503 – Concrete Structures.

(D) Preproduction Testing. The Contractor shall furnish, test, and submit results of testing to the Engineer for all required test panels prior to start of construction work.

(1) Preconstruction Material Test Panels: Preconstruction material test panels shall be used to substantiate the material properties of each shotcrete mix. The Contractor shall furnish an unreinforced test panel in accordance with ASTM C1140, except that the dimensions of the test panel shall be at least 24 by 24 inches square with the same thickness as in the structure, but not less than 8 inches thick. Construct test panels for each proposed shotcrete mixture and cure surface of shotcrete using approved curing compound that will be used for production shotcrete work. Extract, prepare ends, and moisture condition drilled cores in accordance with ASTM C1604. Diameter of drilled cores shall be no less than 3". Conduct density testing of cores in accordance with ASTM C642. Conduct compressive strength tests in accordance with ASTM C39. Testing shall be performed by the Contractor’s testing agency. Agency shall be approved by the Engineer prior to starting the work.

(2) Preconstruction Nozzleman Qualification Panels: Preconstruction qualification panels shall be used to determine whether the nozzleman has the basic skills to properly place shotcrete and achieve sufficient encasement of reinforcement. The Contractor shall furnish a reinforced test panel in accordance with ASTM C1140, except that the dimensions of the test panel shall be at least 36 by 36 inches square with the same thickness as in the

231 structure, but not less than 8 inches thick. Test panel shall contain
232 reinforcing steel with the same size and spacing as will be anticipated
233 in the production work, but shall not be less than #5 reinforcing steel
234 @ 4" o.c. placed on each face and oriented each way. Construct test
235 panels for each proposed nozzleman and each anticipated shooting
236 orientation. Shotcrete shall receive the same finish as is required for
237 the production work. If a sculpted finish is specified, preconstruction
238 visual mockup panels of a higher quality sculpted finish is required.
239 Extract cores in accordance with ASTM C1604. Diameter of drilled
240 cores shall be no less than 3.75" and shall be the full thickness of the
241 panel. The Engineer will grade cores as specified in Subsection
242 628.03(E)(1) – Shotcrete Core Grades.
243

244 **(3) Preconstruction Aesthetic Sample Panels (If Required):**

245 Preconstruction aesthetic sample panels shall be used as a means
246 for the Contractor to produce a sample of the high quality colored
247 and hand sculpted finish, if specified in the contract documents. The
248 test panel shall represent the appearance and color of the final
249 shotcrete to be used in production and as required by Subsections
250 628.03(L) Finishing and 628.03(M) Color. The test panel shall
251 additionally incorporate a vertical control joint feature carved into the
252 shotcrete face. The aesthetic sample panel shall be subject to review
253 and approval. The Engineer shall have the sole discretion in
254 determining the acceptance of the aesthetic sample panel and
255 whether it meets the requirements of the contract documents. When
256 approved, the aesthetic sample panel shall be used as a reference
257 benchmark for acceptance and approval of the finish work on all
258 production shotcrete work.
259

260 The degree of encasement of reinforcement, severity of defects
261 within the shotcrete test panels, and compressive strength will be evaluated
262 by the Engineer.
263

264 The mean compressive strength of a set of three cores shall equal
265 or exceed $0.85f'_c$ with no individual core less than $0.75f'_c$.
266

267 If any of the initial test panels are rejected, a second test panel may
268 be shot and tested for each rejected panel. If the second test panel is
269 accepted, work may proceed. If the second test panel is not accepted, the
270 Contractor shall change procedures, mixture proportions, nozzlemen, or
271 shotcrete equipment as necessary before retesting the test panels.
272

273 Only nozzle operators with test panel mean core grade less than or
274 equal to 2.5 will be qualified to place production shotcrete. Require nozzle
275 operator to shoot second test panel if first test panel is rejected. If nozzle

276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321

operator's second mean core grade is greater than 2.5, they shall not be permitted to shoot on the project.

(E) Qualification Testing Guidelines.

(1) Shotcrete Core Grades.

(a) Grade 1. Shotcrete specimens are solid; there are no laminations, sandy areas or voids. Small air voids with maximum diameter or 1/8 inch and maximum length of 1/4 inch are normal and acceptable. Sand pockets or voids behind continuous reinforcing steel are unacceptable. The surface against the form or bond plane shall be sound, without sandy texture or voids.

(b) Grade 2. Shotcrete specimens shall have no more than two laminations or sandy areas with dimensions not to exceed 1/8 inch thick by 1 inch long. The height, width, and depth of voids shall not exceed 3/8 inch. Porous areas behind reinforcing steel shall not exceed 1/2 inch in any direction except along length of reinforcing steel. The surface against the form or bond plane shall be sound, without sandy texture or voids.

(c) Grade 3. Shotcrete specimens shall have no more than two laminations or sandy areas with dimensions exceeding 3/16 inch thick by 1-1/4 inches long, or one major void, sand pocket, or lamination containing loosely bonded sand not to exceed 5/8 inch thick and 1-1/4 inches in width. The surface against the form or bond plane may be sandy, with voids containing overspray to a depth of 1/16 inch.

(d) Grade 4. Core shall meet, in general, requirements of Grade 3 cores, but may have two major flaws such as described for Grade 3, or may have one flaw with maximum dimension of 1 inch perpendicular to the face of the core, with maximum width of 1-1/2 inches. The end of the core that was shot against the form may be sandy, with voids containing overspray to a depth of 1/8 inch.

(e) Grade 5. Core that does not meet criteria of core grades 1 through 4, by being of poorer quality, shall be classified as Grade 5.

(f) Determine grade by computing the mean of a

322 minimum of three test specimens. Accept mean grade of 2.5
323 or less. Reject individual shotcrete cores with grade of greater
324 than 3.

325
326 **(g)** The above core grades are based on cores with
327 surface area of 50 square inches. For cores with greater or
328 lesser area than 50 square inches, adjust allowable flaws
329 relative to 50 square inches.

330
331 **(F) Production Testing:** During production shotcrete work, The
332 Contractor shall produce one unreinforced material test panel for each
333 workday or every 50 cubic yards placed, whichever is less. The test panel
334 shall be constructed and tested in accordance with Subsection 628.03(C)(1)
335 – Wet Mix Process. The dimensions of the test panel shall be at least 24 by
336 24 inches square with the same thickness as in the structure, but not less
337 than 8 inches thick. Install test panels at a location that is near the worksite
338 and that won't be damaged by the ongoing construction operations. Material
339 test panels shall be cured using the same methods that is stipulated for
340 production shotcrete work. Extract, prepare ends, and moisture condition
341 drilled cores in accordance with ASTM C1604. Diameter of drilled cores
342 shall be no less than 3". Conduct density testing of cores in accordance with
343 ASTM C642. Conduct compressive strength tests in accordance with ASTM
344 C39.

345
346 When required by the Engineer, the Contractor shall provide
347 additional test panels during construction.

348
349 The Engineer reserves the right to require core testing of any in-place
350 shotcrete if it is believed that a portion of the production shotcrete was
351 placed with questionable procedures or if the material is believed to have
352 inconsistencies. The cost of coring, testing, and any subsequent required
353 repairs, shall be borne by the Contractor if the testing results substantiate
354 the presence of defects. The cost of coring and performing tests with no
355 defects shall be borne by the State. The corrective method plan shall restore
356 the defective shotcrete to a condition equal or better than that of the
357 shotcrete with no defects.

358
359 **(G) Alignment Control.** Surfaces that the Contractor will shotcrete shall
360 conform to the dimensions shown in the contract or ordered by the
361 Engineer. Install adequate ground wires or approved equal as guides to
362 establish the thickness and surfaces of the shotcrete build-up. The wires
363 shall be taut and true to line at all times during the operation.

364
365 **(H) Surface Preparation.** Avoid loosening, cracking, or shattering the
366 ground during excavation and cleaning. Remove any surface material
367 which is so loosened or damaged to a sufficient depth to provide a base

368 that is suitable to receive the shotcrete. Clean the face of the soil excavation
369 or previously shot shotcrete surfaces of loose materials, mud, rebound,
370 overspray or other foreign matter that could prevent or reduce shotcrete
371 bond. Dampen soil surfaces immediately prior to shooting. No standing
372 water shall be visible. Bring shotcrete surfaces to a Saturated Surface Dry
373 (SSD) condition prior to subsequent shotcrete application.
374

375 The surface of the reinforcement shall be free of overspray or other
376 deleterious materials that inhibit development of bond with the shotcrete.
377 Reinforcement laps shall be noncontact and shall be separated with a
378 clearance of at least three times the diameter of the largest reinforcing bar;
379 three times the maximum size aggregate; or 2 inches, whichever is least,
380 unless otherwise specified. The use of contact lap splices necessary for
381 support of the reinforcing is permitted when approved by the Engineer. All
382 surfaces to receive shotcrete shall be saturated surface dry prior to
383 construction. Protect adjacent surfaces from overspray during shooting.
384

385 Remove material that loosens as the shotcrete is applied. Cost of
386 additional shotcrete is incidental to the work. Divert water flow and remove
387 standing water so that the shotcrete placement will not be detrimentally
388 affected by standing water.
389

390 **(I) Application.** Contractor shall provide sufficient lighting and
391 ventilation to provide the shotcrete crew with a clear view of the shooting
392 area. A working surface shall be utilized that permits nozzle men
393 unobstructed access to the receiving surface. Place shotcrete first in
394 corners, recesses, and other areas where rebound or overspray cannot
395 easily escape. Apply the shotcrete from the lower part of the area upwards
396 to prevent accumulation of rebound. Orient nozzle at a distance and
397 approximately perpendicular to the working face so that rebound will be
398 minimal and compaction will be maximized. Pay special attention to
399 encapsulating reinforcement. Care shall be taken while encasing
400 reinforcing steel and mesh to keep the front face of the reinforcement clean
401 during shooting operations, so that shotcrete builds up from behind, to
402 encase the reinforcement and prevent voids and sand pockets from
403 forming.
404

405 Apply shotcrete using a circular or elliptical motion of the nozzle while
406 building the required thickness. Use sufficient material velocity, material
407 consistency, and distance from the end of the nozzle to the receiving
408 surface to produce maximum consolidation of the shotcrete and full
409 encapsulation of the reinforcing steel.
410

411 Where there is potential for accumulated rebound or overspray
412 material to be incorporated into the work at congested areas of steel
413 reinforcement, embedded obstructions, corners, and recesses, use a

414 compressed air blow pipe to remove loose material from the work.
415 Shotcrete crew shall continuously remove accumulations of rebound and
416 overspray using a compressed air blowpipe, or other suitable device, in
417 advance of deposition of new shotcrete.

418
419 If high winds prevent the person handling the nozzle from making
420 proper application of the mortar or if rain occurs causing washing out of the
421 cement or sloughing of the mortar, the Engineer will suspend gunning.

422
423 Do not reuse rebound or overspray in the work.

424
425 When applying more than one layer of shotcrete, use a cutting rod,
426 brush with a stiff bristle, or other suitable equipment to remove all loose
427 material, overspray, laitance, or other material that may compromise the
428 bond of the subsequent layer of shotcrete. Conduct removal immediately
429 after shotcrete reaches initial set. Allow shotcrete to stiffen sufficiently
430 before applying subsequent layers. If shotcrete has reached final set and
431 hardened, clean the surface of shotcrete and rebar of all loose material,
432 laitance, overspray, or other material that may compromise the bond of
433 subsequent layers. Bring the surface to a saturated surface-dry (SSD)
434 condition at the time of application of the next layer of shotcrete.

435
436 **(J) Hot Weather Shotcreting.** Unless otherwise specified do not place
437 shotcrete when shotcrete temperature is above 95°F. Construction
438 practices shall follow ACI 305R-10 Guide to Hot Weather Concreting.

439
440 **(K) Construction Joints.** Form construction joints by tapering to a thin
441 edge over a distance of about 12 inches, unless otherwise specified. Clean
442 the construction joint thoroughly and wet the construction joint (SSD) before
443 the subsequent application of shotcrete.

444
445 **(L) Finishing.**

446
447 **(1) Initial Shotcrete Layer:** As-shot natural gun finish.

448
449 **(2) Final Shotcrete Layer:** Rod and Steel trowel finish.

450
451 Following the final application of shotcrete, use a level to cut grooves
452 at the proper depths along the height of the wall. Cut/Rod and scratch the
453 remaining surface using a cutting rod or trowel until the correct line and
454 grades are reached across the entire surface. The scratched surface should
455 produce a flat and straight open face surface free of undulations and waves.
456 Using the flat edge of a steel trowel, obtain a smooth surface by dragging
457 the trowel in a circular motion and at a slight angle to push the coarse
458 aggregate into the face of the shotcrete. Continue troweling until the entire
459 surface is free of voids and is smooth.

460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504

Rodding and troweling shall be done in a manner and timed properly such that it will not disturb the freshly placed shotcrete, create cracks, reduce internal cohesion, or break bond between the shotcrete and the reinforcement or shotcrete and the underlying material. Do not add water to the surface of the shotcrete to aid in finishing. Round all exposed edges with an edging tool.

(M) Color. The shotcrete shall be natural concrete gray.

(N) Curing. Any layer of shotcrete that will achieve final set shall be cured using Sinak Lithium Cure 1000, or approved equal immediately following the finishing operation. Curing compound shall be applied at a dosage rate as recommended by the manufacturer.

If surface is to be left as a gun finish, apply twice the rate of curing compound as is specified for a smooth troweled surface or as recommended by the manufacturer.

(O) Evaluation of In-Place Shotcrete. Remove and replace shotcrete that is delaminate, exhibits laminations, voids, or sand pockets exceeding limits for specified grade of shotcrete. Remove and replace shotcrete that does not comply with specified material properties. Repair material and procedures shall be submitted to the Engineer for approval prior to starting any repair work.

Repair any core holes in accordance with ACI 301 Chapter 9. Do not fill holes by shooting. Repair/Backfill material shall be approved by Engineer.

(P) Acceptance. The Engineer will accept shotcrete work that meets requirements of the contract documents. The Engineer will accept shotcrete work that has previously failed to meet one or more requirements, but which has been repaired to meet requirements of the contract documents.

Shotcrete work that fails to meet one or more requirements and that cannot be brought into compliance will be evaluated for acceptance by the Engineer. Modifications may be required to ensure remaining work complies with requirements of the contract documents.

628.04 Method of Measurement. The Engineer will measure the shotcrete as shown on the proposal schedule. Measurement for payment will not apply for lump sum items.

505 The Engineer will not measure additional shotcrete required to complete the
506 job. The Contractor shall anticipate and include in his/her bid substantial
507 excavation overbreak and subsequent backfill with shotcrete at the face of the
508 excavation due to the cobbly and rocky nature of the subsurface materials at the
509 soil nail retaining wall locations.

510
511 Full compensation for shotcrete pre-production and production test panels
512 shall be considered as included in the contract price and no separate payment will
513 be made therefore.

514
515 **628.05 Basis of Payment.** The Engineer will pay for the accepted quantities of
516 shotcrete as shown on the proposal schedule.

517
518 Payment will be full compensation for the work prescribed in this section
519 and the contract documents.

520
521 The Engineer will pay for the following pay item when included in the
522 proposal schedule:

523	524 Pay Item	525	526 Pay Unit
526	Shotcrete Mobilization		Lump Sum
527			
528	Shotcrete for _____		Lump Sum
529			

530 The Engineer will not pay for reinforcing steel, welded wire fabric, bar mat
531 reinforcing, geotextile drain boards and accessories separately and will consider
532 the cost for these items to be included in the contract price of this section.

533
534 The Engineer will not pay for shotcrete test panels. The cost of the test
535 panels shall be incidental to the production shotcrete.

536
537 The Engineer will not pay for additional shotcrete or cast-in-place concrete
538 needed to fill voids created by irregularities in the cut face, excavation overbreak,
539 or inadvertent excavation beyond the plan final wall face excavation line or failure
540 to construct the shotcrete facing to the specified line and grade tolerances. The
541 Contractor shall anticipate substantial excavation overbreak and subsequent
542 backfill with shotcrete at the face of the excavation due to the cobbly and rocky
543 nature of the subsurface materials at the soil nail retaining wall locations. The
544 cost is for the work prescribed in this section and the contract documents.”

545
546 **END OF SECTION 628**

SECTION 629 - PAVEMENT MARKINGS

Make the following amendments to said Section:

(I) Amend **Subsection 629.03(B) – Temporary Pavement Markings** by revising the third paragraph from line 62 to 63 to read:

“Maintain and replace temporary pavement markings, flexible delineators, and barricades.”

(II) Amend **Table 629.03 – 1 – Temporary Pavement Markings** to read as follows:

“TABLE 629.03-1 TEMPORARY PAVEMENT MARKINGS	
TYPE	PAVEMENT MARKINGS
Passing Permitted - Both Sides	Single 4-inch yellow stripe 5 feet in length spaced 20 feet on center with Type D markers spaced 40 feet on center and located on center of 5-foot length of stripe.
Passing Prohibited - Both Sides	Double solid 4-inch yellow stripes with Type D markers placed 20 feet on center on one of 4-inch yellow stripes selected by the Engineer.
Passing Permitted - One Side Only	Single continuous 4-inch yellow stripe with Type D markers placed on stripe 20 feet on center on no-passing side and single 4-inch yellow stripes 5 feet in length spaced 20 feet on center on passing side.
Lane Lines - Lane Changing Permitted	Single 4-inch yellow or white stripe 5 feet in length spaced 20 feet on center with Type C or Type D markers spaced 40 feet on center.
Lane Lines - Lane Changing Prohibited	Double solid 4-inch white stripes with Type C markers placed 20 feet on center on one of the 4-inch white stripes selected by the Engineer.
Crosswalk	Two 12-inch white transverse lines spaced 8 feet on center or as ordered by the Engineer.
Stop Line	Single 12-inch white transverse line.
Note: Paint may be used for temporary markings in areas where final paving is not complete.”	

(III) Amend **629.04 – Measurement** by revising lines 292 to 294 to read as follows:

19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65

“629.04 Measurement.

(A) The Engineer will measure thermoplastic and preformed pavement marking tape per linear foot in accordance with the contract documents. The longitudinal pavement markings will be measured per linear foot as a single stripe for the width specified in the contract and in the proposal. The Engineer will include the longitudinal gaps for skip striping, up to thirty (30) feet long, in the measurement.

The Engineer will not measure temporary pavement markings including flexible delineator posts with reflector markers or Type I Barricades and temporary signs installed for the longitudinal guidance of public traffic over reconstructed areas, cold planed surfaces, newly paved surfaces or other unmarked or scarified areas for payment.

The Engineer will measure the temporary pavement markings and temporary signs installed as ordered by the Engineer for special temporary traffic patterns on a force account basis, if the contract specifies payment in the proposal.

The Contractor shall consider the work required for the removal of pavement markings incidental to the various contract items, except as provided in the proposal or elsewhere in the contract. If the contract stipulates that the Engineer will make payment for the removal of pavement markings, the Engineer will measure the removal of pavement markings.

(B) The Engineer will measure the pavement markers per each for the types shown in the proposal.

(IV) Amend **629.05 – Payment** by revising lines 296 to 330 to read as follows:

“629.05 Payment.

(A) The Engineer will pay for thermoplastic and preformed pavement marking tape at the contract price per linear foot basis according to the contract, complete in place, including primers.

The Engineer will pay for double four (4) inch striping with a four (4) inch space between stripes at the contract price per linear foot basis according to the contract.

The contract unit price paid shall be full compensation for furnishing labors, materials, tools, equipment and incidentals and for doing the work involved in furnishing and installing pavement markings complete in place according to the contract.

66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107

The Engineer will not pay for the temporary pavement markings including flexible delineator posts with reflector markers or Type I Barricades and temporary signs installed for the longitudinal guidance of public traffic over reconstructed areas, cold planed surfaces, newly paved surfaces or other unmarked or scarified areas for payment if not shown in the proposal separately. The Engineer will consider them incidental to the various contract items.

If the contract specifies payment for temporary pavement markings installed as ordered by the Engineer for special temporary traffic patterns, the Engineer will pay from an allowance for "Temporary Construction Zone Markings".

The Engineer will compute the actual amount paid to the Contractor for force account work according to Subsection 109.06 – Force Account Provisions and Compensation.

If the contact specifies payment for removal of pavement markings under unit price pay items, the Engineer will pay for the accepted quantities at the contract unit prices bid. The prices shall be full compensation for removing such items according to the contract.

(B) The Engineer will pay for the various types of pavement markers at the contract price per each basis according to the contract, complete in place, including adhesives.

The Engineer will pay for the following pay items when included in the proposal schedule:

Pay Item	Pay Unit
8-Inch Pavement Striping (Thermoplastic Extrusion)	Linear Foot
Double 4-Inch Pavement Striping (Thermoplastic Extrusion)	Linear Foot
Type C Pavement Marker	Each
Type D Pavement Marker	Each"

END OF SECTION 629

1 **SECTION 632 – MARKERS**

2
3 Make the following amendment to said Section:

4
5 **(I) Amend Section 632.04 - Measurement** by replacing lines 79 to 81 to read:

6
7 **“632.04 Measurement.** The Engineer will measure Type II OM2-2V object
8 marker and Type III OM3 object marker per each as complete units of the type
9 and design specified in the proposal.”

10
11 **(II) Amend Section 632.05 – Payment** by replacing lines 83 to 100 to read:

12
13 **“632.05 Payment.** The Engineer will pay for Type II OM2-2V object marker,
14 and Type III OM3 object marker at the contract price per each for the type and
15 design specified complete in place. Payment will be full compensation for
16 excavating and backfilling, furnishing and installing materials, furnishing
17 equipment, tools, labors and incidentals necessary to complete the work.

18
19 The Engineer will pay for the following pay items when included in the
20 proposal schedule:

21

Pay Item	Pay Unit
Type II OM2-2V Object Marker	Each
Type III OM3 Object Marker	Each”

22
23
24
25
26
27

28 **END OF SECTION 632**

29

1 Make the following Section a part of the Standard Specifications:
2

3 **“SECTION 636 – E-CONSTRUCTION**
4

5 **636.01 Description.** This section specifies requirements for performing the Project in
6 a “paperless” manner, using electronic tools for all submittals, communications, quantity
7 tracking, testing, and sampling, scheduling, quality control, and performance monitoring.
8

9 **636.02 General Requirements.** The Contractor shall implement the use of the E-
10 Construction platform, as provided by the HDOT and directed by the Engineer, for use
11 throughout the project. Paper-based or hard copy submittals will not be accepted.
12

13 This Special Provision shall take precedence over all other Specification sections
14 with respect to providing and receiving paper copy communications, submittals, and any
15 project records. Where conflicts exist, and a decision between a hard-copy item and a
16 corresponding electronic version is needed, the electronic version shall be selected,
17 unless otherwise directed by the Engineer.
18

19 **636.03 Construction**
20

21 **(A) Plans and Specifications.** Project drawings will not be provided to the
22 Contractor in hard copy format. An electronic version will be provided in the E-
23 Construction platform for use during the project.
24

25 The Contractor shall note all changes to the work, including all
26 subcontractor’s work, in electronic format using the E-Construction platform Red
27 annotations shall be used to note changes. Blue annotations shall be used for any
28 additional notes that will be helpful for the State in interpreting the field posted
29 drawings. Other drafting standards may be implemented by the Engineer and shall
30 be adhered to by the Contractor. Changes shall be input by the Contractor and
31 reviewed by the Engineer monthly. The Contractor shall make any changes that
32 the Engineer requires.
33

34 **(B) Submittals.** The Contractor shall provide all required submittals, as listed
35 within the contract documents, via the E-Construction platform.—All review,
36 approval, and resubmittal regarding submittals shall also be documented within
37 the E-Construction platform
38

39 **(C) Correspondence.** Electronic mail (email) shall be the preferred method of
40 electronic communication. All communications that affect project scope, schedule,
41 cost, or quality, including changes and requests for information, shall be submitted
42 as directed by the Engineer.
43

44 **(D) Prosecution and Progress.** The Contractor shall provide all
45 administrative, management, and project support documents required by various

46 specification sections, using the E-Construction platform. These elements include,
47 but are not limited to:

- 48
- 49 (1) Preconstruction Submittals (Section 108.03)
- 50 (2) Correspondence regarding Contract Time and Delays (Section
51 108.05)
- 52 (3) Progress Schedules (Section 108.06)
- 53 (4) Weekly Meeting preparatory materials (Section 108.07)
- 54 (5) Samples, certifications, material data, installation instructions, and
55 shop drawings (Sections 105 and 106)
- 56 (6) Field-posted Drawings (Section 648)
- 57 (7) Pre-Final Inspection submittals (Section 108.13)
- 58 (8) Warranty documentation (Section 108.17)
- 59 (9) Project Closing Documents (Section 108.19)
- 60

61 In addition to the foregoing, the Contractor shall provide any other
62 materials, correspondence, and submittals using the E-Construction
63 platform as directed by the Engineer.

64

65 **(E) Resources.** The Contractor shall provide a comprehensive list of
66 Contractor labor and equipment, including all subcontractor labor and equipment,
67 that will be deployed on the project, using spreadsheet-based templates provided
68 in the E-Construction platform. All template fields shall be completed. The
69 submitted information shall comply with the requirements of Specification Section
70 108 – Prosecution and Progress (identification of labor and equipment resources)
71 and Specification Section 109 - Measurement and Payment (cost data) and
72 represent all individual personnel with labor categories and rates, and all
73 equipment owned or rented, with associated rates, on this project. Updates for
74 additional personnel or equipment shall be accomplished by the Contractor at will
75 and shall be completed when directed by the Engineer.

76

77 **636.04 Measurement.** The Engineer will measure additional E-Construction
78 programs, additional licenses, or additional equipment, if ordered by the Engineer, on a
79 force account basis in accordance with Subsection 109.06 – Force Account Provisions
80 and Compensation.

81

82 **636.05 Payment.** The Engineer will pay for the additional E-Construction programs,
83 additional licenses, or additional equipment, on a force account basis in accordance with
84 Subsection 109.06 – Force Account Provisions and Compensation.

85

86 The Engineer may withhold progress payment until the Contractor is in compliance
87 with all E-Construction requirements.

92	Pay Item	Pay Unit
93		
94	Additional E-Construction Programs, Additional	
95	Licenses or Additional Equipment	Force Account

96
97 An estimated amount for force account may be allocated in the proposal schedule
98 under "Additional E-Construction Programs, additional licenses or additional equipment."
99 The actual amount to be paid will be the sum shown on accepted force account records."

100
101
102
103
104

END SECTION 636

1 **SECTION 641 – HYDRO-MULCH SEEDING**

2
3 Make the following amendments to said Section:

4
5 **(I)** Amend **Subsection 641.02(B) – Fertilizer** by revising the section from
6 line 33 to 36 to read:

7
8 **“(B) Fertilizer.** Proper fertilizer shall be used in hydro-mulch mix,
9 depending on condition of soil. Apply at rates and in amounts consistent
10 with manufacturer’s specifications. Contractor shall provide a Soil Analysis
11 Report, if requested by Engineer, and shall use report to determine
12 quantity and ratio of fertilizer for sustained growth of grass. Submit
13 recommendations from a licensed Landscape Architect when deviating
14 from the application rates and amounts above.”

15
16
17 **(II)** Amend **Subsection 641.03(A) – Seeding** by revising the first paragraph
18 from line 100 to 103 to read:

19
20 **“(A) Seeding.** Apply seeded mulch within the timeframe in Subsection
21 209.03(B) – Construction Requirements, if temporary stabilization will not
22 be utilized, after completion of slopes or portion of slope when exposed
23 face attains height of 15 feet. Notify Engineer not less than 24 hours
24 ahead of hydro-mulch seeding operation. Do not hydro-mulch until the
25 Engineer inspects and accepts areas for planting.”

26
27 **(III)** Amend **Subsection 641.04 – Measurement** by revising the first
28 paragraph from line 173 to 174 to read:

29
30 **“641.04 Measurement.** The engineer will measure hydro-mulch seeding
31 per square yard, in accordance with the contract documents.

32
33 **(IV)** Amend **Subsection 641.05 – Payment** by revising lines 176 to 199 to
34 read as follows:

35
36 **“641.05 Payment.** Engineer will pay for the accepted hydro-mulch
37 seeding per square yard. Payment will be full compensation for the work
38 prescribed in this section and contract documents.

39
40 The Engineer will pay for the following pay item when included in
41 the proposal schedule:

Pay Item	Pay Unit
Hydro-Mulch Seeding	Square Yard”

42
43
44
45
46
47 **END OF SECTION 641**

SECTION 645 – WORK ZONE TRAFFIC CONTROL

Make the following amendments to said Section:

- I) Amend **645.02 – Materials** by revising paragraphs 1 and 2, lines 39 to 48 to read as follows:

“Submit at least 30 working days before work starts, 3 sets of FHWA approval letters certifying compliance with AASHTO Manual for Assessing Safety Hardware (MASH) for signs, sign supports, barricades, delineators, cones, vertical panels, concrete barriers with MASH end treatments, and other traffic control devices.

Furnish to Engineer at least 30 working days before work starts, 3 sets of self-certified MASH compliant letter from the vendor for each type of Category 1 traffic control device, as defined in MASH, including single-piece traffic cone, single-piece drum, tubular marker, and delineator.

Use of signs, sign supports, barricades, delineators, cones, vertical panels, and other traffic control devices that are not certified to be MASH compliant shall not be used unless a request for a waiver is submitted in writing and a written wavier is given by the Engineer.”

END OF SECTION 645

1 Make this Section a part of the Standard Specifications:

2
3 **“SECTION 651 – PORTABLE CONCRETE BARRIER**
4 **AND END TREATMENT SYSTEM**
5

6 **651.01 Description.** This section is for furnishing, hauling, installing, maintaining,
7 relocating, and subsequently removing portable concrete barriers and end
8 treatment systems according to the contract documents.
9

10 **651.02 Materials**

11
12 **(A) Portable Concrete Barriers.** Materials must meet the requirements
13 specified in the following subsections of Division 700 - Materials.

14
15 Reinforcing Steel 709.01

16
17 Reflector Marker 750.07

18
19 Preformed Pavement Marking Tape 755.04

20
21 Structural Steel 713.01

22
23 High-Strength Bolts and Studs 718.02

24
25 Nuts 718.03

26
27 Macro-Synthetic Fibers for Concrete Reinforcement 719
28
29

30 **651.03 Construction Requirements**

31
32 **(A) Portable Concrete Barriers.**

33
34 **(1) Fabrication.** Construct the contractor furnished portable
35 concrete barriers in accordance with contract plans and as modified
36 herein. The barriers must be in 150-inch segments. The
37 identification and date of design must be placed at the location
38 shown in the plans. Prior to fabrication of the portable concrete
39 barrier, submit detailed shop drawings to the Engineer for review
40 and acceptance.
41

42 **(a) Forms.** Forms must be according to Section 503 -
43 Concrete Structures.
44

45 **(b) Concrete.** Use 5000 psi concrete with synthetic
46 structural macrofiber reinforcement (s macrofiber). Use an

47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90

amount of macrofiber that will result in an average residual strength (ARS) of 300 pounds per square inch. ASTM C1399 must be used to determine average residual strength.

"The structural macrofiber must comply with Section 719 Macro-Synthetic Fibers for Concrete Reinforcement unless required otherwise in this Section. The fibers must have a tensile strength not less than 90 ksi. The structural macrofiber must have a nominal length of 2.25 inches, be gray in color to match the concrete, and comply with or exceed ASTM C-1116. It must have an aspect ratio (length divided by the equivalent diameter of the fiber) between 115 and 165. The length of the structural macrofiber may be reduced to 0.75 to 1.25 inches if the longer length is not uniformly distributed throughout the placed mix due to the reinforcing steel segregating the fibers out of the mix.

ASTM C1399 - Standard Test Method for Obtaining Average Residual-Strength of Fiber-Reinforced Concrete must be used to determine acceptable ARS.

(c) Placing Concrete. Moisten the form thoroughly and apply form oil to all surfaces of the form that will come in contact with concrete immediately prior to the placing of the concrete. Forms must be in a state that they must not absorb or add moisture to the concrete and be water-tight. Place the concrete in accordance with Section 503 - Concrete Structures. Notify the Engineer of all concrete pours so that the Engineer will have an opportunity to inspect the work for compliance with the Contract Documents.

(d) Curing. Cure the portable concrete barriers in accordance with Subsection 504.03(G) - Curing.

(e) Handling. Do not handle or move the portable concrete barriers until the concrete has attained a compressive strength of more than 3,000 pounds per square inch. Only lifting holes must be used to hoist the portable concrete barrier. Do not use the drainage slots that are located at the bottom of the barrier to lift or move the barriers. The Engineer may direct barriers to be repaired or replaced when damaged by handling at no increase in the contract price and contract time.

91 The stacking of precast barriers may be employed by the
92 Contractor only when prior acceptance of the method is
93 obtained from the Engineer.”
94

95 **(f) Accessories.** Furnish, install, and maintain a
96 longitudinal 4-inch by 150-inch (240-inch if the barrier is of
97 pre- January 2021 design) permanent preformed pavement
98 marking tape, Type I (color to match appropriate roadway
99 pavement stripe) on the lower side of the barrier facing
100 traffic, furnish, and install one RM-2 reflector marker, and a
101 steady burn amber lamp on each barrier unit. Space the
102 reflector markers, and lamps so that when multiple barriers
103 are used they will alternate and be approximately evenly
104 spaced from lamp to lamp or reflector marker to reflector
105 marker. The longitudinal 4-inch permanent preformed
106 pavement marking tape must be installed on a cleaned
107 surface free of deleterious substances that would affect the
108 bonding of the primer or tape. Apply the tape’s
109 manufacturer’s recommended primer to the entire concrete
110 surface that will come in contact with the tape in a manner
111 acceptable to the manufacturer and the Engineer.
112

113 **(g) Ownership.** Upon completion of the project, the
114 portable concrete barriers and the portable concrete barrier
115 end treatments must become the property of the Department
116 of Transportation, Highways Division, Oahu District.
117

118 **(h) State-Furnished Portable Concrete Barriers.** Select
119 the barrier units from the State stockpile at storage location
120 shown in the contract documents or as specified by the
121 Engineer. Haul the barrier units from the storage areas to
122 the job site.
123

124 State furnished portable concrete barriers must not be used
125 if it has reached the end of their useful service life. The end
126 of useful service life is defined as when a portable concrete
127 barrier’s cost of repair is one-third or more of the cost of a
128 portable concrete barrier on the project’s cost proposal or
129 when the Engineer deems it so.
130

131 **(2) Installation.** Erect all barriers as shown on the contract
132 documents or as specified by the Engineer. Set the barriers in a
133 vertical position, closely following the roadway grade. The barriers
134 must have a maximum of 1/4-inch offset in any direction between
135 adjacent panels at the connections.
136

137 Install an edge line using a six-inch-wide permanent preformed
138 pavement marking tape, Type I (color to match adjacent roadway
139 pavement stripe). The permanent preformed pavement marking tape
140 must be 12 inches from the toe of the barrier, however, if the
141 situation warrants it the Engineer may allow the pavement marking
142 tape to be as close to the barrier as just in front of the toe of the
143 barrier.

144
145 Horizontal alignment of the panels must be such that any
146 panel is not out of alignment by more than 1/2-inch from a straight
147 line. Furnish and install steel pins for connecting the barrier sections
148 according to contract documents.

149
150 Barrier ends within the clear zone must not be exposed to traffic and
151 must have an end treatment that complies with MASH Test Level 3
152 criteria.

153
154 Portable concrete barriers constructed using different designs or
155 were not built in accordance with the January 2021 design must not
156 be used together, e.g., only January 2021 design barriers will be
157 allowed to be used together within the same barrier installation.

158
159 Relocate any barrier regardless of when it was made e.g., this
160 project, another project, or its location during the duration of the
161 project. Relocate the barriers to the locations shown in the contract
162 documents or as ordered by the Engineer.

163
164 Upon completion of the work, clean, repair, remove, haul,
165 offload and store all units at the location shown in the contract
166 documents or as ordered by the Engineer. If the final designation is
167 not available when the units are ready to be removed, haul the units
168 to an interim location or an alternate Engineer designated location at
169 no additional cost to the State.

170
171 The cleaning and repair of the barriers must be performed
172 regardless of cause, e.g., accidents, 'wear and tear', improper
173 handling by the Contractor during use. Cleaning and maintaining of
174 the barriers must be at a level that the barriers are easy to see by
175 the traveling public. Maintenance must be to a level that the barrier
176 functions as designed and has not decreased the safety of the
177 traveling public as solely determined by the Engineer. Repair all
178 damaged barriers back to their original configuration, i.e.,
179 undamaged condition. A damaged barrier that, in the sole judgment
180 of the Engineer, is considered irreparable for any reason, must be
181 replaced with a new barrier and the irreparable barrier disposed of.
182 This must be done at no increase in the contract price or contract

183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227

time. However, if the irreparable barrier is of a pre- January 2021 design the contractor must replace the barrier with two January 2021 design barriers. The Engineer will inspect the barriers at the storage area designated in the contract documents or at a location designated by the Engineer. Any barrier that is not cleaned or repaired to an acceptable condition must be removed from the designated storage site and not returned until is made acceptable or new replacement barriers are supplied.

Portable concrete barriers must only be used for work zone traffic control, e.g., traffic barriers. Portable concrete barriers must not be used as retaining walls, grade adjustment walls, material enclosure walls, etc. If the portable concrete barriers are used for other than which it was designed or built for or both the barriers used in such a manner will be deemed irreparable and must be replaced with new portable concrete barriers at no additional cost or the Engineer may deduct the contract price of new barriers from the monthly estimate.

(3) Type II Barricades. Furnish, install, and maintain Type II Barricades with a steady burn amber lamp to be used as channelizing devices. Spacing must be the same as the required spacing of cones or delineators in that area or in accordance with the requirements of MUTCD part 6 whichever distance is shorter. Their position must comply with MUTCD Typical Application 5, found in part 6.

(B) Portable Concrete Barrier End Treatment

(1) Sand Barrels must not be used.

Each End Treatment system array must- be configured to provide a satisfactory average rate of deceleration (8 g's maximum preferred) for errant vehicle +s in the weight ranges of 1810 to 4410 lbs. For impact vehicles weighing between 2585 and 5000 lbs. and traveling at speeds of up to 62 mph, the maximum 24-inch occupant fail space velocity must be less than 39 ft/sec and the vehicles' highest 10 millisecond occupants' ride-down acceleration must be less than 20 g's. The end treatment system must meet the requirements of MASH Test Level 3 for non-redirectioned gating energy-absorbing terminal crash cushions providing impact protection as accepted by HDOT and FHWA.

The center of gravity of each end treatment module must be at a height that must aid in controlling the pitch of standard passenger vehicles.

228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273

The components of the end treatment modules must interface to prevent excessive leakage of components contained therein. The interface must, however, permit drainage of excess water that may enter the end treatment system array.”

Submit a brochure of the product to be used along with an FHWA accepted MASH cash test and acceptance letter for review and acceptance by the Engineer prior to ordering the end treatment.”

(2) The portable concrete barrier’s end treatment must be designed for easy attachment and removal from the end of the concrete barrier. The nose of the end treatment system must be equipped with a chevron or slanted line sign, i.e., crash cushion object marker (CCOM) which must match the corresponding traffic direction.

(3) Installation and use of the end treatments must be consistent with shy-line and placement guidelines specified in the contract documents and the latest edition of the AASHTO Roadside Design Guide.

(4) Provide, install, and maintain a MASH compliant end treatment system that is compatible with the barrier units. The end treatment must be attached and installed in compliance with the manufacturer's instructions and the FHWA MASH acceptance letter. If requested by the Engineer, provide three copies of the maintenance and operational manual for the end treatments along with an instructional class for State personnel on the installation, maintenance, and removal of the end treatment system. Provide handouts for the class.

(5) Haul the portable concrete barrier’s end treatment to the project site. Prepare the beds and set the portable concrete barrier’s end treatment at a location shown in the contract documents and as directed by the Engineer.

(6) Furnish, install, and maintain the attachment for connecting the portable concrete barrier end treatment to the barrier unit.

(7) Furnish install and maintain the crash cushion object marker (CCOM) on each leading or trailing nose of a portable concrete barrier end treatment in accordance with the contract documents or as directed by the Engineer.

(8) Relocate any barrier end treatment regardless of when it was made e.g., this project, another project, or where its location is

274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319

during the duration of the project. Relocate the barriers' end treatments to the locations shown in the contract documents or as ordered by the Engineer."

(9) Upon completion of the work, clean, repair, remove, haul, offload and store the portable concrete barrier end treatments at the location shown in the contract documents or as ordered by the Engineer. If the final destination is not available when the end treatment units are ready to be removed, haul the end treatment units to an interim location or to an alternate Engineer designated location at no increase in the contract price or contract time.

The cleaning and repair of the portable concrete barrier end treatments must be performed regardless of cause, e.g., 'wear and tear', improper handling by the Contractor during use. Repair must include the replacement of all damaged portions of the portable concrete barrier end treatment. The level of repair must be back to its original configuration.

When a portable concrete barrier end treatment in the sole judgment of the Engineer is considered irreparable it must be replaced with a new portable concrete barrier end treatment at no increase in the contract price or contract time. All portable concrete barrier end treatments must be found acceptable by the Engineer before the contractor returns them to the area designated in the Contract Documents or as directed by the Engineer.

(10) The portable concrete barrier end treatment must be the property of the DOT, Highways Division after project completion.

(C) Pavement Striping and Markers for Lane Shifting.

Furnish and install pavement striping and markings according to Section 629 - Pavement Markings, Subsection 629.03(C) - Permanent Pavement Markings. Do not use temporary pavement striping and markers. Striping must be done in accordance with the contract documents or as directed by the Engineer. If no striping plan is provided, submit a striping plan for review and acceptance by the Engineer a minimum of 14 days prior to the installation of barriers and end treatments. Upon completion of the contract work, remove the lane shift striping and markers, and restore the original striping and markers in accordance with the contract documents or as directed by the Engineer.

(D) Restoration of Project Site

320 Restore the project site to the original or better condition where the
321 barriers and end treatments were used and as directed by the
322 Engineer.
323

324 **651.04 Method of Measurement.** The Engineer will measure furnishing of
325 portable concrete barriers and end treatment modules per each.
326

327 The Engineer will measure the installing, maintaining, cleaning, repairing, and
328 subsequently removing the portable concrete barriers and end treatment
329 modules per each in accordance with the contract documents.
330

331 The Engineer will not measure the installing, maintaining, cleaning, repairing, and
332 subsequently removing the lane shift pavement striping and markers for
333 payment.
334

335 **651.05 Basis of Payment.** The Engineer will pay for furnishing the accepted
336 portable concrete barriers at a contract price per pay unit, as shown in the
337 proposed schedule. The price includes full compensation for work prescribed in
338 this section and the contract documents. The full compensation includes
339 submitting a list of materials and equipment to be incorporated in the work, and
340 furnishing and delivering the portable concrete barriers.
341

342 The Engineer will pay for installing, maintaining, relocating, and subsequently
343 removing the portable concrete barriers at the contract unit price per each.
344 Payment will be full compensation for work prescribed in this section and the
345 contract documents. The full compensation includes preparing beds; setting
346 portable concrete barriers; installing connector pins; maintaining lamps, and
347 permanent preformed pavement marking tape, and to complete a full and
348 useable unit; relocating portable concrete barriers during construction to
349 locations specified in the plans; and cleaning, repairing and hauling the portable
350 concrete barriers after completion of the project to locations on the island of
351 Hawaii as directed by the Engineer. The full compensation also includes
352 furnishing labors, materials, tools, equipment, and incidentals necessary to
353 complete the work.
354

355 The Engineer will pay for furnishing the accepted end treatment modules
356 at a contract price per pay unit, as shown in the proposal schedule. The price
357 includes full compensation for work prescribed in this section and the contract
358 documents. The full compensation includes submitting a list of materials and
359 equipment to be incorporated in the work, and furnishing and delivering the end
360 treatment modules.
361

362 The Engineer will pay for installing, maintaining, relocating, and
363 subsequently removing the end treatment modules at the contract unit price per
364 each. Payment will be full compensation for work prescribed in this section and
365 the contract documents. The full compensation includes holding classes,

366 handouts, submitting a list of materials and equipment to be incorporated in the
367 work; grading and compacting the ground; furnishing, assembling, installing; and
368 maintaining an end treatment module system; relocating end treatment modules
369 to locations specified in the contract documents; filling each installed end
370 treatment module with repair material or replacement of the entire end treatment
371 module. Also included must be the cleaning, hauling of the end treatment
372 modules to the designated locations or as directed by the Engineer upon
373 completion of the project, restoration of the area, and furnishing labor, materials,
374 tools, equipment, and incidentals necessary to complete the work.

375

376 The Engineer will not pay for the accepted pavement striping and markers
377 for lane shifting separately. The Engineer will consider the cost for the accepted
378 pavement striping and markings for lane shifting as included in the contract price
379 of the portable concrete barriers. The price includes full compensation for
380 submitting the striping plans; removing the existing pavement striping and
381 markers; installing the work zone pavement striping and markers; removing the
382 work zone striping and markers, and restoring original striping and markers
383 according to the Contract Documents or as directed by the Engineer; restoration
384 of the area and furnishing labor, materials, tools, equipment, and incidentals
385 necessary to complete the work.

386

387 The Engineer will pay for each of the following pay items when included in
388 the proposal schedule:

389

390 Pay Item	391 Pay Unit
392 Furnish End Treatment Module	393 Each
394 Install, Maintain, Relocate, and Remove End Treatment Module	395 Each
396 Furnish F Shape Portable Concrete Barrier	397 Each
398 Install, Maintain, Relocate, and Remove F Shape 399 Portable Concrete Barrier	400 Each"

401

402

403

END OF SECTION 651

**SECTION 656 – DRILLING HOLES AND INSTALLING
DOWEL REINFORCING BARS**

Make the following amendments to said Section:

(I) Amend **656.05 – Payment** by revising lines 37 to 47 to read as follows:

656.05 Payment. The Engineer will pay for the accepted pay items below at the contract unit price per pay unit, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and contract documents.

The Engineer will pay for the following pay item when included in the proposal schedule:

Pay Item	Pay Unit
Drilling Holes and Installing Dowel Reinforcing Bars _____	Each”

END OF SECTION 656

1 Make the following Section a part of the Standard Specifications:
2

3 **“SECTION 657 – SOIL NAILS**
4

5 **657.01 Description.** The Work shall consist of constructing permanent soil
6 nail retaining walls as specified in the Contract Documents. Furnish all labor,
7 materials, and equipment required for completing the Work. Select the method of
8 excavation, drilling method and equipment, and grouting procedures to meet the
9 performance requirements specified herein.
10

11 Soil nailing work shall include drilling soil nail drill holes to the specified
12 minimum diameter, length, and orientation indicated on the Plans; providing,
13 placing and grouting the reinforcing bars into the drill holes; and performing proof
14 nail testing. Shotcrete facing and wall drainage construction are referred in the
15 Section 628 - Shotcrete.
16

17 The term “Soil Nail” as used in these specifications is intended as a generic
18 term and refers to a reinforcing bar grouted into a drilled hole installed in any type
19 of ground conditions including soil and rock. Soil nail walls are built from the top
20 down in existing ground.
21

22 **657.02 Materials.**
23

24 **(A) General.** No asbestos containing materials or equipment shall be
25 used under this Section. The Contractor shall ensure that all materials
26 and equipment incorporated in the project are asbestos-free.
27

28 **(B) Materials.** Furnish materials new and without defects. Remove
29 defective materials from the job site at no additional cost to the State.
30 Materials for soil nail structures shall consist of the following:
31

32 **(1) Solid Bar Nail.** ASTM A615 - Grade 75, Hot-Dip Zinc
33 Galvanized in accordance with ASTM A123, Deformed bar
34 continuous without splices or welds. New, straight, undamaged, and
35 fully encapsulated, as shown on the Plans. Threaded a minimum of
36 6 inches on the wall anchorage end to allow for proper attachment of
37 bearing plate and nut. Threading shall be continuous spiral
38 deformed ribbing provided by the bar deformations.
39

40 **(2) Encapsulation.** Minimum 0.1-inch thick corrugated HDPE
41 (AASHTO M252) or corrugated PVC (ASTM D1784). Encapsulation
42 shall provide at least 0.25 inches of grout cover over the reinforcing
43 bar. Encapsulation shall be resistant to ultra violet light degradation,
44 normal handling stresses, and grouting pressures. The
45 encapsulation shall be fabricated in the factory with a proper end cap
46 on one side.
47

48 (3) Centralizers. Manufactured plastic assembly (wood shall not
49 be used) sized for the hole diameter. Should be securely attached to
50 the nail bar, sized to position the nail bar at the center of the drill hole;
51 sized to allow tremie pipe insertion to the bottom of the drill hole; and
52 sized to allow grout to freely flow up the drill hole.
53

54 (4) Nail Grout. Grout for the soil nail retaining walls shall be a
55 pre-bagged neat cement, non-shrink grout with silica fume admixture
56 and anti-washout additive in conformance with ASTM C1107. Grout
57 shall achieve minimum 8,000 psi compressive strength at 28-days
58 per ASTM C-109 Mortar and Sand. See plans for additional grout
59 requirements.
60

61 Water for mixing grout shall be potable, clean and free of
62 injurious quantities of substances known to be harmful to Portland
63 cement or steel.

64 (5) Admixtures. ASTM C494. Admixtures that control bleed,
65 improve flowability, reduce water content and retard set may be used
66 in the grout subject to review and acceptance by the Engineer.
67 Accelerators are not permitted. Admixtures shall be compatible with
68 the grout and mixed in accordance with the manufacturer's
69 recommendations.
70

71 (6) Cement. ASTM C150, Type I, II, III or V.
72

73 (7) Film Protection. Polyethylene film per AASHTO M171.
74

75 (8) Shotcrete. Refer to the Section 628 - Shotcrete.
76

77 (C) **Materials Handling and Storage.** Store cement to prevent moisture
78 degradation and partial hydration. Do not use cement that has become
79 caked or lumpy.
80

81 Store steel reinforcement on supports to keep the steel from
82 contacting the ground. Damage to the exposed nail steel as a result of
83 abrasion, cuts, nicks, welds, and weld splatter shall be cause for rejection.
84 Do not ground welding leads to nail bars. Protect nail steel from dirt, rust,
85 and other deleterious substances prior to installation. Heavy corrosion or
86 pitting of the exposed nails shall be cause for rejection. Place protective
87 wrap over anchorage end of nail bar to which bearing plate and nut will be
88 attached to protect the nail during handling, installation, grouting and
89 shotcreting.
90

91 **657.03 Construction.**

92 (A) **Soil Nail Contractor's Experience Requirements and Submittal.**
93

94 The qualifications of the soil nailing Contractor shall conform to the
95 minimum experience requirements below.

96
97 Submit a project reference list verifying the successful completion of
98 at least three permanent soil nail retaining wall projects during the past 5
99 years that have a similar scope of work to this project. A brief description
100 of each project with the Owner's name and current phone number shall be
101 included.

102
103 The soil nailing Contractor shall have his/her on-site staff personnel
104 having sufficient experience in the construction of permanent soil nail
105 retaining walls. As a minimum, the on-site supervisor and drill rig operators
106 shall have experience installing permanent soil nails on at least three
107 projects over the past 5 years.

108
109 At least 30 days before starting the wall, the soil nail Contractor shall
110 submit 8 copies of the completed project reference list and a list identifying
111 the on-site supervisors and drill rig operators assigned to the project. The
112 personnel list shall contain a summary of each individual's experience and
113 be complete enough for the Engineer to determine whether each individual
114 satisfies the required qualifications. The Engineer will accept or reject the
115 submission. Work shall not be started nor materials ordered until the
116 Engineer's written acceptance of the Contractor's qualification is given.

117 The Engineer may suspend the Work if the Contractor uses non-
118 accepted personnel for the Work that has not been accepted by the
119 Engineer. If work is suspended, the Contractor shall be fully liable for all
120 resulting costs and no adjustment in contract time will result from the
121 suspension.

122
123 **(B) Submittals.** Upon acceptance of the soil nailing Contractor's
124 qualifications submittal set forth in Section 657.03(A) Soil Nail Contractor's
125 Experience Requirements and Submittal, submit 8 copies of the following
126 information, in writing, to the Engineer for review and acceptance.

127
128 Provide the following submittal items at least 30 days prior to
129 initiating the soil nail wall construction:

- 130
131 **(1)** The proposed start date and proposed detailed wall construction
132 sequence including the following:
133
134 **(a)** Proposed disposal site for the unsuitable materials from the
135 clear and grubbing operation and the staged excavation.
136
137 **(b)** Plan describing how surface water will be diverted, controlled
138 and disposed of.
139

- 140 (c) Proposed methods and equipment for excavating the soil
141 and/or rock to the staged excavation lifts indicated in the Plans,
142 including the proposed grade elevations for each excavation lift
143 shown on a wall elevation view.
144
- 145 (d) Measures to ensure wall and slope stability during various
146 stages of wall construction and excavation where discontinuous rows
147 of nails will be installed (if applicable); information on space
148 requirements for installation equipment; temporary shoring plans (if
149 applicable); information on provisions for working in the proximity of
150 underground facilities or utilities (if applicable).
151
- 152 (e) Proposed nail drilling methods and equipment.
153
- 154 (2) Nail grout mix design including the following:
155
- 156 (a) Type of Portland cement.
157
- 158 (b) Aggregate source and gradation.
159
- 160 (c) Proportions of mix by weight and water-cement ratio.
161
- 162 (d) Manufacturer, brand name and technical literature for
163 proposed admixtures.
- 164 (e) Compressive strength test results per ASTM C109 supplied
165 by a qualified independent testing laboratory verifying the specified
166 minimum 3 and 28-day grout compressive strengths. Previous test
167 results for the proposed grout mix completed within one year of the
168 start of grouting may be submitted for initial verification and
169 acceptance of the required compressive strengths and start of
170 production work.
171
- 172 (3) Proposed nail grout placement procedures and equipment.
173
- 174 (4) Proposed nail testing methods and equipment setup including the
175 following:
176
- 177 (a) Details of the jacking frame and appurtenant bracing.
178
- 179 (b) Details showing methods of isolating test nails during
180 shotcrete application (i.e., methods to prevent bonding of the soil nail
181 bar and the shotcrete facing during testing).
182
- 183 (c) Details showing methods of providing the temporary
184 unbonded length and of grouting the temporary unbonded length of
185 test nails after completion of testing.

186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210

211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231

- (e) Equipment list.
- (f) Identification number and certified calibration records for each test jack and pressure gauge and load cell to be used. Jack and pressure gauge shall be calibrated as a unit. Calibration records shall include the date tested, identification number, and the calibration test results and shall be certified to an accuracy of at least 2 percent of the applied certification loads by a qualified independent testing laboratory within 180 days prior to submittal.
- (5) Manufacturer Certificates of Compliance for the soil nail centralizers.
- (6) Shop drawings for falsework (formwork), if applicable.

The Contractor will not be allowed to begin wall construction or incorporate materials into the work until the submittal requirements are found acceptable to the Engineer. Changes or deviations from the accepted submittals must be resubmitted for acceptance. No adjustments in contract time will be allowed due to incomplete or unacceptable submittals.

Upon delivery of the encapsulated nail bars to the project site, provide Certified mill test results for the encapsulated nail bars from each heat specifying the ultimate strength, yield strength, elongation and composition.

(C) Construction Requirements.

(1) Pre-Construction Meeting. A pre-construction meeting will be scheduled by the Engineer and held prior to the start of wall construction. The Engineer, designer, prime Contractor, soil nail Contractor and Geotechnical Engineer shall attend the meeting. The excavation Contractor, shotcreting Contractor and survey Contractor, if different than the prime or soil nail Contractor, shall also attend. Attendance is mandatory.

The pre-construction meeting will be conducted to clarify the construction requirements for the work, to coordinate the construction schedule and activities, and to identify contractual relationships and delineation of responsibilities among the prime Contractor and the various Subcontractors – particularly those pertaining to wall excavation, nail installation and testing, excavation and wall alignment survey control, and shotcrete facing construction. Soil nail wall construction requires excavation in staged lifts and excavation in the vicinity of the wall face requires special care and effort compared to general earthwork excavation. The Contractor shall take this into account during bidding.

232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278

(2) Site Drainage Control. Provide positive control and discharge of all surface water that will affect construction of the soil nail retaining wall. Maintain all pipes or conduits used to control surface water during construction. Repair damage caused by surface water at no additional cost to the State. Upon substantial completion of the wall, remove surface water control pipes or conduits from the site. Alternatively; with the acceptance of the Engineer, pipes or conduits that are left in place, may be fully grouted and abandoned or left in a way that protects the structure and all adjacent facilities from migration of fines through the pipe or conduit and potential loss of ground.

The regional groundwater table is anticipated to be below the level of the wall excavation based on the available geotechnical information. Localized areas of perched water or seepage may be encountered during excavation at the interface of geologic units or from localized groundwater seepage areas. These perched groundwater conditions shall not be considered as “differing site conditions” by the Contractor.

Immediately contact the Engineer if unanticipated existing subsurface drainage features and/or structures are discovered during excavation. Suspend work in these areas until remedial measures meeting the Engineer’s acceptance are implemented. Capture surface water runoff flows (and flows from existing subsurface drainage structures) independently of the wall drainage network and convey them to an outfall structure or storm sewer, as accepted by the Engineer. Cost of remedial measures required to capture and dispose of water resulting from encountering unanticipated man-made subsurface drainage features and/or structures will be paid for as Extra Work.

(3) Excavation. Coordinate the work and the excavation such that the soil nail wall is safely constructed. The Contractor shall protect, at all times, the existing structures and features above, below and around the soil nail walls during excavation for the soil nail wall. Perform the wall construction and excavation sequence in accordance with the Contract Documents and accepted submittals. Exercise care in the excavation for the soil nail retaining walls to minimize substantial excavation overbreak, which will require subsequent backfill with shotcrete at no additional cost to the State. Care shall also be taken and accounted for in the pricing to minimize the impact to the environment in the area. No excavations steeper than those specified herein or shown on the Plans shall be made above or below the soil nail wall without the written acceptance of the Engineer.

(4) Excavation and Wall Alignment Survey Control. Be responsible for:

- (a)** Providing both the survey reference and control points along the top of the wall alignment.

279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325

- (b) Providing necessary survey and alignment control during excavation of each lift.
- (c) Locating and drilling each drill hole within the allowable tolerances.
- (d) Performing the wall excavation and nail installation in a manner that will allow for constructing the shotcrete facing to the specified minimum thickness and such that the permanent concrete facing can be constructed to the specified minimum thickness and to the line and grade indicated in the Plans.

Where the as-built location of the front face of the shotcrete facing exceeds the allowable tolerance from the wall control line shown on the Plans, be responsible for determining and bearing the cost of remedial measures necessary to provide proper attachment of nail head bearing plate connections and satisfactory placement of the permanent concrete facing, as called for on the Plans.

(5) General Excavation. Complete clearing, grubbing, grading and excavation above and behind the wall (if required) before commencing wall excavation. Do not over excavate the original ground behind the wall or at the ends of the wall, beyond the limits shown on the Plans. Do not perform general excavation that will affect the soil nail wall until wall construction starts. General excavation shall be coordinated with the soil nailing work and the excavation shall proceed from the top down in a horizontal staged excavation lift sequence with the ground level for each lift excavated no more than mid-height between adjacent nail rows, as illustrated on the Plans. Do not excavate the full wall height to the final wall alignment as shown on the Plans.

(6) Soil Nail Wall Structure Excavation. Structure excavation in the vicinity of the wall face will require special care and effort compared to general earthwork excavation. Take this special structure excavation requirement into account during bidding. Due to the close coordination required between the soil nail Contractor and the excavation Contractor, the excavation Contractor shall perform the structure excavation for the soil nail wall under the direction of the soil nail Contractor.

Excavate to the final wall face using procedures that will:

- (a) Prevent over excavation;
- (b) prevent ground loss, swelling, air slaking, or loosening;
- (c) prevent loss of support for completed portions of the wall; and

326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372

(d) prevent loss of soil moisture at the face.

Costs associated with additional thickness of shotcrete or concrete or other remedial measures required due to irregularities in the cut face, excavation over-break due to the nature of the on-site materials (cobbly and rocky materials) or inadvertent over excavation, shall be borne by the Contractor.

Notify the Engineer immediately if raveling or local instability of the final wall face excavation occurs. Unstable areas shall be temporarily stabilized by means of buttressing the exposed face with an earth berm or other methods. Suspend work in unstable areas until remedial measures are developed.

(7) Wall Discontinuities. Where the Contractor's excavation and installation methods result in a discontinuous wall along any nail row, the ends of the constructed wall section shall extend beyond the ends of the next lower excavation lift by at least 10 feet. Slopes at these discontinuities shall be constructed to prevent sloughing or failure of the temporary slopes. If sections of the wall are to be constructed at different times, prevent sloughing or failure of the temporary slopes at the end of each wall section.

(8) Excavation Face Protrusions, Voids or Obstructions. Remove all portions of cobbles, boulders, rubble or other subsurface obstructions encountered at the wall final excavation face that will protrude into the shotcrete facing. Determine method of removal of face protrusions, including method to safely secure remnant pieces left behind the excavation face and for promptly backfilling voids resulting from removal of protrusions extending behind the excavation face. Notify the Engineer of the proposed method(s) for removal of face protrusions at least 24 hours prior to beginning removal. Voids, over-break or over-excavation beyond the plan wall excavation line resulting from the removal of face protrusions or excavation operations shall be backfilled with shotcrete or concrete, as accepted by the Engineer. Removal of face protrusions and backfilling of voids or over-excavations shall be considered incidental to the work.

(9) Nail Installation. Install the soil nails as specified herein or on the Plans. Install the production soil nails before the construction of the permanent shotcrete facing.

The Contractor shall place an initial shotcrete or glass fiber reinforced shotcrete to protect and stabilize the face of the excavation as shown in the Contract Documents. Cost of the initial shotcrete or glass fiber reinforced shotcrete shall be measured and paid for under Section 628 - Shotcrete.

373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418

The Engineer may add, eliminate, or relocate nails to accommodate actual field conditions. Cost adjustments associated with these modifications shall be made in accordance with the Contract Documents. The cost of any redesign, additional material, or installation modifications resulting from actions of the Contractor shall be borne by the Contractor.

(10) Drilling. The specified size drill holes for the soil nails shall be made at the locations, orientations, and lengths shown on the plans or as directed by the Engineer.

Subsurface exploration at the locations of the soil nail retaining walls was conducted at selected locations as part of the project. The Contractor may assume that the subsurface materials to be encountered at the soil nail retaining wall locations will consist of the geologic formations identified in the boring logs shown in the Contract Documents.

Thoroughly investigate the site and select the appropriate drilling equipment and methods for the drilling. Use of drilling muds such as bentonite slurry to assist in drill cutting removal is not allowed but compressed air may be used. Care shall be exercised by the Contractor to avoid disturbing the existing structures and features near the soil nail retaining wall when compressed air is used for the drilling. Where hard drilling conditions such as rock, cobbles, boulders, or obstructions are encountered, percussion or other suitable drilling equipment capable of drilling and maintaining stable drill holes through such materials shall be used. The Engineer will not make separate payment for excavation of materials of different densities and character (hardness) or employment of special tools and procedures necessary to install the soil nails.

Immediately suspend or modify the drilling operations if ground subsidence is observed, if the soil nail wall is adversely affected, or if adjacent structures and/or features are damaged from the drilling operation. Immediately stabilize the adverse conditions at no additional cost to the City.

(11) Nail Bar Installation. Provide fully encapsulated nail bars in accordance with the schedules included in the Plans. Provide centralizers sized to position the bar within 1 inch of the center of the drill hole. Position centralizers as shown in the Contract Documents so that the maximum center-to-center spacing does not exceed 10 feet. Also, locate centralizers within 2 feet from the top and bottom of the drill hole. Securely attach centralizers to the fully encapsulated bar so that they will not shift during handling or insertion into the drill hole, will still allow grout tremie pipe insertion to the bottom of drill hole, and will allow grout to flow freely up the hole.

419 Inspect each fully encapsulated nail bar before installation and repair
420 or replace damaged bars. Check uncased drill holes for cleanliness prior
421 to insertion of the soil nail bar. Insert fully encapsulated nail bars with
422 centralizers into the drill hole to the required length without difficulty and in
423 a way that prevents damage to the drill hole, bar, or corrosion protection.
424 Do not drive or force partially inserted soil nails into the hole. Remove nails
425 that cannot be fully inserted to the design depth and clean the drill hole to
426 allow unobstructed installation.

427
428 **(12) Nail Installation Tolerance.**

429
430 **(a)** Nail location and orientation tolerances are as follows:

- 431
432 1. Nail head location, deviation from plan design location:
433 6 inches in any direction.
- 434
435 2. Nail inclination, deviation from plan: + or - 3 degrees.
- 436
437 3. Location tolerances are applicable to only one nail and
438 not cumulative over the large wall area. Center nail bars
439 within 1 inch of the center of the drill hole.

440
441 **(b)** Nails that do not satisfy the specified tolerances, due to the
442 Contractor's installation methods, shall be replaced at no additional
443 cost to the State. Backfill abandoned nail drill holes with tremied
444 grout. Nails that encounter unanticipated obstructions during drilling
445 shall be relocated, as accepted by the Engineer. Cost of drilling and
446 backfilling drill holes abandoned due to unanticipated obstructions
447 will be paid as Extra Work. Drilling through hard basalt formation
448 shall be anticipated by the Contractor and shall not be considered
449 unanticipated obstructions by the Contractor.

450
451 **(13) Grout Mix Design.** Submit the proposed nail grout mix design to the
452 Engineer for review and acceptance in accordance with the submittal
453 section.

454
455 **(14) Grout Testing.** Previous test results for the proposed grout mix
456 completed within one year of the start of work may be submitted for initial
457 verification of the required compressive strengths for installation of initial
458 production nails. During production, test nail grout in accordance with
459 ASTM C109 at a frequency of no less than one test for each day of grout
460 placement or every 10 cubic yards of grout placed whichever is more
461 frequent. Provide grout cube test results for 3-day and 28-day compressive
462 strength in accordance with ASTM C109 to the Engineer within 24 hours of
463 testing.

465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511

(15) Grouting Equipment. Grout equipment shall produce a uniformly mixed grout free of lumps and undispersed cement, and shall be capable of continuously agitating the mix. Use a positive displacement grout pump equipped with a pressure gauge, which can measure at least twice but no more than three times the intended grout pressure. Size the grouting equipment to enable the entire nail to be grouted in one continuous operation. Place the grout within 60 minutes after mixing or within the time recommended by the admixture manufacturer, if admixtures are used. Grout not placed in the allowed time limit shall not be used. Soil nails using such grout will be rejected.

(16) Grouting Methods. Grout the drill hole after installation of the nail bar. Each drill hole shall be grouted within 24 hours of completion of drilling, unless otherwise accepted by the Engineer. Inject the grout at the lowest point of each drill hole through a grout tube, casing, hollow-stem auger, or drill rods. Keep the outlet end of the conduit delivering the grout below the surface of the grout as the conduit is withdrawn to prevent the creation of voids. Completely fill the drill hole in one continuous operation. Cold joints in the grout column are not allowed except at the top of the test bond length of tested production nails and the initial grout line at the top of drilled holes.

Control temperature of grout to not exceed 85° F at the end of the grouting hose coupling to fill tube. Protect materials, mixing and grouting equipment and grout hoses from temperature increases related to high ambient temperatures or solar heating.

During casing removal for drill holes advanced by either cased or hollow-stem auger methods, maintain sufficient grout level within the casing to offset the external groundwater/soil pressure and prevent hole caving. Maintain grout head or grout pressures sufficient to ensure that the drill hole will be completely filled with grout and to prevent unstable soil or groundwater from contaminating or diluting the grout. Record the grout pressures for soil nails installed using pressure grouting techniques. Control grout pressures to prevent excessive ground heave or fracturing.

Remove the grout and nail if grouting is suspended for more than 30 minutes or does not satisfy the requirements of this specification or the Plans, and replace with fresh grout and undamaged nail bar at no additional cost to the State.

(17) Nail Testing. Perform proof testing of designated test nails. Perform proof tests on production nails at locations selected by the Engineer after complete installation based on the drilling and grouting records.

Perform proof testing on at least 10 percent of the production nails in the presence of the Engineer at the locations selected by the Engineer.

512 Do not perform nail testing until the nail grout and initial shotcrete facing
513 have cured for at least 72 hours and attained at least their specified 3-day
514 compressive strength. Testing in less than 72 hours will only be allowed if
515 the Contractor submits compressive strength test results, for tests
516 performed by a qualified independent test laboratory, verifying that the nail
517 grout and shotcrete mixes has provided the specified 3-day compressive
518 strengths in the lesser time.

519
520 **(18) Test Nail Unbonded Length.** Provide temporary unbonded lengths
521 for each test nail. Isolate the test nail bar from the initial shotcrete facing
522 and/or the reaction frame used during testing. Isolation of a test nail through
523 the initial shotcrete facing shall not affect the location of the reinforcing steel
524 under the bearing plate. Accepted test nails may be incorporated as
525 production nails provided the temporary test unbonded length is fully
526 grouted subsequent to testing. Submit the proposed test nail isolation
527 methods, methods for providing an unbonded test length, and methods for
528 grouting the unbonded length subsequent to testing to the Engineer for
529 review and acceptance in accordance with the Submittal section. Where
530 temporary casing of the unbonded length of test nails is provided, install the
531 casing in a way that prevents any reaction between the casing and the
532 grouted bond length of the nail and/or stressing apparatus.

533
534 **(19) Testing Equipment.** Testing equipment shall include dial gauges,
535 dial gauge support, jack and pressure gauge, electronic load cell, and a
536 reaction frame. The load cell is required for the creep test portion of the
537 test. Provide description of test setup and jack, pressure gauge, and load
538 cell calibration curves in accordance with Submittals section.

539
540 Design the testing reaction frame to be sufficiently rigid and of
541 adequate dimensions such that excessive deformation of the testing
542 equipment does not occur. If the reaction frame will bear directly on the
543 initial shotcrete facing, design it to prevent cracking of the shotcrete.
544 Independently support and center the jack over the nail bar so that the bar
545 does not carry the weight of the testing equipment. Align the jack, bearing
546 plates, and stressing anchorage with the bar such that unloading and
547 repositioning of the equipment will not be required during the test.

548
549 Apply and measure the test load with an electric load cell and digital
550 readout device associated with a hydraulic jack pressure gauge. The
551 pressure gauge shall be graduated in 50 psi increments or less. The jack
552 and pressure gauge shall have a pressure range not exceeding twice the
553 anticipated maximum test pressure. Jack ram travel shall be sufficient to
554 allow the test to be done without resetting the equipment.

555
556 Monitor the nail load during proof tests with both the load cell and the
557 pressure gauge. Use the load cell to maintain constant load hold during the
558 creep test load hold increment of the test.

559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603

Measure the nail head movement with a dial gauge capable of measuring up to 0.001 inches. The dial gauge shall have a travel sufficient to allow the test to be done without having to reset the gauge. Visually align the gauge to be parallel with the axis of the nail and support the gauge independently from the jack, wall or reaction frame. Use two dial gauges when the test setup requires reaction against a rock cut face.

(20) Proof Testing of Production Nails. Perform proof testing on at least 10 percent of the production nails in the presence of the Engineer at the locations selected by the Engineer in the field during construction.

Production proof test nails shall have both bonded and temporary unbonded lengths. Prior to testing, only the bonded length of the test nail shall be grouted. The temporary unbonded length of the test nail shall be at least 3 feet. The bonded length of the test nail shall be determined based on the production nail bar grade and size such that the allowable bar structural load is not exceeded during testing, but shall not be less than the length shown on the plans. The allowable bar structural load during testing shall not be greater than 90 percent of the yield strength for Grade 75 bars.

The proof test nail bonded length (L_{BP}) shall not exceed the test allowable bar load divided by 1.5 times the allowable pullout resistance value, or minimum lengths, whichever is greater. The following equation shall be used for sizing the proof test nail bonded length to avoid over-stressing the production nail bar size.

$$L_{BP} = C \times f_y \times A_s / 1.5 \times Q_d, \text{ or minimum lengths, whichever is greater.}$$

- L_{BP} = Maximum Proof Test Nail Bonded Length (feet)
- C = 0.9 for Grade 75 bars
- f_y = Bar Yield Stress (75 ksi)
- A_s = Bar Steel Area (square inches)
- 1.5 = Pullout resistance safety factor
- Q_d = Allowable pullout resistance

The Design Test Loads (DTL) during proof testing are shown on the project plans.

The Maximum Test Load (MTL) during proof testing shall be determined by the following equation:

$$MTL = \text{Maximum Test Load (kip)} = 1.5 \times DTL$$

604
605
606
607
608
609
610
611
612
613

Proof test shall be performed by incrementally loading the proof test nail to a maximum test load of 150 percent of the Design Test Load (DTL). The nail movement at each load shall be measured and recorded by the Engineer. The test load shall be monitored by a load cell and a jack pressure gauge with a sensitivity range meeting the requirements of pressure gauges. At load increments other than the maximum test load, the load shall be held for 1 minute. The soil nail movements shall be recorded at each load increment. Perform the proof testing in accordance with the following loading schedule.

PROOF TEST LOADING SCHEDULE	
LOAD	HOLD TIME
AL (0.05-DTL maximum)	1 minute
0.25 DTL	1 minute
0.50 DTL	1 minute
0.75 DTL	1 minute
1.00 DTL	1 minute
1.25 DTL	1 minute
1.50 DTL (Maximum Test Load)	See Below - *

614
615
616
617
618
619

The alignment load (AL) shall be the minimum load required to align the testing apparatus and shall not exceed 5 percent of the Design Test Load (DTL). Dial gauges shall be set to “zero” after the alignment load has been applied.

620
621
622
623
624
625
626
627
628
629

All load increments shall be maintained at minimum the load stated in the table above and not exceed 5 percent of the intended load. *Depending on performance, either 10 minute or 60 minute creep tests shall be performed at the maximum test load (1.50 DTL). The creep period shall start as soon as the maximum test load is applied and the nail movement shall be measured and recorded at 1 minute, 2, 3, 5, 6, and 10 minutes. Where the nail movement between 1 minute and 10 minutes exceeds 0.04 inches, the maximum test load shall be maintained an additional 50 minutes and movements shall be recorded at 20, 30, 50, and 60 minutes.

630
631
632

(21) Test Nail Acceptance Criteria. A test nail will be considered acceptable by the Engineer when:

633
634
635
636
637

1. For the proof tests, a total creep movement of less than 0.04 inch is measured between the 1 and 10 minute readings or a total creep movement of less than 0.08 inch is measured between the 6 and 60 minute readings and the creep rate is linear or decreasing throughout the creep test load hold period.

638 2. The total measured movement at the maximum test load
639 exceeds 80 percent of the theoretical elastic elongation of the test
640 nail unbonded length.

641 3. A pullout failure does not occur at any load increment. Pullout
642 failure is defined as the load at which attempts to further increase the
643 test load simply result in continued pullout movement of the test nail.
644 The pullout failure load shall be recorded as part of the test data.
645

646 Successful proof tested production nails meeting the above test
647 acceptance criteria may be incorporated as production nails, provided that:
648

649 1. The unbonded length of the test nail drill hole has not
650 collapsed during testing,
651

652 2. The minimum required drill hole diameter has been
653 maintained,
654

655 3. The specified corrosion protection is provided, and
656

657 4. The test nail length is equal to or greater than the scheduled
658 production nail length.
659

660 Test production nails meeting these requirements shall be completed
661 by satisfactorily grouting up the unbonded test length. Maintaining the
662 temporary unbonded test length for subsequent grouting is the Contractor's
663 responsibility. If the unbonded test length of production test nails cannot be
664 satisfactorily grouted subsequent to testing, the test nail shall become
665 sacrificial and shall be replaced with an additional production nail installed
666 at no additional cost to the City.
667

668 **(22) Test Nail Rejection.** If a test nail does not satisfy the acceptance
669 criterion, the Contractor shall determine the cause. Such nails shall be
670 considered not compliant and rejected.
671

672 **(23) Proof Test Nails.** The Engineer may require the Contractor to
673 replace some or all of the installed production nails between a failed proof
674 test nail and the adjacent passing proof test nail. Alternatively, the Engineer
675 may require the installation and testing of additional proof test nails to verify
676 that adjacent previously installed production nails have sufficient load
677 carrying capacity. Contractor modifications may include, but are not limited
678 to, the installation of additional proof test nails; increasing the drill hole
679 diameter to provide increased capacity; modifying the installation or
680 grouting methods; reducing the production nail spacing from that shown in
681 the Contract Documents and installing more production nails at a reduced
682 capacity; or installing longer production nails if the pullout capacity behind

683 the failure surface controls the allowable nail design capacity. Installation
684 and testing of additional proof test nails or installation of additional or
685 modified nails as a result of proof test nail failure(s) will be at no additional
686 cost to the City.

687
688 **(24) Nail Installation Record.** Records documenting the soil nail wall
689 construction will be maintained by the Contractor, unless specified
690 otherwise. The Contractor shall provide the Engineer with as-built drawings
691 showing as-built nail locations and as-built shotcrete construction facing line
692 and grade within 5 days after completion of the shotcrete facing.

693

694 **657.04 Measurement.**

695
696 **(A)** Furnishing soil nail drilling and grouting equipment will be paid on a
697 lump sum basis. Measurement for payment will not apply.

698
699 **(B)** The Engineer will measure soil nails per linear foot in accordance
700 with the contract documents. The length to be paid will be the length
701 measured along the bar centerline from the back face of the shotcrete facing
702 to the bottom tip end of the nail bar as shown on the plans.

703
704 **(C)** The Engineer will measure the proof test per each successfully
705 completed and accepted.

706
707 **(D)** The Engineer will measure structure excavation for soil nail wall
708 under Section 205 – Excavation and Backfill for Bridge and Retaining
709 Structures

710
711 **(E)** The Engineer will measure shotcrete facing and wall drainage under
712 Section 628 - Shotcrete.

713

714 **657.05 Payment.**

715
716 **(A)** The Engineer will pay for furnishing soil nail drilling and grouting
717 equipment on a lump sum basis. The price includes full compensation for
718 furnishing and moving the drilling equipment to the project; setting up at the
719 locations; removing the equipment to the project; setting the equipment up
720 at the locations; removing the equipment from the project; and furnishing
721 labors, materials, tools, and incidentals necessary to complete the work.
722 The Engineer will pay for 60% of the amount bid for this item when the soil
723 nail installation equipment is on the job site, assembled, and ready to install
724 soil nails. The Engineer will pay for the remaining 40% of the amount bid
725 when the Contractor has installed the last soils and proof-tested all the
726 required soil nails.

727 **(B)** The Engineer will pay for the accepted soil nails at the contract unit
728 price per linear foot for the diameter specified. The price includes full

729 compensation for soil nail excavation, furnishing and installing
730 reinforcement bar and grout within the bonded and unbonded lengths,
731 performing grout tests, and furnishing labor, materials, equipment, tools,
732 and incidentals necessary to complete the work.

733 **(C)** The Engineer will pay for the accepted proof test per each. The price
734 includes full compensation for costs related to the performance of the load
735 test, furnishing labor, materials, tools, equipment, and incidentals
736 necessary to complete the work.

737 The Engineer will make payment under:

738	Pay Item	Pay Unit
739		
740		
741	Furnishing Soil Nail Drilling and Grouting Equipment	Lump Sum
742		
743	Production Soil Nails	Linear Feet
744		
745	Proof Test of Production Soil Nails	Each
746		

747 The Engineer will pay for structure excavation for soil nail wall under
748 Section 205 – Excavation and Backfill for Bridge and Retaining Structures.

749
750 The Engineer will pay for shotcrete construction facing, reinforcing
751 steel and wall drainage under Section 628 – Shotcrete.”

752
753
754
755

END OF SECTION 657

1 Make the following Section a part of the Standard Specifications:
2

3 **“SECTION 670 - GLASS FIBER REINFORCED POLYMER REBAR**
4

5 **670.01 Description.** This work includes the furnishing and placing of Glass
6 Fiber Reinforced Polymer (GFRP) Rebar according to the contract.
7

8 **670.02 Materials.** Materials and construction for the GFRP rebars shall
9 conform to ASTM D 7957, ACI 440.1 R-01 “Guide for the Design and
10 Construction of Concrete Reinforced with FRP Bars” and AASHTO “LRFD Bridge
11 Design Guide Specifications for GFRP – Reinforced Bridge Deck and Traffic
12 Railings.” GFRP rebars shall also meet the following conditions and properties:
13

14 Tensile Strength: 110,000 psi, min. for #4 bar; 105,000 psi min. for
15 #5 bar.
16

17 Modulus of Elasticity: 6,500,000 psi, min.
18

19 Barcol Hardness: 60 min.
20

21 Bond stress between the rebar and concrete shall exceed 1500 psi.
22

23 Glass content by weight: 70% min. Per ASTM D2584.
24

25 Allowable tensile stress: 25% of minimum ultimate tensile strength.
26

27 The product shall be non-magnetic, non-conducting and corrosion
28 resistant. The use of ferrous materials is prohibited. The product shall exhibit
29 chemical resistance to salts, acids and concrete chemistries.
30

31 **(A)** Materials shall be obtained from a manufacturer regularly engaged
32 in the production of GFRP rebars. Six copies of the manufacturer's
33 brochures shall be submitted.
34

35 **(B)** A copy of the manufacturer's Quality Assurance Manual shall be
36 provided prior to delivery of any product to the site.
37

38 **(C)** Tensile test reports from the manufacturer shall be provided for
39 every 3,000 feet of product supplied in accordance with ASTM D-3916-84.
40

41 **(D)** Assigned Lot traceability numbers from the manufacturer with each
42 shipment shall be provided. These numbers shall change with each
43 production shift.
44

45 **(E)** Daily resin impregnation test results shall be provided at the
46 request of the Engineer.
47

48 **(F)** Certified test results of material properties shall be provided.

49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95

670.03 Construction Requirements.

(A) General.

(1) Straight Bars. All GFRP reinforcing bars shall consist of uniformly pretensioned continuous longitudinal fibers encapsulated in the matrix material. The outer surface shall be deformed by a helical wrap of glass and sand coating providing a mechanical bond between the bar and concrete. The GFRP reinforcing bars shall not be cut or taken from the production line until an initial curing state has been reached and the bars exhibit dimensional stability.

(2) Fabricated Bends. All bends shall be fabricated in the factory and straight thermal curing shall not take place until all fabrication has been completed. Such fabrication shall always be executed with the use of molds. Each radius shall transfer no less than 40% of ultimate tensile strength. ACI 318 minimum radius shall be adhered to unless otherwise permitted by the Engineer. Field bends shall not be permitted.

(B) Installation. The product shall be field cut with masonry blades. A dust mask or other suitable protection shall be used during the cutting process. Due to the rebar's very low specific gravity, it may tend to float in concrete during vibration; therefore, care should be exercised to adequately secure GFRP in formwork using chairs, plastic coated wire ties or nylon zip ties.

(C) Order Lists and Bending Diagrams. The Contractor shall submit six (6) copies of the GFRP rebars order lists and bending diagrams to the Engineer. The Contractor shall be wholly and completely responsible for the accuracy of the lists and diagrams.

(D) Storage, Surface Condition and Protection of Reinforcement. The Contractor shall store the GFRP rebars above the surface of the ground upon platforms, skids, or other supports. GFRP rebars shall be covered to protect them from ultraviolet exposure, high temperatures, and chemical substances. The Contractor shall protect the GFRP rebars from other surface damage. The GFRP rebars shall be free of mortar, oil, dirt, and other coatings that would destroy or reduce the bond. GFRP rebar shall not be dropped on the ground by workers at any time. The GFRP rebars shall also be free from injurious defects including cracks and laminations.

670.04 Measurement. The Engineer will not measure GFRP bars for payment.

96 **670.05 Payment.** The Engineer will not pay for the accepted GFRP bars
97 separately. The Engineer shall consider the cost for the accepted GFRP bars as
98 included in the contract price of the various contract items. The cost is for the
99 work prescribed in this section and the contract documents.”

100

101

102

END OF SECTION 670

1 Make the following section a part of the Standard Specifications:
2

3 **“SECTION 671 – PROTECTION OF ENDANGERED SPECIES**
4

5 **671.01 Description.** The endangered Hawaiian Hoary Bat (*Lasiurus cinereus*
6 *semotus*), the Hawaiian Goose (*Branta (Nesochen sandvicensis)*), Hawaiian Petrel
7 (*Pterodroma sandwichensis*), Band-Rumped Storm-Petrel (*Oceanodroma castro*),
8 and the threatened Newell’s Shearwater (*Puffinus newelli*) are in the general vicinity
9 of the proposed project that may transit or visit the proposed project. Also to be
10 considered are the Hawaiian waterbirds, including the Hawaiian Stilt or Ae’o
11 (*Himantopus mexicanus knudseni*), the Hawaiian Coot or 'Alae ke'oke'o (*Fulica alai*),
12 and the Hawaiian Duck or Koloa Maoli (*Anas wyvilliana*) (all endangered).
13

14 The Contractor shall protect these endangered species throughout the
15 construction duration.
16

17 **671.02 Materials.** None
18

19 **671.03 Construction.**
20

21 **(A) Pre-Construction and Construction Requirements.** Comply with
22 the following conditions and the notes in the Contract Plans:
23

24 **(1) Hawaiian Hoary Bats.** Hawaiian Hoary Bats nest in both
25 exotic and native woody vegetation. There will be no disturbance,
26 removal, or trimming of woody plants greater than 15 feet (4.6 meters)
27 tall during the birthing and pup rearing season (June 1 through
28 September 15).
29

30 Additionally, barbed wire will not be used for fencing.
31

32
33 **(2) Hawaiian Goose.** Any Hawaiian Goose in or near the project
34 area will not be approached, fed, or disturbed in any way.
35

36 If Hawaiian Goose are observed loafing, foraging, or otherwise
37 present within the project area during the breeding season
38 (September 1 through April 30), a trained biologist will survey the area
39 near the project prior to work each day. Also, nest surveys will be
40 conducted in and around the project area by a biologist familiar with
41 the nesting behavior of Hawaiian Goose prior to the resumption of any
42 work. Surveys will be repeated after any delay in work of three or
43 more days. If a nest is identified within 150 feet of the work area, all
44 work will cease and the United States Department of Interior Fish and
45 Wildlife Service (USFWS) will be contacted immediately for further
46 guidance.

47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92

In areas where Hawaiian Goose are known to be present, reduced speed limits will be posted and implemented and project personnel and Contractors will be informed of the presence of endangered species on-site.

(3) Hawaiian Seabirds. Newell’s Shearwater and Band-Rumped Storm-Petrel may traverse the project area at night during breeding season, which extends from March 1 through December 15. If night time work will be required in conjunction with the development of the project, all lights will be fully shielded so the bulb can only be seen from below bulb height and will only be in use when necessary to reduce the potential for interactions of nocturnally flying seabirds with external lights and man-made structures. All outdoor lights will be turned off when human activity is not occurring in the lighted area.

No night time construction will occur during the peak seabird fledging period (September 15 through December 15).

(4) Hawaiian Waterbirds. Hawaiian waterbirds occupy fresh and brackish-water marshes and natural or manmade ponds. Hawaiian stilts also occupy areas with ephemeral or persistent standing water. Because this project occurs near water, threats to these species from this project may include disturbance from human activity and injury or mortality from vehicle strikes.

Contractor shall incorporate these measures to avoid and minimize project-related adverse effects to the Hawaiian waterbirds:

(a) In areas where known presence of Hawaiian waterbirds occurs, post and implement reduced speed limits, and inform project personnel and Contractors of the presence of these endangered species.

(b) Because water resources occur in the project site, employ U.S. Fish and Wildlife Service Recommended Standard Best Management Practices when working in aquatic environments.

(c) Survey for Hawaiian waterbirds in or near the project area prior to work using survey biologists. Survey biologists should be trained and capable of identifying adults and juveniles of each species, nesting behaviors, and nests.

i. Surveys for species and nests should be repeated when a delay of work occurs that is three days

93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137

or more (during which the birds may attempt to nest).

ii. If a nest or active brood is found, contact the Fish and Wildlife Service within 24 hours for further guidance.

iii. Establish and maintain a 100-ft buffer around all active nests and/or broods until the chicks/ducklings have fledged. Do not conduct potentially disruptive activities or habitat alteration within this buffer.

iv. Have a biological monitor that is familiar with the species' biology present on the project site during all construction or earth moving activities until the chicks/ducklings fledge to ensure that Hawaiian waterbirds and nests are not adversely affected.

(B) Compliance Requirements. The Contractor shall protect all species noted above for the duration of construction. Failure to comply with the construction requirements, harm or a taking of an individual during the construction duration shall be enforceable by the U.S. Fish and Wildlife Service as set forth by the Endangered Species Act. Resultant penalties and/or fines shall be at the Contractor's expense without cost or liability to the State.

671.04 Measurement. The Engineer will measure the work required for the protection of endangered species on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation and as ordered by the Engineer.

671.05 Payment. The Engineer will pay for the accepted protection of endangered species on a force account basis in accordance with Subsection 109.06 – Force Account Provisions and Compensation. Payment will be full compensation for the work prescribed in this section, by the Engineer, and in the contract documents.

The Engineer will pay for the following pay item when included in the proposal schedule:

Pay Item	Pay Unit
Protection of Endangered Species	Force Account

An estimated amount may be allocated in the proposal schedule under "Protection of Endangered Species", but the actual amount to be paid will be the

138 sum shown on the accepted force account records, whether this sum be more or
139 less than the estimated amount allocated in the proposal schedule.”

140

141

142

143

END OF SECTION 671

1 Make the following Section a part of the Standard Specifications:

2
3 **"SECTION 695 - REMOVAL AND DISPOSAL OF LEAD-BASED PLATES**

4
5 **695.01 Description.** This work includes testing for, removing, and disposing
6 of lead plates at rocker bearing locations.

7
8 The Contractor shall take the necessary precautions to ensure full
9 compliance with all the current and applicable regulations regarding the testing,
10 removal and disposal of the lead plates.

11
12 **695.02 Materials.**

13
14 **(A) Lead Plate Removal.** The Contractor shall submit the plate
15 removal and disposal details for acceptance by the Engineer.

16
17 **695.03 Construction Requirements.**

18
19 **(A) Reference.**

20
21 **(1)** 29 CFR 1926.62 OSHA Lead Construction Standard

22
23 **(B) General.**

24
25 **(1) Changes in Legal Requirements for Lead Removal.** The
26 legal requirements described here-in, are for reference only, the
27 Contractor shall be responsible for utilizing methods and
28 procedures current at the time of the work operations.

29
30 **(C) Quality Assurance and Control of Work.**

31
32 **(1) Hazardous Waste Management.** The Contractor shall
33 submit a Hazardous Waste Management Plan within forty-five (45)
34 calendar days after award of contract, for acceptance. The
35 Hazardous Waste Management Plan shall follow current,
36 applicable, requirements of Federal, State and local hazardous
37 waste control regulations and shall address:

38
39 **(a) Baseline Testing.** The Contractor shall determine,
40 before the start of operations, the existing lead levels.

41
42 **(b) Removal Methods.**

43
44 **(c) Storage on Site.**

45
46 **(d) Transport.**

47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92

(e) Disposal.

(f) Site Clean-up.

(2) Pre-Construction Meeting. The Contractor shall meet with the Engineer to discuss in detail the lead removal plan, including work procedures and precautions for the work.

(3) Safety and Health Compliance. The Contractor shall follow the current laws, ordinances, rules, and regulations of Federal, State, and local agencies on removing, handling, storing, transporting, and disposing of lead waste materials, and the applicable requirements of the current issue of DOSH standards. The Contractor shall submit interpretation of standards to the Engineer for resolution before starting work. Where specification requirements and the referenced documents vary, the more stringent requirements shall apply.

(4) Project Planning and Review. The Contractor shall provide the Engineer with the following information for acceptance before beginning site operations.

(a) Identification of Hazardous Wastes Associated with the Work.

(b) Estimated quantities of waste to be generated and disposed of;

(c) Names and qualifications of each worker that will be generating, transporting, storing, treating and disposing of the wastes. Included shall be the facility location and a 24-hour point of contact. The Contractor shall submit two (2) copies of EPA hazardous waste permits to the Engineer;

(d) Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes;

(e) List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport of equipment;

(f) Spill prevention, containment, and cleanup contingency measures to be implemented;

93 (g) Work plan and schedule for waste containment,
94 removal and disposal. The Contractor shall clean up and
95 containerize wastes daily.

96
97 (h) Cost and procedures for hazardous waste disposal
98 according to the accepted plan.
99

100 (5) **Hazard Communication Program.** The Contractor shall
101 set up and carry out a Hazard Communication Program as required
102 by applicable DOSH standards.
103

104 (D) **Submittals.** The Contractor shall submit to the Engineer
105 information, documentation, and materials required for acceptance, before
106 the start of sign structure removal work.
107

108 (1) **Manufacturer's Catalog Data.** The Contractor shall
109 submit manufacturer's catalog data for all items related to the
110 removal and disposal of the hazardous material
111

112 (a) Manifest. The Contractor shall submit to the Engineer
113 a completed and signed Hazardous Waste Receipt Manifest
114 from the accepting treatment or disposal facility.
115

116 (b) EPA Acceptance. The Contractor shall submit
117 documents indicating that the EPA has accepted the
118 hazardous waste treatment disposal facility for lead disposal.
119

120 (2) **Testing and Monitoring.**
121

122 (a) Testing Laboratory. The Contractor shall submit the
123 name, address, and telephone number of the testing
124 laboratory selected to do the testing for lead. The
125 Contractor shall provide documentation that the laboratory
126 doing the analysis has been judged proficient by successful
127 participation, within the last year, in the National Institute for
128 Occupational Safety and Health's (NIOSH) Proficiency
129 Analytical Testing (PAT) Program. The AIHA shall accredit
130 the laboratory. The Contractor shall provide AIHA
131 documentation along with the date of accreditation and/or
132 reaccreditation.
133

134 (b) Test Results. The Contractor shall submit test results
135 to the Engineer:
136

137 1. within five (5) working days, or as approved;
138

139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184

2. signed by the testing laboratory employee doing the air monitoring and;
3. the name of the employee that analyzed the sample.

(E) Work Procedures.

(1) General. The Contractor shall remove lead according to the accepted lead removal plan. The Contractor shall use procedures and equipment required to limit occupational and environmental exposure to lead when lead is removed according to DOSH standards except as specified. Disposal of Lead Plates and associated waste shall conform to Environmental Protection Agency (EPA), Federal, State, and local requirements;

(2) Protection of the Environment. The Contractor shall follow all applicable provisions of the CFR (i.e.: Clean Water Act, the Clean Air Act, etc...);

(3) Cleanup and Disposal.

(a) Disposal. Lead-contaminated waste, scrap, debris, bags, containers, equipment, and lead-contaminated clothing, which may produce air borne concentrations of lead particles, shall be collected by the Contractor. The Contractor shall make provisions for the disposal of lead-contaminated waste material at an EPA approved hazardous waste treatment, storage, or disposal facility.

The Contractor shall store waste materials in U.S. Department of Transportation (49 CFR 178) approved 55 gallon drums. The Contractor shall label each drum to identify the type of waste (49 CFR 172), and the date lead-contaminated wastes were first put in the drum. The Engineer will assign an area for interim storage of waste containing drums.

The Engineer will not permit storage of hazardous waste drums in interim storage longer than ninety (90) calendar days from the date on which the hazardous waste was initially placed in each drum. The Contractor shall handle, store, transport, and dispose of lead or lead-contaminated waste according, but not limited to: 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265.

185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213

(b) Disposal Documentation. The Contractor shall submit written evidence that the hazardous waste treatment, storage, or disposal (TSD) facility is approved for lead disposal by the EPA and state, or local regulatory agencies. The Contractor shall submit to the Engineer one (1) copy of the completed manifest, signed and dated by the initial transporter according to 40 CFR 262.

695.04 Method of Measurement. The Engineer will measure removal and disposal of lead-based plates, if ordered by the Engineer, on a force account basis, in accordance with Subsection 109.06 – Force Account Provisions and Compensation.

695.05 Basis of Payment. The Engineer will pay for removal and disposal of lead-based plates at the contract price per pay unit, as shown in the proposal schedule. The price includes quality assurance and control of the work; submittals; equipment; work procedures; furnishing labors, materials, equipment, tools and incidentals necessary to complete the work.

The Engineer will pay for the following items when included in the proposal schedule:

Pay Item	Pay Unit
Removal and Disposal of Lead Plates	Force Account”

END OF SECTION 695

1 **SECTION 699 – MOBILIZATION**

2
3 Make the following amendments to said Section:

4
5 **(I)** Amend **699.03 Applicability** by revising from lines 21 to 24 to read as
6 follows:

7
8 **“699.03 Applicability.** Maximum bid allowed for this item is an amount not to
9 exceed 6 percent of the sum of all items excluding the bid price of this item.”

10
11 **(II)** Amend **699.05 Payment** by revising from lines 44 to 47 to read as follows:

12
13 “Mobilization (Not to exceed 6 percent of the sum of all items
14 excluding the bid price of this item) Lump Sum”

15
16
17
18
19
20 **END OF SECTION 699**

1 **SECTION 701 – HYDRAULIC CEMENT**
2

3 Make the following amendments to said Section:
4

5 **(I)** Amend **Subsection 701.01 Portland Cement** by replacing lines 7 to 8 to
6 read as follows:
7

8 **“701.01 Portland Cement.** Portland cement shall consist of Type 1 or Type II
9 Portland cement, Type IP Portland-pozzolan cement, or Type IL Portland-
10 limestone cement.”
11

12 **(II)** Amend **Subsection 701.01 Portland Cement** by revising the following
13 sentence in line 13:
14

15 “Type IL Portland-limestone cement and Type IP Portland-pozzolan cement shall
16 conform to AASHTO M 240.”
17
18
19
20

21 **END OF SECTION 701**
22
23

1 Make the following Section a part of the Standard Specifications:
2

3 **"SECTION 719 – MACRO-SYNTHETIC FIBERS FOR CONCRETE**
4 **REINFORCEMENT**

5
6 **719.01 Macro-Synthetic Fibers for Concrete Reinforcement.** Macro-Synthetic
7 Fibers for Concrete Reinforcement shall conform to the following requirements:
8

9 **(A)** Macro-synthetic fibers shall be manufactured from virgin polyolefins
10 (polypropylene and polyethylene) and comply with ASTM C 1116.4.1.3.
11 Fibers manufactured from materials other than polyolefins must show
12 documentary evidence confirming their long term resistance to deterioration
13 when in contact with moisture and alkalies present in cement paste and/or
14 the substances present in air-entraining and chemical admixtures.
15

16 **(B)** The minimum fiber length shall be 1.50 inches.
17

18 **(C)** Macro-synthetic fibers shall have an aspect ratio (length divided by the
19 equivalent diameter of the fiber) between 45 and 150.
20

21 **(D)** Macro-synthetic fibers shall have a minimum tensile strength of 40 ksi
22 when tested in accordance with ASTM D 3822.
23

24 **(E)** Minimum dosage rate in pounds of fibers per cubic yard of concrete
25 shall be established by determining a minimum average residual strength of
26 no less than 150 psi when tested in accordance with ASTM C 1399. The
27 minimum fiber dosage rate shall be 3 lbs/cubic yard.
28

29 **(F)** Macro-synthetic fibers shall have a minimum modulus of elasticity of 400
30 ksi when tested in accordance with ASTM D 3822.”
31
32

33
END OF SECTION 719

1 **SECTION 750 – TRAFFIC CONTROL SIGN AND MARKER MATERIALS**

2
3 Make the following amendments to said Section:

4
5 **(I)** Amend **Subsection 750.01(A)(1) Retroreflectorization** by replacing lines
6 8 through 31 to read:

7
8 **“(1) Retroreflectorization.** The following shall be retroreflectorized:

9
10 **(a)** Background for illuminated guide signs and exit number panels ("E"
11 designation) with ASTM D 4956 Type XI retroreflective sheeting.

12
13 **(b)** Background for non-illuminated guide signs and exit number panels
14 ("D" designation) with ASTM D 4956 Type XI retroreflective sheeting.

15
16 **(c)** Messages, arrows, and borders of guide signs and exit number
17 panels ("D" and "E" designations) with ASTM D 4956 Type XI
18 retroreflective sheeting.

19
20 **(d)** Regulatory and warning signs, directional signs ("DIR" designation),
21 route and auxiliary markers, shield symbols, yellow "EXIT ONLY" panels,
22 construction warning signs, and barricade rails, completely, with Type III,
23 IV, or IX retroreflective sheeting.

24
25 **(e)** Pedestrian, school, bicycle crossing series, completely with Type IX
26 fluorescent yellow green retroreflective sheeting.”

27
28
29 **(II)** Amend **Subsection 750.01(B) Backing** by replacing lines 72 through 73
30 to read:

31
32 “Aluminum sheet shall conform to ASTM B 209, alloy 5052-H38 or 6061-
33 T6 flat sheet.”

34
35 **(III)** Amend **Subsection 750.01(E) Retroreflective Sheeting Materials** by
36 replacing lines 1126 through 1137 to read:

37
38 **“(E) Retroreflective Sheeting Materials.** Retroreflective sheeting
39 includes white or colored sheeting having smooth outer surface.

40
41 Retroreflective sheeting shall be classified in accordance with ASTM D
42 4956.

43
44 The coefficient of retroreflection shall meet the minimum requirements of
45 ASTM D 4956 for the type of reflective sheeting specified.

47 The color shall conform to the latest appropriate standard color tolerance
48 chart issued by the U.S. Department of Transportation, Federal Highway
49 Administration and to the daytime and nighttime color requirements of ASTM D
50 4956.

51
52 Test methods and procedures shall be in accordance with ASTM.

53
54 **(IV)** Amend **Subsection 750.02 Sign Posts** by replacing lines 1168 through
55 1172 to read:

56
57 **“(C) Square Tube Posts.** Square and other tube posts shall conform to ASTM
58 A 653 for cold-rolled, carbon steel sheet, commercial quality; or ASTM A 787 for
59 electric-resistance-welded, metallic-coated carbon steel mechanical tubing.”

60
61
62
63

END OF SECTION 750

1 **SECTION 755 – PAVEMENT MARKING MATERIALS**
2

3 Make the following amendments to said Section:
4

5 **(I)** Amend **Subsection 755.02 (C) Retroreflective Pavement Markers** by
6 revising lines 223 to 236 to read:

7
8 “Exterior surface of shell shall be smooth and contain one or two
9 retroreflective faces of specified color.”
10

11 **(II)** Amend **Subsection 755.05 (C)(1) Glass Beads** by adding the following
12 after line 869:

13
14 **(f)** The glass spheres shall not contain more than 200 ppm (total)
15 arsenic, 200 ppm (total) antimony nor more than 200 ppm (total)
16 lead, when tested according to EPA Methods 3052 and 6010C.
17 Other suitable x-ray fluorescence spectrometry analysis methods
18 may be used to screen samples of glass spheres for arsenic and
19 lead content.”
20
21

22 **END OF SECTION 755**

Requirements of Chapter 104, HRS Wages and Hours of Employees on Public Works Law

Chapter 104, HRS, applies to every public works construction project over \$2,000, regardless of the method of procurement or financing (purchase order, voucher, bid, contract, lease arrangement, warranty, SPRB).

Rate of Wages for Laborers and Mechanics

- Minimum prevailing wages (basic hourly rate plus fringe benefits), as determined by the Director of Labor and Industrial Relations and published in wage rate schedules, shall be paid to the various classes of laborers and mechanics working on the job site. [§104-2(a), (b), Hawaii Revised Statutes (HRS)]
- If the Director of Labor determines that prevailing wages have increased during the performance of a public works contract, the rate of pay of laborers and mechanics shall be raised accordingly. [§104-2(a) and (b), HRS; §12-22-3(d) Hawaii Administrative Rules (HAR)]

Overtime

- Laborers and mechanics working on a Saturday, Sunday, or a legal holiday of the State or more than eight hours a day on any other day shall be paid overtime compensation at not less than one and one-half times the basic hourly rate plus the cost of fringe benefits for all hours worked. If the Director of Labor determines that a prevailing wage is defined by a collective bargaining agreement, the overtime compensation shall be at the rates set by the applicable collective bargaining agreement [§§104-1, 104-2(c), HRS; §12-22-4.1, HAR]

Weekly Pay

- Laborers and mechanics employed on the job site shall be paid their full wages at least once a week, without deduction or rebate, except for legal deductions, within five working days after the cutoff date. [§104-2(d), HRS]

Posting of Wage Rate Schedules

- Wage rate schedules with the notes for prevailing wages and special overtime rates, shall be posted by the contractor in a prominent and easily accessible place at the job site. A copy of the entire wage rate schedule shall be given to each laborer and mechanic employed under the contract, except when the employee is covered by a collective bargaining agreement. [§104-2(d), HRS]

Withholding of Accrued Payments

- If necessary, the contracting agency may withhold accrued payments to the contractor to pay to laborers and mechanics employed by the contractor or subcontractor on the job site any difference between the wages required by the public works contract or specifications and the wages received. [§104-2(e), HRS]

Certified Weekly Payrolls and Payroll Records

- A certified copy of all payrolls shall be submitted weekly to the contracting agency. [§104-3(a), HRS; §12-22-10, HAR]
- The contractor is responsible for the submission of certified copies of the payrolls of all subcontractors. The certification shall affirm that the payrolls are correct and complete, that the wage rates listed are not less than the applicable rates contained in the applicable wage rate schedule, and that the classifications for each laborer or mechanic conform with the work the laborer or mechanic performed. [§104-3(a), HRS; §12-22-10, HAR]
- Payroll records shall be maintained by the contractor and subcontractors for three years after completion of construction. The records shall contain: [§104-3(b), HRS; §12-22-10, HAR]
 - the name and home address of each employee
 - the last four digits of social security number
 - a copy of the apprentice's registration with DLIR
 - the employee's correct classification
 - rate of pay (basic hourly rate + fringe benefits)
 - itemized list of fringe benefits paid
 - daily and weekly hours worked
 - weekly straight time and overtime earnings
 - amount and type of deductions
 - total net wages paid
 - date of payment
- Records shall be made available for examination by the contracting agency, the Department of Labor and Industrial Relations (DLIR), or any of its authorized representatives, who may also interview employees during working hours on the job. [§§104-3(c), 104-22(a), HRS; §12-22-10, HAR]

Termination of Work on Failure to Pay Wages

- If the contracting agency finds that any laborer or mechanic employed on the job site by the contractor or any subcontractor has not been paid prevailing wages or overtime, the contracting agency may, by written notice to the contractor, terminate the contractor's or subcontractor's right to proceed with the work or with the part of the work in which the required wages or overtime compensation have not been paid. The contracting agency may complete this work by contract or otherwise, and the contractor or contractor's sureties shall be liable to the contracting agency for any excess costs incurred. [§104-4, HRS]

Apprentices

- Apprentice wage rates apply to contractors who are a party to a bona fide apprenticeship program which has been registered with the DLIR. In order to be paid apprentice rates, apprentices must be parties to an agreement either registered with or recognized as a USDOL nationally approved apprenticeship program by the DLIR, Workforce Development Division, (808) 586-8877, and the apprentice must be individually registered by name with the DLIR. [§12-22-6(1) and (2), HAR]
- The number of apprentices on any public work in relation to the number of journeyworkers in the same craft classification as the apprentices employed by the same employer on the same public work may not exceed the ratio allowed under the apprenticeship standards registered with or recognized by the DLIR. A registered or recognized apprentice receiving the journeyworker rate will not be considered a journeyworker for the purpose of meeting the ratio requirement. [§12-22-6(3), HAR]

Enforcement

- To ensure compliance with the law, DLIR and the contracting agency will conduct investigations of contractors and subcontractors. If a contractor or subcontractor violates the law, the penalties are: [§104-24, HRS]
 - First Violation Equal to 25% of back wages found due or \$250 per offense up to \$2,500, whichever is greater.
 - Second Violation Equal to amount of back wages found due or \$500 for each offense up to \$5,000, whichever is greater.
 - Third Violation Equal to two times the amount of back wages found due or \$1,000 for each offense up to \$10,000, whichever is greater; and
Suspension from doing any new work on any public work of a governmental contracting agency for three years.
- A violation would be deemed a second violation if it occurs within two years of the **first notification of violation**, and a third violation if it occurs within three years of **the second notification of violation**. [§104-24, HRS; §12-22-25(b), HAR]
- **Suspension:** For a first or second violation, the department shall immediately suspend a contractor who fails to pay wages or penalties until all wages and penalties are paid in full. For a third violation, the department shall penalize and suspend the contractor as described above, **except that if the contractor continues to violate the law, then the department shall immediately suspend the contractor for a mandatory three years. The contractor shall remain suspended until all wages and penalties are paid in full.** [§§104-24, 104-25, HRS]
- **Suspension:** Any contractor who fails to make payroll records accessible or provide requested information within 10 days, or fails to keep or falsifies any required record, shall be assessed a penalty including suspension as provided in Section 104-22(b) and 104-25(a)(3), HRS. [§104-3(c), HRS; §12-22-26, HAR]
- If any contractor interferes with or delays any investigation, the contracting agency shall withhold further payments until the delay has ceased. Interference or delay includes failure to provide requested records or information within ten days, failure to allow employees to be interviewed during working hours on the job, and falsification of payroll records. The department shall assess a penalty of \$10,000 per project, and \$1,000 per day thereafter, for interference or delay. [§104-22(b), HRS; §12-22-26, HAR]
- Failure by the contracting agency to include in the provisions of the contract or specifications the requirements of Chapter 104, HRS, relating to coverage and the payment of prevailing wages and overtime, is not a defense of the contractor or subcontractor for noncompliance with the requirements of this chapter. [§104-2(f), HRS]



For additional information, visit the department's website at <http://labor.hawaii.gov/wsd> or contact any of the following DLIR offices:

Oahu (Wage Standards Division)(808) 586-8777
Hawaii Island.....(808) 974-6464
Maui and Kauai(808) 243-5322

"General Decision Number: HI20240001 10/04/2024

Superseded General Decision Number: HI20230001

State: Hawaii

Construction Types: Building, Heavy (Heavy and Dredging), Highway and Residential

Counties: Hawaii Statewide.

BUILDING CONSTRUCTION PROJECTS; RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories); HEAVY AND HIGHWAY CONSTRUCTION PROJECTS AND DREDGING

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

<p>If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
<p>If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:</p>	<ul style="list-style-type: none"> . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/05/2024
1	01/12/2024
2	01/19/2024
3	04/19/2024
4	05/17/2024
5	06/07/2024
6	07/19/2024
7	08/30/2024
8	09/06/2024
9	10/04/2024

ASBE0132-001 09/01/2024

	Rates	Fringes
Asbestos Workers/Insulator Includes application of all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems. Also the application of firestopping material for wall openings and penetrations in walls, floors, ceilings and curtain walls.....	\$ 45.80	30.35

BOIL0627-005 01/01/2021

	Rates	Fringes
BOILERMAKER.....	\$ 37.25	31.25

BRHI0001-001 09/05/2023

	Rates	Fringes
BRICKLAYER Bricklayers and Stonemasons.	\$ 48.03	32.23
Pointers, Caulkers and Weatherproofers.....	\$ 48.28	32.23

BRHI0001-002 09/05/2023

	Rates	Fringes
Tile, Marble & Terrazzo Worker Terrazzo Base Grinders.....	\$ 44.69	33.00
Terrazzo Floor Grinders and Tenders.....	\$ 43.14	33.00
Tile, Marble and Terrazzo Workers.....	\$ 46.50	33.00

CARP0745-001 10/01/2021

	Rates	Fringes
Carpenters: Carpenters; Hardwood Floor Layers; Patent Scaffold Erectors (14 ft. and		

over); Piledrivers; Pneumatic Nailers; Wood Shinglers and Transit and/or Layout Man.....	\$ 51.25	24.84
Millwrights and Machine Erectors.....	\$ 51.50	24.84
Power Saw Operators (2 h.p. and over).....	\$ 51.40	24.84

CARP0745-002 09/04/2023

	Rates	Fringes
Drywall and Acoustical Workers and Lathers.....	\$ 53.00	27.74

ELEC1186-001 08/25/2024

	Rates	Fringes
Electricians:		
Cable Splicers.....	\$ 62.77	32.46
Electricians.....	\$ 55.55	32.25
Telecommunication worker....	\$ 40.00	15.50

ELEC1186-002 08/25/2024

	Rates	Fringes
Line Construction:		
Cable Splicers.....	\$ 62.77	32.46
Groundmen/Truck Drivers.....	\$ 41.66	26.50
Heavy Equipment Operators...\$	50.00	29.90
Linemen.....	\$ 55.55	32.25
Telecommunication worker....\$	40.00	15.50

ELEV0126-001 01/01/2024

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 70.90	37.885+a+b

a. VACATION: Employer contributes 8% of basic hourly rate for 5 years service and 6% of basic hourly rate for 6 months to 5 years service as vacation pay credit.

b. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, the Friday after Thanksgiving Day and Christmas Day.

ENGI0003-002 09/03/2018

	Rates	Fringes
Diver (Aqua Lung) (Scuba))		
Diver (Aqua Lung) (Scuba) (over a depth of 30 feet)...	\$ 66.00	31.26
Diver (Aqua Lung) (Scuba) (up to a depth of 30 feet)..	\$ 56.63	31.26
Stand-by Diver (Aqua Lung) (Scuba).....	\$ 47.25	31.26
Diver (Other than Aqua Lung)		
Diver (Other than Aqua Lung).....	\$ 66.00	31.26

Diver Tender (Other than Aqua Lung).....	\$ 44.22	31.26
Stand-by Diver (Other than Aqua Lung).....	\$ 47.25	31.26
Helicopter Work		
Airborne Hoist Operator for Helicopter.....	\$ 45.80	31.26
Co-Pilot of Helicopter.....	\$ 45.98	31.26
Pilot of Helicopter.....	\$ 46.11	31.26
Power equipment operator - tunnel work		
GROUP 1.....	\$ 42.24	31.26
GROUP 2.....	\$ 42.35	31.26
GROUP 3.....	\$ 42.52	31.26
GROUP 4.....	\$ 42.79	31.26
GROUP 5.....	\$ 43.10	31.26
GROUP 6.....	\$ 43.75	31.26
GROUP 7.....	\$ 44.07	31.26
GROUP 8.....	\$ 44.18	31.26
GROUP 9.....	\$ 44.29	31.26
GROUP 9A.....	\$ 44.52	31.26
GROUP 10.....	\$ 44.58	31.26
GROUP 10A.....	\$ 44.73	31.26
GROUP 11.....	\$ 44.88	31.26
GROUP 12.....	\$ 45.24	31.26
GROUP 12A.....	\$ 45.60	31.26
Power equipment operators:		
GROUP 1.....	\$ 41.94	31.26
GROUP 2.....	\$ 42.05	31.26
GROUP 3.....	\$ 42.22	31.26
GROUP 4.....	\$ 42.49	31.26
GROUP 5.....	\$ 42.80	31.26
GROUP 6.....	\$ 43.45	31.26
GROUP 7.....	\$ 43.77	31.26
GROUP 8.....	\$ 43.88	31.26
GROUP 9.....	\$ 43.99	31.26
GROUP 9A.....	\$ 44.22	31.26
GROUP 10.....	\$ 44.28	31.26
GROUP 10A.....	\$ 44.43	31.26
GROUP 11.....	\$ 44.58	31.26
GROUP 12.....	\$ 44.94	31.26
GROUP 12A.....	\$ 45.30	31.26
GROUP 13.....	\$ 42.22	31.26
GROUP 13A.....	\$ 42.49	31.26
GROUP 13B.....	\$ 42.80	31.26
GROUP 13C.....	\$ 43.45	31.26
GROUP 13D.....	\$ 43.77	31.26
GROUP 13E.....	\$ 43.88	31.26

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Fork Lift (up to and including 10 tons); Partsman (heavy duty repair shop parts room when needed).

GROUP 2: Conveyor Operator (Handling building material); Hydraulic Monitor; Mixer Box Operator (Concrete Plant).

GROUP 3: Brakeman; Deckhand; Fireman; Oiler; Oiler/Gradechecker; Signalman; Switchman; Highline Cableway Signalman; Bargeman; Bunkerman; Concrete Curing Machine (self-propelled, automatically applied unit on streets, highways, airports and canals); Leveeman; Roller (5 tons and under); Tugger Hoist.

GROUP 4: Boom Truck or dual purpose ""A"" Frame Truck (5 tons

or less); Concrete Placing Boom (Building Construction); Dinky Operator; Elevator Operator; Hoist and/or Winch (one drum); Straddle Truck (Ross Carrier, Hyster and similar).

GROUP 5: Asphalt Plant Fireman; Compressors, Pumps, Generators and Welding Machines ("Bank" of 9 or more, individually or collectively); Concrete Pumps or Pumpcrete Guns; Lubrication and Service Engineer (Grease Rack); Screedman.

GROUP 6: Boom Truck or Dual Purpose "A" Frame Truck (over 5 tons); Combination Loader/Backhoe (up to and including 3/4 cu. yd.); Concrete Batch Plants (wet or dry); Concrete Cutter, Groover and/or Grinder (self-propelled unit on streets, highways, airports, and canals); Conveyor or Concrete Pump (Truck or Equipment Mounted); Drilling Machinery (not to apply to waterliners, wagon drills or jack hammers); Fork Lift (over 10 tons); Loader (up to and including 3 and 1/2 cu. yds); Lull High Lift (under 40 feet); Lubrication and Service Engineer (Mobile); Maginnis Internal Full Slab Vibrator (on airports, highways, canals and warehouses); Man or Material Hoist; Mechanical Concrete Finisher (Large Clary, Johnson Bidwell, Bridge Deck and similar); Mobile Truck Crane Driver; Portable Shotblast Concrete Cleaning Machine; Portable Boring Machine (under streets, highways, etc.); Portable Crusher; Power Jumbo Operator (setting slip forms, etc., in tunnels); Rollers (over 5 tons); Self-propelled Compactor (single engine); Self-propelled Pavement Breaker; Skidsteer Loader with attachments; Slip Form Pumps (Power driven by hydraulic, electric, air, gas, etc., lifting device for concrete forms); Small Rubber Tired Tractors; Trencher (up to and including 6 feet); Underbridge Personnel Aerial Platform (50 feet of platform or less).

GROUP 7: Crusher Plant Engineer, Dozer (D-4, Case 450, John Deere 450, and similar); Dual Drum Mixer, Extend Lift; Hoist and/or Winch (2 drums); Loader (over 3 and 1/2 cu. yds. up to and including 6 yards.); Mechanical Finisher or Spreader Machine (asphalt), (Barber Greene and similar) (Screedman required); Mine or Shaft Hoist; Mobile Concrete Mixer (over 5 tons); Pipe Bending Machine (pipelines only); Pipe Cleaning Machine (tractor propelled and supported); Pipe Wrapping Machine (tractor propelled and supported); Roller Operator (Asphalt); Self-Propelled Elevating Grade Plane; Slusher Operator; Tractor (with boom) (D-6, or similar); Trencher (over 6 feet and less than 200 h.p.); Water Tanker (pulled by Euclids, T-Pulls, DW-10, 20 or 21, or similar); Winchman (Stern Winch on Dredge).

GROUP 8: Asphalt Plant Operator; Barge Mate (Seagoing); Cast-in-Place Pipe Laying Machine; Concrete Batch Plant (multiple units); Conveyor Operator (tunnel); Deckmate; Dozer (D-6 and similar); Finishing Machine Operator (airports and highways); Gradesetter; Kolman Loader (and similar); Mucking Machine (Crawler-type); Mucking Machine (Conveyor-type); No-Joint Pipe Laying Machine; Portable Crushing and Screening Plant; Power Blade Operator (under 12); Saurman Type Dragline (up to and including 5 yds.); Stationary Pipe Wrapping, Cleaning and Bending Machine; Surface Heater and Planer Operator, Tractor (D-6 and similar); Tri-Batch Paver; Tunnel Badger; Tunnel Mole and/or Boring Machine Operator Underbridge Personnel Aerial Platform (over 50 feet of platform).

GROUP 9: Combination Mixer and Compressor (gunite); Do-Mor Loader and Adams Elegrader; Dozer (D-7 or equal); Wheel and/or Ladder Trencher (over 6 feet and 200 to 749 h.p.).

GROUP 9A: Dozer (D-8 and similar); Gradesetter (when required by the Contractor to work from drawings, plans or specifications without the direct supervision of a foreman or superintendent); Push Cat; Scrapers (up to and including 20 cu. yds); Self-propelled Compactor with Dozer; Self-Propelled, Rubber-Tired Earthmoving Equipment (up to and including 20 cu. yds) (621 Band and similar); Sheep's Foot; Tractor (D-8 and similar); Tractors with boom (larger than D-6, and similar).

GROUP 10: Chicago Boom; Cold Planers; Heavy Duty Repairman or Welder; Hoist and/or Winch (3 drums); Hydraulic Skooper (Koehring and similar); Loader (over 6 cu. yds. up to and including 12 cu. yds.); Saurman type Dragline (over 5 cu. yds.); Self-propelled, rubber-tired Earthmoving Equipment (over 20 cu. yds. up to and including 31 cu. yds.) (637D and similar); Soil Stabilizer (P & H or equal); Sub-Grader (Gurries or other automatic type); Tractors (D-9 or equivalent, all attachments); Tractor (Tandem Scraper); Watch Engineer.

GROUP 10A: Boat Operator; Cable-operated Crawler Crane (up to and including 25 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (up to and including 1 cu. yd.); Dozer D9-L; Dozer (D-10, HD41 and similar) (all attachments); Gradall (up to and including 1 cu. yd.); Hydraulic Backhoe (over 3/4 cu. yds. up to and including 2 cu. yds.); Mobile Truck Crane Operator (up to and including 25 tons) (Mobile Truck Crane Driver Required); Self-propelled Boom Type Lifting Device (Center Mount) (up to and including 25 tons) (Grove, Drott, P&H, Pettibone and similar; Trencher (over 6 feet and 750 h.p. or more); Watch Engineer (steam or electric).

GROUP 11: Automatic Slip Form Paver (concrete or asphalt); Band Wagon (in conjunction with Wheel Excavator); Cable-operated Crawler Cranes (over 25 tons but less than 50 tons); Cable-operated Power Shovel, Clamshell, Dragline and Backhoe (over 1 cu. yd. up to 7 cu. yds.); Gradall (over 1 cu. yds. up to 7 cu. yds.); DW-10, 20, etc. (Tandem); Earthmoving Machines (multiple propulsion power units and 2 or more Scrapers) (up to and including 35 cu. yds., "struck" m.r.c.); Highline Cableway; Hydraulic Backhoe (over 2 cu. yds. up to and including 4 cu. yds.); Leverman; Lift Slab Machine; Loader (over 12 cu. yds); Master Boat Operator; Mobile Truck Crane Operator (over 25 tons but less than 50 tons); (Mobile Truck Crane Driver required); Pre-stress Wire Wrapping Machine; Self-propelled Boom-type Lifting Device (Center Mount) (over 25 tons m.r.c); Self-propelled Compactor (with multiple-propulsion power units); Single Engine Rubber Tired Earthmoving Machine (with Tandem Scraper); Tandem Cats; Trencher (pulling attached shield).

GROUP 12: Clamshell or Dipper Operator; Derricks; Drill Rigs; Multi-Propulsion Earthmoving Machines (2 or more Scrapers) (over 35 cu. yds "struck" m.r.c.); Operators (Derricks, Piledrivers and Cranes); Power Shovels and Draglines (7 cu. yds. m.r.c. and over); Self-propelled rubber-tired Earthmoving equipment (over 31 cu. yds.) (657B and similar); Wheel Excavator (up to and including 750 cu. yds.

per hour); Wheel Excavator (over 750 cu. yds. per hour).

GROUP 12A: Dozer (D-11 or similar or larger); Hydraulic Excavators (over 4 cu. yds.); Lifting cranes (50 tons and over); Pioneering Dozer/Backhoe (initial clearing and excavation for the purpose of providing access for other equipment where the terrain worked involves 1-to-1 slopes that are 50 feet in height or depth, the scope of this work does not include normal clearing and grubbing on usual hilly terrain nor the excavation work once the access is provided); Power Blade Operator (Cat 12 or equivalent or over); Straddle Lifts (over 50 tons); Tower Crane, Mobile; Traveling Truss Cranes; Universal, Liebherr, Linden, and similar types of Tower Cranes (in the erection, dismantling, and moving of equipment there shall be an additional Operating Engineer or Heavy Duty Repairman); Yo-Yo Cat or Dozer.

GROUP 13: Truck Driver (Utility, Flatbed, etc.)

GROUP 13A: Dump Truck, 8 cu.yds. and under (water level); Water Truck (up to and including 2,000 gallons).

GROUP 13B: Water Truck (over 2,000 gallons); Tandem Dump Truck, over 8 cu. yds. (water level).

GROUP 13C: Truck Driver (Semi-trailer. Rock Cans, Semi-Dump or Roll-Offs).

GROUP 13D: Truck Driver (Slip-In or Pup).

GROUP 13E: End Dumps, Unlicensed (Euclid, Mack, Caterpillar or similar); Tractor Trailer (Hauling Equipment); Tandem Trucks hooked up to Trailer (Hauling Equipment)

BOOMS AND/OR LEADS (HOURLY PREMIUMS):

The Operator of a crane (under 50 tons) with a boom of 80 feet or more (including jib), or of a crane (under 50 tons) with leads of 100 feet or more, shall receive a per hour premium for each hour worked on said crane (under 50 tons) in accordance with the following schedule:

Booms of 80 feet up to but not including 130 feet or Leads of 100 feet up to but not including 130 feet	0.50
Booms and/or Leads of 130 feet up to but not including 180 feet	0.75
Booms and/or Leads of 180 feet up to and including 250 feet	1.15
Booms and/or Leads over 250 feet	1.50

The Operator of a crane (50 tons and over) with a boom of 180 feet or more (including jib) shall receive a per hour premium for each hour worked on said crane (50 tons and over) in accordance with the following schedule:

Booms of 180 feet up to and including 250 feet	1.25
Booms over 250 feet	1.75

 ENGI0003-004 09/04/2017

	Rates	Fringes
Dredging: (Boat Operators)		
Boat Deckhand.....	\$ 41.22	30.93
Boat Operator.....	\$ 43.43	30.93
Master Boat Operator.....	\$ 43.58	30.93
Dredging: (Clamshell or Dipper Dredging)		
GROUP 1.....	\$ 43.94	30.93
GROUP 2.....	\$ 43.28	30.93
GROUP 3.....	\$ 42.88	30.93
GROUP 4.....	\$ 41.22	30.93
Dredging: (Derricks)		
GROUP 1.....	\$ 43.94	30.93
GROUP 2.....	\$ 43.28	30.93
GROUP 3.....	\$ 42.88	30.93
GROUP 4.....	\$ 41.22	30.93
Dredging: (Hydraulic Suction Dredges)		
GROUP 1.....	\$ 43.58	30.93
GROUP 2.....	\$ 43.43	30.93
GROUP 3.....	\$ 43.28	30.93
GROUP 4.....	\$ 43.22	30.93
GROUP 5.....	\$ 37.88	26.76
Group 5.....	\$ 42.88	30.93
GROUP 6.....	\$ 37.77	26.76
Group 6.....	\$ 42.77	30.93
GROUP 7.....	\$ 36.22	26.76
Group 7.....	\$ 41.22	30.93

CLAMSHELL OR DIPPER DREDGING CLASSIFICATIONS

- GROUP 1: Clamshell or Dipper Operator.
- GROUP 2: Mechanic or Welder; Watch Engineer.
- GROUP 3: Barge Mate; Deckmate.
- GROUP 4: Bargeman; Deckhand; Fireman; Oiler.

HYDRAULIC SUCTION DREDGING CLASSIFICATIONS

- GROUP 1: Leverman.
- GROUP 2: Watch Engineer (steam or electric).
- GROUP 3: Mechanic or Welder.
- GROUP 4: Dozer Operator.
- GROUP 5: Deckmate.
- GROUP 6: Winchman (Stern Winch on Dredge)
- GROUP 7: Deckhand (can operate anchor scow under direction of Deckmate); Fireman; Leveeman; Oiler.

DERRICK CLASSIFICATIONS

- GROUP 1: Operators (Derricks, Piledrivers and Cranes).
- GROUP 2: Saurman Type Dragline (over 5 cubic yards).
- GROUP 3: Deckmate; Saurman Type Dragline (up to and including 5 yards).
- GROUP 4: Deckhand, Fireman, Oiler.

ENGI0003-044 09/03/2018

	Rates	Fringes
Power Equipment Operators (PAVING) Asphalt Concrete Material		

Transfer.....	\$ 42.92	32.08
Asphalt Plant Operator.....	\$ 43.35	32.08
Asphalt Raker.....	\$ 41.96	32.08
Asphalt Spreader Operator...	\$ 43.44	32.08
Cold Planer.....	\$ 43.75	32.08
Combination Loader/Backhoe (over 3/4 cu.yd.).....	\$ 41.96	32.08
Combination Loader/Backhoe (up to 3/4 cu.yd.).....	\$ 40.98	32.08
Concrete Saws and/or Grinder (self-propelled unit on streets, highways, airports and canals).....	\$ 42.92	32.08
Grader.....	\$ 43.75	32.08
Laborer, Hand Roller.....	\$ 41.46	32.08
Loader (2 1/2 cu. yds. and under).....	\$ 42.92	32.08
Loader (over 2 1/2 cu. yds. to and including 5 cu. yds.).....	\$ 43.24	32.08
Roller Operator (five tons and under).....	\$ 41.69	32.08
Roller Operator (over five tons).....	\$ 43.12	32.08
Screed Person.....	\$ 42.92	32.08
Soil Stabilizer.....	\$ 43.75	32.08

* IRON0625-001 09/01/2024

	Rates	Fringes
Ironworkers:.....	\$ 48.00	41.86
a. Employees will be paid \$.50 per hour more while working in tunnels and coffer dams; \$1.00 per hour more when required to work under or are covered with water (submerged) and when they are required to work on the summit of Mauna Kea, Mauna Loa or Haleakala.		

LAB00368-001 09/02/2024

	Rates	Fringes
Laborers:		
Driller.....	\$ 44.75	25.96
Final Clean Up.....	\$ 31.40	21.37
Gunite/Shotcrete Operator and High Scaler.....	\$ 42.25	25.96
Laborer I.....	\$ 41.75	25.96
Laborer II.....	\$ 39.15	25.96
Mason Tender/Hod Carrier...	\$ 42.25	25.96
Powderman.....	\$ 42.75	25.96
Window Washer (bosun chair).	\$ 41.25	25.96

LABORERS CLASSIFICATIONS

Laborer I: Air Blasting run by electric or pneumatic compressor; Asphalt Laborer, Ironer, Raker, Luteman, and Handroller, and all types of Asphalt Spreader Boxes; Asphalt Shoveler; Assembly and Installation of Multiplates, Liner Plates, Rings, Mesh, Mats; Batching Plant (portable and temporary); Boring Machine Operator (under streets and sidewalks); Buggymobile; Burning and Welding; Chainsaw, Faller, Logloader, and Bucker; Compactors (Jackson Jumping Jack and similar); Concrete Bucket Dumpman; Concrete Chipping; Concrete Chuteman/Hoseman (pouring concrete) (the

handling of the chute from ready-mix trucks for such jobs as walls, slabs, decks, floors, foundations, footings, curbs, gutters, and sidewalks); Concrete Core Cutter (Walls, Floors, and Ceiling); Concrete Grinding or Sanding; Concrete: Hooking on, signaling, dumping of concrete for tremie work over water on caissons, pilings, abutments, etc.; Concrete: Mixing, handling, conveying, pouring, vibrating, otherwise placing of concrete or aggregates or by any other process; Concrete: Operation of motorized wheelbarrows or buggies or machines of similar character, whether run by gas, diesel, or electric power; Concrete Placement Machine Operator: operation of Somero Hammerhead, Copperheads, or similar machines; Concrete Pump Machine (laying, coupling, uncoupling of all connections and cleaning of equipment); Concrete and/or Asphalt Saw (Walking or Handtype) (cutting walls or flatwork) (scoring old or new concrete and/or asphalt) (cutting for expansion joints) (streets and ways for laying of pipe, cable or conduit for all purposes); Concrete Shovelers/Laborers (Wet or Dry); Concrete Screeding for Rough Strike-Off: Rodding or striking-off, by hand or mechanical means prior to finishing; Concrete Vibrator Operator; Coring Holes: Walls, footings, piers or other obstructions for passage of pipes or conduits for any purpose and the pouring of concrete to secure the hole; Cribbers, Shorer, Lagging, Sheeting, and Trench Jacking and Bracing, Hand-Guided Lagging Hammer Whaling Bracing; Curbing (Concrete and Asphalt); Curing of Concrete (impervious membrane and form oiler) mortar and other materials by any mode or method; Cut Granite Curb Setter (setting, leveling and grouting of all precast concrete or stone curbs); Cutting and Burning Torch (demolition); Dri Pak-It Machine; Environmental Abatement: removal of asbestos, lead, and bio hazardous materials (EPA and/or OSHA certified); Falling, bucking, yarding, loading or burning of all trees or timber on construction site; Forklift (9 ft. and under); Gas, Pneumatic, and Electric tools; Grating and Grill work for drains or other purposes; Green Cutter of concrete or aggregate in any form, by hand, mechanical means, grindstone or air and/or water; Grout: Spreading for any purpose; Guinea Chaser (Grade Checker) for general utility trenches, sitework, and excavation; Headerboard Man (Asphalt or Concrete); Heat Welder of Plastic (Laborers' AGC certified workers) (when work involves waterproofing for waterpools, artificial lakes and reservoir) heat welding for sewer pipes and fusion of HDPE pipes; Heavy Highway Laborer (Rigging, signaling, handling, and installation of pre-cast catch basins, manholes, curbs and gutters); High Pressure Nozzleman - Hydraulic Monitor (over 100# pressure); Jackhammer Operator; Jacking of slip forms: All semi and unskilled work connected therewithin; Laying of all multi-cell conduit or multi-purpose pipe; Magnesite and Mastic Workers (Wet or Dry)(including mixer operator);Mortar Man; Mortar Mixer (Block, Brick, Masonry, and Plastering); Nozzleman (Sandblasting and/or Water Blasting): handling, placing and operation of nozzle; Operation, Manual or Hydraulic jacking of shields and the use of such other mechanical equipment as may be necessary; Pavement Breakers; Paving, curbing and surfacing of streets, ways, courts, under and overpasses, bridges, approaches, slope walls, and all other labor connected therewith; Pilecutters; Pipe Accessment in place, bolting and lining up of sectional metal or other pipe including corrugated pipe; Pipelayer performing all services in the laying and installation of pipe from the point of receiving pipe in the ditch until completion of operation, including

any and all forms of tubular material, whether pipe, HDPE, metallic or non-metallic, conduit, and any other stationary-type of tubular device used for conveying of any substance or element, whether water, sewage, solid, gas, air, or other product whatsoever and without regard to the nature of material from which tubular material is fabricated; No-joint pipe and stripping of same, Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, treating Creosote and similar-type materials (6-inch) pipe and over); Piping: resurfacing and paving of all ditches in preparation for laying of all pipes; Pipe laying of lateral sewer pipe from main or side sewer to buildings or structure (except Contactor may direct work be done under proper supervision); Pipe laying, leveling and marking of the joint used for main or side sewers and storm sewers; Laying of all clay, terra cotta, ironstone, vitrified concrete, HDPE or other pipe for drainage; Placing and setting of water mains, gas mains and all pipe including removal of skids; Plaster Mortar Mixer/Pump; Pneumatic Impact Wrench; Portable Sawmill Operation: Choker setters, off bearers, and lumber handlers connected with clearing; Posthole Digger (Hand Held, Gas, Air and Electric); Powderman's Tender; Power Broom Sweepers (Small); Preparation and Compaction of roadbeds for railroad track laying, highway construction, and the preparation of trenches, footings, etc., for cross-country transmission by pipelines, electrical transmission or underground lines or cables (by mechanical means); Raising of structure by manual or hydraulic jacks or other methods and resetting of structure in new locations, including all concrete work; Ramming or compaction; Rigging in connection with Laborers' work (except demolition), Signaling (including the use of walkie talkie) Choke Setting, tag line usage; Tagging and Signaling of building materials into high rise units; Riprap, Stonepaver, and Rock Slinger (includes placement of stacked concrete, wet or dry and loading, unloading, signaling, slinging and setting of other similar materials); Rotary Scarifier (including multiple head concrete chipping Scarifier); Salamander Heater, Drying of plaster, concrete mortar or other aggregate; Scaffold Erector Leadman; Scaffolds: (Swing and hanging) including maintenance thereof; Scaler; Septic Tank/Cesspool and Drain Fields Digger and Installer; Shredder/Chipper (tree branches, brush, etc.); Stripping and Setting Forms; Stripping of Forms: Other than panel forms which are to be re-used in their original form, and stripping of forms on all flat arch work; Tampers (Barko, Wacker, and similar type); Tank Scaler and Cleaners; Tarman; Tree Climbers and Trimmers; Trencher (includes hand-held, Davis T-66 and similar type); Trucks (flatbed up to and including 2 1/2 tons when used in connection with on-site Laborers' work; Trucks (Refuse and Garbage Disposal) (from job site to dump); Vibra-Screed (Bull Float in connection with Laborers' work); Well Points, Installation of or any other dewatering system.

Laborer II: Asphalt Plant Laborer; Boring Machine Tender; Bridge Laborer; Burning of all debris (crates, boxes, packaging waste materials); Chainman, Rodmen, and Grade Markers; Cleaning, clearing, grading and/or removal for streets, highways, roadways, aprons, runways, sidewalks, parking areas, airports, approaches, and other similar installations; Cleaning or reconditioning of streets, ways, sewers and waterlines, all maintenance work and work of an unskilled and semi-skilled nature; Concrete Bucket Tender

(Groundman) hooking and unhooking of bucket; Concrete Forms; moving, cleaning, oiling and carrying to the next point of erection of all forms; Concrete Products Plant Laborers; Conveyor Tender (conveying of building materials); Crushed Stone Yards and Gravel and Sand Pit Laborers and all other similar plants; Demolition, Wrecking and Salvage Laborers: Wrecking and dismantling of buildings and all structures, with use of cutting or wrecking tools, breaking away, cleaning and removal of all fixtures, All hooking, unhooking, signaling of materials for salvage or scrap removed by crane or derrick; Digging under streets, roadways, aprons or other paved surfaces; Driller's Tender; Chuck Tender, Outside Nipper; Dry-packing of concrete (plugging and filling of she-bolt holes); Fence and/or Guardrail Erector: Dismantling and/or re-installation of all fence; Finegrader; Firewatcher; Flagman (Coning, preparing, stablishing and removing portable roadway barricade devices); Signal Men on all construction work defined herein, including Traffic Control Signal Men at construction site; General Excavation; Backfilling, Grading and all other labor connected therewith; Digging of trenches, ditches and manholes and the leveling, grading and other preparation prior to laying pipe or conduit for any purpose; Excavations and foundations for buildings, piers, foundations and holes, and all other construction. Preparation of street ways and bridges; General Laborer: Cleaning and Clearing of all debris and surplus material. Clean-up of right-of-way. Clearing and slashing of brush or trees by hand or mechanical cutting. General Clean up: sweeping, cleaning, wash-down, wiping of construction facility and equipment (other than "Light Clean up (Janitorial) Laborer. Garbage and Debris Handlers and Cleaners. Appliance Handling (job site) (after delivery unloading in storage area); Ground and Soil Treatment Work (Pest Control); Gunite/Shotcrete Operator Tender; Junk Yard Laborers (same as Salvage Yard); Laser Beam "Target Man" in connection with Laborers' work; Layout Person for Plastic (when work involves waterproofing for waterpools, artificial lakes and reservoirs); Limbers, Brush Loaders, and Pilers; Loading, Unloading, carrying, distributing and handling of all rods and material for use in reinforcing concrete construction (except when a derrick or outrigger operated by other than hand power is used); Loading, unloading, sorting, stockpiling, handling and distribution of water mains, gas mains and all pipes; Loading and unloading of all materials, fixtures, furnishings and appliances from point of delivery to stockpile to point of installation; hooking and signaling from truck, conveyance or stockpile; Material Yard Laborers; Pipelayer Tender; Pipewrapper, Caulker, Bander, Kettlemen, and men applying asphalt, Laykold, Creosote, and similar-type materials (pipe under 6 inches); Plasterer Laborer; Preparation, construction and maintenance of roadbeds and sub-grade for all paving, including excavation, dumping, and spreading of sub-grade material; Prestressed or precast concrete slabs, walls, or sections: all loading, unloading, stockpiling, hooking on of such slabs, walls or sections; Quarry Laborers; Railroad, Streetcar, and Rail Transit Maintenance and Repair; Roustabout; Rubbish Trucks in connection with Building Construction Projects (excluding clearing, grubbing, and excavating); Salvage Yard: All work connected with cutting, cleaning, storing, stockpiling or handling of materials, all cleanup, removal of debris, burning, back-filling and landscaping of the site; Sandblasting Tender (Pot Tender): Hoses and pots or markers; Scaffolds:

Erection, planking and removal of all scaffolds used for support for lathers, plasters, brick layers, masons, and other construction trades crafts; Scaffolds: (Specially designed by carpenters) laborers shall tend said carpenter on erection and dismantling thereof, preparation for foundation or mudsills, maintenance; Scraping of floors; Screeds: Handling of all screeds to be reused; handling, dismantling and conveyance of screeds; Setting, leveling and securing or bracing of metal or other road forms and expansion joints; Sheeting Piling/trench shoring (handling and placing of skip sheet or wood plank trench shoring); Ship Scalars; Shipwright Tender; Sign Erector (subdivision traffic, regulatory, and street-name signs); Sloper; Slurry Seal Crews (Mixer Operator, Applicator, Squeegee Man, Shuttle Man, Top Man); Snapping of wall ties and removal of tie rods; Soil Test operations of semi and unskilled labor such as filling sand bags; Striper (Asphalt, Concrete or other Paved Surfaces); Tool Room Attendant (Job Site); Traffic Delineating Device Applicator; Underpinning, lagging, bracing, propping and shoring, loading, signaling, right-of-way clearance along the route of movement, The clearance of new site, excavation of foundation when moving a house or structure from old site to new site; Utilities employees; Water Man; Waterscape/Hardscape Laborers; Wire Mesh Pulling (all concrete pouring operations); Wrecking, stripping, dismantling and handling concrete forms an false work.

 LAB00368-002 09/03/2024

	Rates	Fringes
Landscape & Irrigation Laborers		
GROUP 1.....	\$ 28.40	17.15
GROUP 2.....	\$ 29.40	17.15
GROUP 3.....	\$ 23.00	17.15

LABORERS CLASSIFICATIONS

GROUP 1: Installation of non-potable permanent or temporary irrigation water systems performed for the purposes of Landscaping and Irrigation architectural horticultural work; the installation of drinking fountains and permanent or temporary irrigation systems using potable water for Landscaping and Irrigation architectural horticultural purposes only. This work includes (a) the installation of all heads, risers, valves, valve boxes, vacuum breakers (pressure and non-pressure), low voltage electrical lines and, provided such work involves electrical wiring that will carry 24 volts or less, the installation of sensors, master control panels, display boards, junction boxes, conductors, including all other components for controllers, (b) and metallic (copper, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe including all work incidental thereto, i.e., unloading, handling and distribution of all pipes fittings, tools, materials and equipment, (c) all soldering work in connection with the above whether done by torch, soldering iron, or other means; (d) tie-in to main lines, thrust blocks (both precast and poured in place), pipe hangers and supports incidental to installation of the entire irrigation system, (e) making of pressure tests, start-up testing, flushing, purging, water balancing, placing into operation all

irrigation equipment, fixtures and appurtenances installed under this agreement, and (f) the fabrication, replacement, repair and servicing of landscaping and irrigation systems. Operation of hand-held gas, air, electric, or self-powered tools and equipment used in the performance of Landscape and Irrigation work in connection with architectural horticulture; Choke-setting, signaling, and rigging for equipment operators on job-site in the performance of such Landscaping and Irrigation work; Concrete work (wet or dry) performed in connection with such Landscaping and Irrigation work. This work shall also include the setting of rock, stone, or riprap in connection with such Landscape, Waterscape, Rockscape, and Irrigation work; Grubbing, pick and shovel excavation, and hand rolling or tamping in connection with the performance of such Landscaping and Irrigation work; Sprigging, handseeding, and planting of trees, shrubs, ground covers, and other plantings and the performance of all types of gardening and horticultural work relating to said planting; Operation of flat bed trucks (up to and including 2 1/2 tons):.

GROUP 2. Layout of irrigation and other non-potable irrigation water systems and the layout of drinking fountains and other potable irrigation water systems in connection with such Landscaping and Irrigation work. This includes the layout of all heads, risers, valves, valve boxes, vacuum breakers, low voltage electrical lines, hydraulic and electrical controllers, and metallic (coppers, brass, galvanized, or similar) pipe, as well as PVC or other plastic pipe. This work also includes the reading and interpretation of plans and specifications in connection with the layout of Landscaping, Rockscape, Waterscape, and Irrigation work; Operation of Hydro-Mulching machines (sprayman and driver), Drillers, Trenchers (riding type, Davis T-66, and similar) and fork lifts used in connection with the performance of such Landscaping and Irrigation work; Tree climbers and chain saw tree trimmers, Sporadic operation (when used in connection with Landscaping, Rockscape, Waterscape, and Irrigation work) of Skid-Steer Loaders (Bobcat and similar), Cranes (Bantam, Grove, and similar), Hoptos, Backhoes, Loaders, Rollers, and Dozers (Case, John Deere, and similar), Water Trucks, Trucks requiring a State of Hawaii Public Utilities Commission Type 5 and/or type 7 license, sit-down type and "gang" mowers, and other self-propelled, sit-down operated machines not listed under Landscape & Irrigation Maintenance Laborer; Chemical spraying using self-propelled power spraying equipment (200 gallon capacity or more).

GROUP 3: Maintenance of trees, shrubs, ground covers, lawns and other planted areas, including the replanting of trees, shrubs, ground covers, and other plantings that did not "take" or which are damaged; provided, however, that re-planting that requires the use of equipment, machinery, or power tools shall be paid for at the rate of pay specified under Landscape and Irrigation Laborer, Group 1; Raking, mowing, trimming, and runing, including the use of "weed eaters", hedge trimmers, vacuums, blowers, and other hand-held gas, air, electric, or self-powered tools, and the operation of lawn mowers (Note: The operation of sit-down type and "gang" mowers shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer, Group 2); Guywiring, staking, propping, and supporting trees; Fertilizing, Chemical spraying using spray equipment

with less than 200 gallon capacity, Maintaining irrigation and sprinkler systems, including the staking, clamping, and adjustment of risers, and the adjustment and/or replacement of sprinkler heads, (Note: the cleaning and gluing of pipe and fittings shall be paid for at the rate of pay specified under Landscape & Irrigation Laborer(Group 1); Watering by hand or sprinkler system and the performance of other types of gardening, yardman, and horticultural-related work.

LAB00368-003 09/05/2023

	Rates	Fringes
Underground Laborer		
GROUP 1.....	\$ 41.25	24.96
GROUP 2.....	\$ 42.75	24.96
GROUP 3.....	\$ 43.25	24.96
GROUP 4.....	\$ 44.25	24.96
GROUP 5.....	\$ 44.50	24.96
GROUP 6.....	\$ 44.60	24.96
GROUP 7.....	\$ 44.85	24.96

GROUP 1: Watchmen; Change House Attendant.

GROUP 2: Swamper; Brakeman; Bull Gang-Muckers, Trackmen; Dumpmen (any method); Concrete Crew (includes rodding and spreading); Grout Crew; Reboundmen

GROUP 3: Chucktenders and Cabletenders; Powderman (Prime House); Vibratorman, Pavement Breakers

GROUP 4: Miners - Tunnel (including top and bottom man on shaft and raise work); Timberman, Retimberman (wood or steel or substitute materials thereof); Blasters, Drillers, Powderman (in heading); Microtunnel Laborer; Headman; Cherry Pickerman (where car is lifted); Nipper; Grout Gunmen; Grout Pumpman & Potman; Gunite, Shotcrete Gunmen & Potmen; Concrete Finisher (in tunnel); Concrete Screed Man; Bit Grinder; Steel Form Raisers & Setters; High Pressure Nozzleman; Nozzleman (on slick line); Sandblaster-Potman (combination work assignment interchangeable); Tugger

GROUP 5: Shaft Work & Raise (below actual or excavated ground level); Diamond Driller; Gunite or Shotcrete Nozzleman; Rodman; Groundman

GROUP 6: Shifter

GROUP 7: Shifter (Shaft Work & Raiser)

PAIN1791-001 01/01/2024

	Rates	Fringes
Painters:		
Brush.....	\$ 41.65	30.05
Sandblaster; Spray.....	\$ 41.65	30.05

PAIN1889-001 07/01/2024

	Rates	Fringes
Glaziers.....	\$ 46.00	37.15

PAIN1926-001 03/05/2023

	Rates	Fringes
Soft Floor Layers.....	\$ 39.77	33.80

PAIN1944-001 01/07/2024

	Rates	Fringes
Taper.....	\$ 45.20	31.40

PLAS0630-001 09/04/2023

	Rates	Fringes
PLASTERER.....	\$ 46.12	34.53

PLAS0630-002 09/04/2023

	Rates	Fringes
Cement Masons:		
Cement Masons.....	\$ 44.12	33.63
Trowel Machine Operators....	\$ 44.27	33.63

PLUM0675-001 01/07/2024

	Rates	Fringes
Plumber, Pipefitter, Steamfitter & Sprinkler Fitter...	\$ 52.83	31.02

ROOF0221-001 11/06/2022

	Rates	Fringes
Roofers (Including Built Up, Composition and Single Ply).....	\$ 43.15	21.21

SHEE0293-001 03/05/2023

	Rates	Fringes
Sheet metal worker.....	\$ 47.37	31.71

* SUHI1997-002 09/15/1997

	Rates	Fringes
Drapery Installer.....	\$ 13.60 **	1.20
FENCE ERECTOR (Chain Link Fence).....	\$ 9.33 **	1.65

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

=====
** Workers in this classification may be entitled to a higher
minimum wage under Executive Order 14026 (\$17.20) or 13658
(\$12.90). Please see the Note at the top of the wage

determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

State Adopted Rate Identifiers

Classifications listed under the ""SA"" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R. 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for

the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HONOLULU, HAWAII

P R O P O S A L

6/02/98

**PROPOSAL TO THE
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION**

PROJECT: HAWAII BELT ROAD
SEISMIC RETROFIT OF KAHOLO STREAM BRIDGE
DISTRICT OF HAMAKUA, ISLAND OF HAWAII

PROJECT NO.: BR-019-2(072)

COMPLETION TIME: 426 Working Days from the Start Work Date from
the Department.

DBE PROJECT GOAL: 7.9%

DESIGN PROJECT MANAGER:

NAME	Andrew Hirano
ADDRESS	601 Kamokila Boulevard, Room 688 Kapolei, HI 96707
PHONE NO.	808-692-7546
FAX NO.	808-692-7555

ELECTRONIC SUBMITTAL: Bidders shall submit and upload the complete proposal to HlePRO prior to the bid opening date and time. Any additional support documents explicitly designated as confidential and/or proprietary shall be uploaded as a separate file to HlePRO. See **SPECIAL PROVISIONS 102.09 DELIVERY OF PROPOSALS** for complete details. **FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HlePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.**

Director of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Sir:

The undersigned Bidder declares the following:

1. It has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal.
2. It has not been assisted or represented on this matter by any individual who has, in a State capacity, been involved in the subject matter of this contract within the past two years.
3. It has not and will not, either directly or indirectly offered or given a gratuity (i.e., an entertainment or gift) to any State or County employee to obtain a contract or favorable treatment under a contract.
4. It will not maintain for its employees any segregated facilities at any of its establishments.
5. Does not and will not permit its employees to perform their services at any location under its control, where segregated facilities are maintained.

The undersigned Bidder further agrees to the following:

1. If this proposal is accepted, it shall execute a contract with the Department to provide all necessary labor, machinery, tools, equipment, apparatus and any other means of construction, to do all the work and to furnish all the materials specified in the contract in the manner and within the time therein prescribed in the contract, and that it shall accept in full payment therefore the sum of the unit and/or lump sum prices as set forth in the attached proposal schedule for the actual quantities of work performed and materials furnished and furnish satisfactory security in accordance with Section 103D-324, Hawaii Revised Statutes, within 10 days after the award of the contract or within such time as the Director of Transportation may allow after the undersigned has received the contract documents for execution, and is fully aware that non-compliance with the aforementioned terms will result in the forfeiture of the full amount of the bid guarantee required under Section 1032D-323, Hawaii Revised Statutes.
2. That the quantities given in the attached proposal schedule are approximate only and are intended principally to serve as a guide in determining and comparing the bids.

3. That the Department does not either expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work, as may be deemed necessary or advisable by the Director of Transportation, and that all increased or decreased quantities of work shall be performed at the unit prices set forth in the attached proposal schedule except as provided for in the specifications.
4. In case of a discrepancy between unit prices and the totals in said Proposal Schedule, the unit prices shall prevail.
5. Unless amended by Special Provision, agrees to begin work within 10 working days after the date of notification to commence with the work, which date is in the notice to proceed, and shall finish the entire project within the time prescribed.
6. The Director of Transportation reserves the right to reject any or all bids and to waive any defects when in the Director's opinion such rejections or waiver will be for the best interest of the public.

The Bidder acknowledges receipt of and certifies that it has completely examined the following listed items: Hawaii Standard Specifications for Road and Bridge Construction, 2005, and/or the General Provisions for Construction Projects for AIR and WATER Transportation Facilities Division dated 2016, as applicable, the Notice to Bidders, Special Provisions, Proposal, Contract, Bond Forms, and Project Plans.

In accordance with Section 103D-323, Hawaii Revised Statutes, this proposal is accompanied with a bid security in the amount of 5% of the total amount bid, in the form checked below. (Check applicable bid security submitted with bid.)

_____ Surety Bid Bond (Use standard form),

_____ Cash,

_____ Cashier's Check,

_____ Certified Check, or

_____ (Fill in other acceptable security.)

The undersigned Bidder acknowledges receipt of any addendum issued by the Department by recording in the space below the date of receipt.

Addendum No. 1 _____ Addendum No. 3 _____

Addendum No. 2 _____ Addendum No. 4 _____

In accordance with Section 103D-302, Hawaii Revised Statutes, the undersigned as Bidder has listed the name of each person or firm who will be engaged by the Bidder on the project as Subcontractor or Joint Contractor and the nature of work to be done by each on the following page. The Bidder must adequately and unambiguously disclose the unique nature and scope of the work to be performed by each Subcontractor or Joint Contractor. For each listed firm, the Bidder declares the respective firm is a Subcontractor or Joint Contractor and is subject to evaluation as a Subcontractor or Joint Contractor. It is understood that failure to comply with the aforementioned requirements may be cause for rejection of the bid submitted.

The undersigned Bidder asserts that affirmative action has been taken to seek out and consider Disadvantaged Business Enterprises (DBEs) for portions of the work which can be subcontracted, and the affirmative actions of the Bidder are fully documented in its records and are available upon request by the Department. It is also understood that it must meet or exceed the DBE contract goal listed on page P-1 or demonstrate that it made good faith efforts to meet the DBE project goal. The undersigned as Bidder, agrees to utilize each participating DBE that it submitted to meet the contract goal of _____% (percentage to be completed by Bidder) DBE participation if the contract is awarded to it, and shall maintain such DBE participation during the construction of this project.

SUBCONTRACTOR LISTING
(Attach additional sheets if necessary.)

	NAME OF FIRM	NATURE OF WORK
SUBCONTRACTOR:		
1.	_____	_____
1a ¹ .	_____	_____
2.	_____	_____
2a.	_____	_____
3.	_____	_____
3a.	_____	_____
4.	_____	_____
4a.	_____	_____
5.	_____	_____
5a.	_____	_____
6.	_____	_____
6a.	_____	_____
7.	_____	_____
7a.	_____	_____

NOTES:

The Name of Firm and Nature of Work shall be indicated for all listed firms. The Bidder must adequately and unambiguously disclose the unique nature and scope of the work to be performed by each Sub- or Joint Contractor.

For each listed firm, the Bidder declares the respective firm is a Sub- or Joint Contractor and subject to evaluation as a Sub- or Joint Contractor.

¹ Second tier subcontractors

JOINT CONTRACTOR LISTING
 (Attach additional sheets if necessary.)

	NAME OF FIRM	NATURE OF WORK
JOINT CONTRACTOR:		
1.	_____	_____
	1a ¹ . _____	_____
2.	_____	_____
	2a. _____	_____
3.	_____	_____
	3a. _____	_____
4.	_____	_____
	4a. _____	_____
5.	_____	_____
	5a. _____	_____
6.	_____	_____
	6a. _____	_____
7.	_____	_____
	7a. _____	_____

NOTES:

The Name of Firm and Nature of Work shall be indicated for all listed firms. The Bidder must adequately and unambiguously disclose the unique nature and scope of the work to be performed by each Sub- or Joint Contractor.

For each listed firm, the Bidder declares the respective firm is a Sub- or Joint Contractor and subject to evaluation as a Sub- or Joint Contractor.

¹ Second tier joint contractors

The undersigned hereby certifies that the bid prices contained in the attached proposal schedule have been carefully checked and are submitted as correct and final.

This declaration is made with the understanding that the undersigned is subject to the penalty of perjury under the laws of the United States and is in violation of the Hawaii Penal Code, Section 710-1063, unsworn falsification to authorities, of the Hawaii Revised Statutes, for knowingly rendering a false declaration.

Bidder (Company Name)

Authorized Signature

Title

Business Address

Business Telephone

Email

Date

Contact Person (If different from above.)

Phone: _____ Email: _____

NOTE:

If Bidder is a CORPORATION, the legal name of the corporation shall be set forth above, the corporate seal affixed, together with the signature(s) of the officer(s) authorized to sign contracts for the corporation. Please attach to this page current (not more than six months old) evidence of the authority of the officer(s) to sign for the corporation.

If Bidder is a PARTNERSHIP, the true name of the partnership shall be set forth above, with the signature(s) of the general partner(s). Please attach to this page current (not more than six months old) evidence of the authority of the partner authorized to sign for the partnership.

If Bidder is an INDIVIDUAL, the bidder's signature shall be placed above.

If signature is by an agent, other than an officer of a corporation or a partner of a partnership, a POWER OF ATTORNEY must be on file with the Department before opening bids or submitted with the bid. Otherwise, the Department may reject the bid as irregular and unauthorized.

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
201.1000	Clearing and Grubbing	LS	LS	LS	\$ _____
202.0100	Removal of Rocker Bearings	LS	LS	LS	\$ _____
202.0200	Removal of CRM Wall at Abutments	LS	LS	LS	\$ _____
203.1000	Roadway Excavation	2,650	CY	\$ _____	\$ _____
205.0100	Structure Excavation for Abutments	LS	LS	LS	\$ _____
205.0200	Structure Backfill for Abutments	LS	LS	LS	\$ _____
209.0100	Installation, Maintenance, Monitoring, and Removal of BMP	LS	LS	LS	\$ _____
209.0200	Additional Water Pollution, Dust, and Erosion Control	FA	FA	FA	\$ 50,000.00
503.1000	Concrete for Abutment Shelf	LS	LS	LS	\$ _____
503.2000	Concrete for Concrete Downturn	LS	LS	LS	\$ _____
503.3000	Concrete for Seat Extender/Creep Block	LS	LS	LS	\$ _____
503.4000	Concrete for Micropile Cap and Retaining Wall	LS	LS	LS	\$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
512.0100	Furnishing Micropile Drilling and Grouting Equipment	LS	LS	LS	\$ _____
512.0200	Load Test of Pre-Production Micropiles	2	Each	\$ _____	\$ _____
512.0300	Production Micropiles	1000	LF	\$ _____	\$ _____
512.0400	Proof Test of Production Micropiles	4	Each	\$ _____	\$ _____
577.0100	Installation of Work Access Platform	LS	LS	LS	\$ _____
577.0200	Externally Bonded Carbon Fiber Reinforced Polymer (CFRP) Composite System	495	SF	\$ _____	\$ _____
577.0300	Carbon Fiber Reinforced Polymer Anchors	88	Each	\$ _____	\$ _____
577.0400	Finish for CFRP System	LS	LS	LS	\$ _____
602.0100	Reinforcing Steel for Abutment Shelf	LS	LS	LS	\$ _____
602.0200	Reinforcing Steel for Concrete Downturn	LS	LS	LS	\$ _____
602.0300	Reinforcing Steel for Seat Extender/Creep Block	LS	LS	LS	\$ _____
602.0400	Reinforcing Steel for Micropile Cap and Retaining Wall	LS	LS	LS	\$ _____
603.0400	Clean Existing Culverts	FA	FA	FA	\$ 25,000.00

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
606.1000	Reset Guardrail	50	LF	\$ _____	\$ _____
607.1000	8-Feet, Chain Link Fence	LS	LS	LS	\$ _____
611.1000	Hand-Laid Riprap	364	CY	\$ _____	\$ _____
628.0100	Shotcrete Mobilization	LS	LS	LS	\$ _____
628.0200	Shotcrete for Abutments	LS	LS	LS	\$ _____
629.1000	8-Inch Pavement Striping (Thermoplastic Extrusion)	2,880	LF	\$ _____	\$ _____
629.2000	Double 4-Inch Pavement Striping (Thermoplastic Extrusion)	1,440	LF	\$ _____	\$ _____
629.6100	Type C Pavement Marker	65	Each	\$ _____	\$ _____
629.6200	Type D Pavement Marker	130	Each	\$ _____	\$ _____
632.2000	Type II OM2-2V Object Marker	5	Each	\$ _____	\$ _____
632.2100	Type III OM3 Object Marker	4	Each	\$ _____	\$ _____
636.1000	Additional E-Construction Programs, additional licenses or additional equipment	FA	FA	FA	\$ 10,000.00

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
641.1000	Hydro-mulch Seeding	1,500	SY	\$ _____	\$ _____
643.0100	Maintenance of Existing Landscape Areas	FA	FA	FA	\$ <u>200,000.00</u>
645.1000	Traffic Control	LS	LS	LS	\$ _____
645.0200	Additional Police Officers, Additional Traffic Control Devices, and Advertisement	FA	FA	FA	\$ <u>100,000.00</u>
648.1000	Field-Posted Drawings	LS	LS	LS	\$ _____
651.0100	Furnish End Treatment Module	2	Each	\$ _____	\$ _____
651.0200	Install, Maintain, Relocate, and Remove End Treatment Module	2	Each	\$ _____	\$ _____
651.0300	Install, Maintain, Relocate, and Remove F Shape Portable Concrete Barrier	32	Each	\$ _____	\$ _____
651.0400	Furnish F Shape Portable Concrete Barrier	32	Each	\$ _____	\$ _____
656.0100	Drilling Holes and Installing Dowel Reinforcing Bars at Abutment Shelf	120	Each	\$ _____	\$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
656.0200	Drilling Holes and Installing Dowel Reinforcing Bars at Concrete Downturn	198	Each	\$ _____	\$ _____
656.0300	Drilling Holes and Installing Dowel Reinforcing Bars at Seat Extender/Creep Block	112	Each	\$ _____	\$ _____
657.0100	Furnishing Soil Nail Drilling and Grouting Equipment	LS	LS	LS	\$ _____
657.0200	Production Soil Nails	540	LF	\$ _____	\$ _____
657.0300	Proof Test of Production Soil Nails	2	Each	\$ _____	\$ _____
671.1000	Protection of Endangered Species	FA	FA	FA	\$ <u>50,000.00</u>
695.1000	Removal and Disposal of Lead Based Plates	FA	FA	FA	\$ <u>50,000.00</u>
696.1000	Maintenance of Trailers	FA	FA	FA	\$ <u>50,000.00</u>
696.2000	Field Office Trailer (Not to Exceed \$32,000.00)	LS	LS	LS	\$ _____
696.3000	Project Site Laboratory Trailer (Not to Exceed \$22,000.00)	LS	LS	LS	\$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
699.0100	Mobilization (Not to Exceed 6 Percent of the Sum of All Items Excluding the Bid Price of this Item)	LS	LS	LS	\$ _____
a.	<p>TOTAL AMOUNT FOR COMPARISON OF BIDS.....</p> <p>Bids shall include all Federal, State, County and other applicable taxes and fees.</p> <p>The TOTAL AMOUNT FOR COMPARISON OF BIDS shall be used to determine the lowest responsible bidder.</p> <p>In case of a discrepancy between unit price and the total in said bid, the unit price shall prevail.</p> <p><u>PROPOSAL SCHEDULE NOTE</u></p> <p>Bidders shall submit and <u>upload the complete proposal to HlePRO</u> prior to the bid opening date and time. Proposals received after said due date and time shall not be considered. Any additional support documents explicitly designated as <u>confidential and/or proprietary</u> shall be uploaded as a <u>separate file</u> to HlePRO. Bidders shall not include confidential and/or proprietary documents with the proposal. The record of each bidder and respective bid shall be open to public inspection. Original (wet ink, hard copy) proposal documents are not required to be submitted. Contract award shall be based on evaluation of proposals submitted and uploaded to HlePRO.</p> <p><u>FAILURE TO UPLOAD THE COMPLETE PROPOSAL TO HlePRO SHALL BE GROUNDS FOR REJECTION OF THE BID.</u></p> <p>If there is a conflict between the specification document and the HlePRO solicitation, the specifications shall govern and control, unless otherwise specified.</p>				\$ _____

1 **PROPOSAL SCHEDULE**

2
3 The bidder is directed to Subsection 105.16 – Subcontracts.

4
5 The bidder's attention is directed to Sections 696 - Field Office and Project
6 Site Laboratory and 699 - Mobilization for the limitation of the amount bidders are
7 allowed to bid.

8
9 If the bid price for any proposal item having a maximum allowable bid
10 indicated therefore in any of the contract documents is in excess of such a
11 maximum amount, the bid price for such proposal item shall be adjusted to reflect
12 the limitation thereon. The comparison of bids to determine the successful
13 bidder and the amount of contract to be awarded shall be determined after such
14 adjustments are made, and such adjustments shall be binding upon the bidder.

15
16 The bidder is directed to Section 717 – Cullet and Cullet-Made Materials
17 regarding recycling of waste glass.

SURETY BID BOND

Bond No. _____

KNOW ALL BY THESE PRESENTS:

That we, _____
(Full name or legal title of offeror)

as Offeror, hereinafter called the Principal, and

(Name of bonding company)

as Surety, hereinafter called Surety, a corporation authorized to transact business as a Surety in the State of Hawaii, are held and firmly bound unto

(State/county entity)

as Owner, hereinafter called Owner, in the penal sum of

(Required amount of bid security)

Dollars (\$ _____), lawful money of the United States of America, for the payment of which sum well and truly to be made, the said Principal and the said Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS:

The Principal has submitted an offer for _____

(Project by number and brief description)

NOW, THEREFORE:

The condition of this obligation is such that if the Owner shall reject said offer, or in the alternate, accept the offer of the Principal and the Principal shall enter into a contract with the Owner in accordance with the terms of such offer, and give such bond or bonds as may be specified in the solicitation or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof as specified in the solicitation then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed this _____ day of _____, _____

(Seal) _____
Name of Principal (Offeror)

Signature

Title

(Seal) _____
Name of Surety

Signature

Title

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HONOLULU, HAWAII

SAMPLE FORMS

Contract

Performance Bond (Surety)

Performance Bond

Labor and Material Payment Bond (Surety)

Labor and Material Payment Bond

Disclosure of Lobbying Activities (Standard Form - LLL and LLL-A)

Statement of Compliance (Form WH-348)

Chapter 104, HRS Compliance Certificate

C O N T R A C T

THIS AGREEMENT, made this day _____, by and between the STATE OF HAWAII, by its Director of Transportation, hereinafter referred to as "STATE", and «CONTRACTOR», «STATE_OF_INCORPORATON», whose business/post office address is «ADDRESS» hereinafter referred to as "CONTRACTOR",

WITNESSETH: That for and in consideration of the payments hereinafter mentioned, the CONTRACTOR hereby covenants and agrees with the STATE to complete in place, furnish and pay for all labor and materials necessary for

“«PROJECT_NAME_AND_NO»”,

or such a part thereof as shall be required by the STATE, the total amount of which labor, materials and construction shall be computed at the unit and/or lump sum prices set forth in the attached proposal schedule and shall be the sum of «BASIC»----- DOLLARS

(\$«BASIC_NUMERIC») as follows:

TOTAL AMOUNT FOR COMPARISON OF BIDS.....\$«BASIC_NUMERIC»

which shall be provided from the following funds:

Federal Funds.....
State Funds.....
TOTAL AMOUNT.....

all in accordance with the specifications, the special provisions, if any, the notice to bidders, the instructions to bidders, the proposal and plans for «PROJECT NO ONLY», and any supplements thereto, on file in the office of the Director of Transportation. These documents, together with all alterations, amendments, and additions thereto and deductions therefrom, are attached hereto or incorporated herein by reference and made a part of this contract.

The CONTRACTOR hereby covenants and agrees to complete such construction within «WORKING DAYS», from the date indicated in the notice to proceed from the STATE, subject, however, to such extensions as may be provided for under the specifications.

For and in consideration of the covenants, undertakings and agreements of the CONTRACTOR herein set forth and upon the full and faithful performance thereof by the CONTRACTOR, the STATE hereby agrees to pay the CONTRACTOR the sum of «BASIC»-----DOLLARS (\$«BASIC NUMERIC») in lawful money, but not more than such part of the same as is actually earned according to the STATE's determination of the actual quantities of work performed and materials furnished by the CONTRACTOR at the unit or lump sum prices set forth in the attached proposal schedule. Such payment, including any extras, shall be made, subject to such additions or deductions hereto or hereafter made in the manner and at the time prescribed in the specifications and this contract.

An additional sum of «EXTRAS»-----DOLLARS (\$«EXTRA NUMERIC») is hereby provided for extra work and shall be provided from the following funds:

Federal Funds.....
State Funds.....
Total.....

Where Federal funds are involved, it is covenanted and agreed by and between the parties hereto that the sum of ----«FEDERAL_BASIC»----DOLLARS (\$«FEDERAL_BASIC_NUMERIC») and ----«FEDERAL_EXTRAS»----DOLLARS (\$«FEDERAL_EXTRAS_NUMERIC»), a portion of the contract price and extras, respectively, shall be paid out of the applicable Federal funds, and that this contract shall be construed to be an agreement to pay said sums to the Contractor only out of the aforesaid Federal funds if and when such Federal funds shall be received from the Federal Government, and that this contract shall not be construed to be a general agreement to pay said portions at all events out of any funds other than those which may be so received from the Federal Government; provided, that if the Federal share of the cost of the project is not immediately forthcoming from the Federal Government, the STATE may advance the CONTRACTOR the anticipated Federal reimbursement of the cost of the completed portions of the work from funds which have been appropriated by the STATE for its pro rata share.

All words used herein in the singular shall extend to and include the plural. All words used in the plural shall extend to and include the singular. The use of any gender shall extend to and include all genders.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be duly executed the day and year first above written.

STATE OF HAWAII

Director of Transportation

«CONTRACTOR»

Signature

Print name

Print Title

Date

PERFORMANCE BOND (SURETY)
(6/21/07)

KNOW TO ALL BY THESE PRESENTS:

That _____,
(Full Legal Name and Street Address of Contractor)

as Contractor, hereinafter called Principal, and _____

(Name and Street Address of Bonding Company)

as Surety, hereinafter called Surety, a corporation(s) authorized to transact business as a
surety in the State of Hawaii, are held and firmly bound unto the _____,
(State/County Entity)

its successors and assigns, hereinafter called Obligee, in the amount of _____

_____ DOLLARS (\$ _____), to which payment Principal and Surety bind themselves,
their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by
these presents.

WHEREAS, the above-bound Principal has signed a Contract with Obligee on
_____, for the following project: _____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part
hereof.

NOW THEREFORE, the condition of this obligation is such that:

If the Principal shall promptly and faithfully perform, and fully complete the Contract in
strict accordance with the terms of the Contract as said Contract may be modified or amended
from time to time; then this obligation shall be void; otherwise to remain in full force and effect.

Surety to this Bond hereby stipulates and agrees that no changes, extensions of time, alterations, or additions to the terms of the Contract, including the work to be performed thereunder, and the specifications or drawings accompanying same, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, extensions of time, alterations, or additions, and agrees that they shall become part of the Contract.

In the event of Default by the Principal, of the obligations under the Contract, then after written Notice of Default from the Oblige to the Surety and the Principal and subject to the limitation of the penal sum of this bond, Surety shall remedy the Default, or take over the work to be performed under the Contract and complete such work, or pay moneys to the Oblige in satisfaction of the surety's performance obligation on this bond.

Signed this _____ day of _____, _____.

(Seal)

Name of Principal (Contractor)

*

Signature

Title

(Seal)

Name of Surety

*

Signature

Title

***ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC**

PERFORMANCE BOND

KNOW ALL BY THESE PRESENTS:

That we, _____
(*full legal name and street address of Contractor*)

as Contractor, hereinafter called Contractor, is held and firmly bound unto the

(*State/County entity*)

its successors and assigns, as Oblige, hereinafter called Oblige, in the amount

_____ DOLLARS
(\$ _____),
(*Dollar amount of Contract*)

lawful money of the United States of America, for the payment of which to the said Oblige, well and truly to be made, Contractor binds itself, its heir, executors, administrators, successors and assigns, firmly by these presents. Said amount is evidenced by:

- Legal Tender;**

- Share Certificate** unconditionally assigned to or made payable at sight to _____
Description: _____;

- Certificate of Deposit, No.** _____, dated _____
issued _____ by _____ drawn
on _____ a
bank, savings institution or credit union insured by the Federal Deposit Insurance
Corporation or the National Credit Union Administration, payable at sight or
unconditionally assigned to _____;

- Cashier's Check No.** _____, dated _____
drawn _____ on
_____ a bank,
savings institution or credit union insured by the Federal Deposit Insurance Corporation
or the National Credit Union Administration, payable at sight or unconditionally
assigned to _____;

- Teller's Check No.** _____, dated _____
drawn _____ on
_____ a bank,
savings institution or credit union insured by the Federal Deposit Insurance Corporation
or the National Credit Union Administration, payable at sight or unconditionally
assigned to _____;

- Treasurer's Check No.** _____, dated _____
drawn _____ on
_____ a bank,
savings institution or credit union insured by the Federal Deposit Insurance Corporation
or the National Credit Union Administration, payable at sight or unconditionally
assigned to _____;

- Official Check No.** _____, dated _____
drawn _____ on
_____ a bank,
savings institution or credit union insured by the Federal Deposit Insurance Corporation
or the National Credit Union Administration, payable at sight or unconditionally
assigned to _____;

- **Certified Check No.** _____, dated _____
accepted by a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

WHEREAS:

The Contractor has by written agreement dated _____ entered into a contract with Oblige for the following Project: _____

_____ hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE,

The Condition of this obligation is such that, if Contractor shall promptly and faithfully perform the Contract in accordance with, in all respects, the stipulations, agreements, covenants and conditions of the Contract as it now exists or may be modified according to its terms, and shall deliver the Project to the Oblige, or to its successors or assigns, fully completed as in the Contract specified and free from all liens and claims and without further cost, expense or charge to the Oblige, its officers, agents, successors or assigns, free and harmless from all suits or actions of every nature and kind which may be brought for or on account of any injury or damage, direct or indirect, arising or growing out of the doing of said work or the repair or maintenance thereof or the manner of doing the same or the neglect of the Contractor or its agents or servants or the improper performance of the Contract by the Contractor or its agents or servants or from any other cause, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

AND IT IS HEREBY STIPULATED AND AGREED that suit on this bond may be brought before a court of competent jurisdiction without a jury, and that the sum or sums specified in the said Contract as liquidated damages, if any, shall be forfeited to the Oblige, its successors or assigns, in the event of a breach of any, or all, or any part of, covenants, agreements, conditions, or stipulations contained in the Contract or in this bond in accordance with the terms thereof.

The amount of this bond may be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this _____ day of _____, _____.

(Seal) _____
Name of Contractor

* _____
Signature

Title

*ALL SIGNATURES MUST BE
ACKNOWLEDGED BY A NOTARY PUBLIC

LABOR AND MATERIAL PAYMENT BOND (SURETY)
(6/21/07)

KNOW TO ALL BY THESE PRESENTS:

That _____,
(Full Legal Name and Street Address of Contractor)

as Contractor, hereinafter called Principal, and _____

(Name and Street Address of Bonding Company)

as Surety, hereinafter called Surety, a corporation(s) authorized to transact business as a surety in the State of Hawaii, are held and firmly bound unto the _____,
(State/County Entity)

its successors and assigns, hereinafter called Oblige, in the amount of _____

_____ Dollars (\$ _____), to which payment Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above-bound Principal has signed Contract with the Oblige on _____ for the following project: _____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE, the condition of this obligation is such that if the Principal shall promptly make payment to any Claimant, as hereinafter defined, for all labor and materials supplied to the Principal for use in the performance of the Contract, then this obligation shall be void; otherwise to remain in full force and effect.

1. Surety to this Bond hereby stipulates and agrees that no changes, extensions of time, alterations, or additions to the terms of the Contract, including the work to be performed thereunder, and the specifications or drawings accompanying same, shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, extensions of time, alterations, or additions, and agrees that they shall become part of the Contract.

2. A "Claimant" shall be defined herein as any person who has furnished labor or materials to the Principal for the work provided in the Contract.

Every Claimant who has not been paid amounts due for labor and materials furnished for work provided in the Contract may institute an action against the Principal and its Surety on this bond at the time and in the manner prescribed in Section 103D-324, Hawaii Revised Statutes, and have the rights and claims adjudicated in the action, and judgment rendered thereon; subject to the Obligee's priority on this bond. If the full amount of the liability of the Surety on this bond is insufficient to pay the full amount of the claims, then after paying the full amount due the Obligee, the remainder shall be distributed pro rata among the claimants.

Signed this _____ day of _____, _____.

(Seal)

Name of Principal (Contractor)

*

Signature

Title

(Seal)

Name of Surety

*

Signature

Title

***ALL SIGNATURES MUST BE ACKNOWLEDGED
BY A NOTARY PUBLIC**

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL BY THESE PRESENTS:

That we, _____
(full legal name and street address of Contractor)
as Contractor, hereinafter called Contractor, is held and firmly bound unto _____
(State/County entity)
its successors and assigns, as Obligee, hereinafter called Obligee, in the amount
_____ DOLLARS (\$ _____),
(Dollar amount of Contract)

lawful money of the United States of America, for the payment of which to the said Obligee, well and truly to be made, Contractor binds itself, its heir, executors, administrators, successors and assigns, firmly by these presents. Said amount is evidenced by:

- Legal Tender;**
- Share Certificate** unconditionally assigned to or made payable at sight to _____
Description: _____
- Certificate of Deposit, No.** _____, dated _____
issued by _____
drawn on _____
a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Cashier's Check No.** _____, dated _____
drawn on _____
a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Teller's Check No.** _____, dated _____
drawn on _____
a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Treasurer's Check No.** _____, dated _____
drawn on _____
a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Official Check No.** _____, dated _____
drawn on _____
a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;
- Certified Check No.** _____, dated _____
accepted by a bank, savings institution or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration, payable at sight or unconditionally assigned to _____;

WHEREAS:

The Contractor has by written agreement dated _____ entered into a contract with Obligee for the following Project: _____

hereinafter called Contract, which Contract is incorporated herein by reference and made a part hereof.

NOW THEREFORE,

The condition of this obligation is such that, if Contractor shall promptly and faithfully perform the Contract in accordance with, in all respects, the stipulations, agreements, covenants and conditions of the Contract as it now exists or may be modified according to its terms, free from all liens and claims and without further cost, expense or charge to the Obligee, its officers, agents, successors or assigns, free and harmless from all suits or actions of every nature and kind which may be brought for or on account of any injury or damage, direct or indirect, arising or growing out of the doing of said work or the repair or maintenance thereof or the manner of doing the same or the neglect of the Contractor or its agents or servants or the improper performance of the Contract by the Contractor or its agents or servants or from any other cause, then this obligation shall be void; otherwise it shall be and remain in full force and effect.

AND IT IS HEREBY STIPULATED AND AGREED that suit on this bond may be brought before a court of competent jurisdiction without a jury, and that the sum or sums specified in the said Contract as liquidated damages, if any, shall be forfeited to the Obligee, its successors or assigns, in the event of a breach of any, or all, or any part of, covenants, agreements, conditions, or stipulations contained in the Contract or in this bond in accordance with the terms thereof.

AND IT IS HEREBY STIPULATED AND AGREED that this bond shall inure to the benefit of any and all persons entitled to file claims for labor performed or materials furnished in said work so as to give any and all such persons a right of action as contemplated by Sections 103D-324(d) and 103D-324(e), Hawaii Revised Statutes.

The amount of this bond may be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payments of mechanics' liens which may be filed of record against the Project, whether or not claim for the amount of such lien be presented under and against this bond.

Signed this _____ day of _____, _____.

(Seal) _____
Name of Contractor

* _____
Signature

Title

*ALL SIGNATURES MUST BE
ACKNOWLEDGED BY A NOTARY PUBLIC

DISCLOSURE OF LOBBYING ACTIVITIES
 Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
 (See reverse for public burden disclosure.)

Approved by
 0348-0046

1. Type of Federal Action: <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	2. Status of Federal Action: <input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	3. Report Type: <input type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change For Material Change Only: year _____ quarter _____ date of last report _____
4. Name and Address of Reporting Entity: <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, <i>if known</i> : Congressional District, <i>if known</i> :	5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime Congressional District, <i>if known</i> :	
6. Federal Department/Agency:	7. Federal Program Name/Destination: CFDA Number, <i>if applicable</i> :	
8. Federal Action Number, <i>if known</i> :	9. Award Amount, <i>if known</i> : \$	
10. a. Name and address of Lobbying Entity (if individual, last name, first name, MI): b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI): <p align="center">(attach Continuation Sheet(s) SF-LLL-A, if necessary)</p>		
11. Amount of Payment (<i>check all that apply</i>): \$ _____ <input type="checkbox"/> actual <input type="checkbox"/> planned	13. Type of Payment (<i>check all that apply</i>): <input type="checkbox"/> a. retainer <input type="checkbox"/> b. one-time fee <input type="checkbox"/> c. commission <input type="checkbox"/> d. contingent fee <input type="checkbox"/> e. deferred <input type="checkbox"/> f. other; specify: _____	
12. Form of Payment (<i>check all that apply</i>): <input type="checkbox"/> a. cash <input type="checkbox"/> b. in-kind; specify: nature _____ value _____		
14. Brief Description of Services Performed or to be Performed and Date(s) of Service, including officer(s), employees(s) or Member(s) contacted, for Payment Indicated in Item 11: <p align="center">(attach Continuation Sheet(s) SF-LLL-A, if necessary)</p>		
15. Continuation Sheet(s) SF-LLL-A attached: <input type="checkbox"/> Yes <input type="checkbox"/> No		
16. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi- annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____	
Federal Use Only:		Authorized for Local Reproduction Standard Form - LLL

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee", then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal Agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10.
 - (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.
 - (b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.
14. Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with Federal officials. Identify the federal official(s) or employee(s) contacted or the officer(s), employee(s), or Member(s) or Congress that were contacted.
15. Check whether or not a SF-LLL-A Continuation Sheet(s) is attached.
16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction (0348-0046), Washington, D.C. 20503.

DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET

Approved by
0348-0046

Reporting Entity: _____ Page _____ of _____

STATEMENT OF COMPLIANCE

Date _____

I, _____ do hereby state:

(Name of signatory party) (Title)
(1) That I pay or supervise the payment of the persons employed by _____ on
(Contractor or subcontractor)
the _____; that during the payroll period commencing on the _____ day of _____,
(Building or work)
_____ and ending the _____ day of _____, all persons employed on said project have been paid the
full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said
_____ from the full weekly wages earned by any person and that no deductions have
(Contractor or subcontractor)
been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in
Regulations, Part 3 (29 CFR Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948.63
Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. 2760), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborers or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

In addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above-Referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate program for the benefit of such employees, except as noted in Section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

Each Laborer or mechanic listed in the above referenced payroll has been paid as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in Section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION
REMARK	

NAME AND TITLE	SIGNATURE
----------------	-----------

THE WILFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.

INSTRUCTIONS FOR PREPARATION OF STATEMENT OF COMPLIANCE

This statement of compliance meets needs resulting from the amendment of the Davis-Bacon Act to include fringe benefits provisions. Under this amended law, the contractor is required to pay fringe benefits as predetermined by the Department of Labor, in addition to payment of the minimum rates. The contractor's obligation to pay fringe benefits may be met by payment of the fringes to the various plans, funds, or programs or by making these payments to the employees as cash in lieu of fringes.

The contractor should show on the face of his payroll all monies paid to the employees whether as basic or as cash in lieu of fringes. The contractor shall represent in the statement of compliance that he is paying to others fringes required by the contract and not paid as cash in lieu of fringes. Detailed instructions follow:

Contractors who pay all required fringe benefits:

A contractor who pays fringe benefits to approved plans, funds, or programs in amounts not less than were determined in the applicable wage decision of the Secretary of Labor shall continue to show on the face of his payroll the basic cash hourly rate and overtime rate paid to his employees, just as he has always done. Such a contractor shall check paragraph 4(a) of the statement to indicate that he is also paying to approved plans, funds, or programs not less than the amount predetermined as fringe benefits for each craft. Any exception shall be noted in Section 4(c).

Contractors who pay no fringe benefits:

A contractor who pays no fringe benefits shall pay to the employee and insert in the straight time hourly rate column of his payroll an amount not less than the predetermined rate for each classification plus the amount of fringe benefits determined for each classification in the applicable wage decision. Inasmuch as it is not necessary to pay time and a half on cash paid in lieu of fringes, the overtime rate shall be not less than the sum of the basic predetermined rate, plus the half time premium on the basic or regular rate plus the required cash in lieu of fringes at the straight time rate. To simplify computation of overtime, it is suggested that the straight time basic rate and cash in lieu of fringes be separately stated in the hourly rate column, thus \$3.25/.40. In addition, the contractor shall check paragraph 4(b) of the statement to indicate that he is paying fringe benefits in cash directly to his employees. Any exceptions shall be noted in Section 4(c).

Use of Section 4(c), Exceptions

Any contractor who is making payment to approved plans, funds, or programs in amounts less than the wage determination requires is obliged to pay the deficiency directly to the employees as cash in lieu of fringes. Any exceptions to Section 4(a) or 4(b), whichever the contractor may check, shall be entered in Section 4(c). Enter in the Exception column the craft, and enter in the Explanation column the hourly amount paid the employees as cash in lieu of fringes, and the hourly amount paid to plans, funds, or programs as fringes.

CHAPTER 104, HRS COMPLIANCE CERTIFICATE

The undersigned bidder does hereby certify to the following:

1. Individuals engaged in the performance of the contract on the job site shall be paid:

A. Not less than the wages that the director of labor and industrial relations shall have determined to be prevailing for corresponding classes of laborers and mechanics employed on public works projects; and

B. Overtime compensation at one and one-half times the basic hourly rate plus fringe benefits for hours worked on Saturday, Sunday, or a legal holiday of the State or in excess of eight hours on any other day.

2. All applicable laws of the federal and state governments relating to workers' compensation, unemployment compensation, payment of wages, and safety shall be fully complied with.

DATED at Honolulu, Hawaii, this _____ day of _____, 20__.

«CONTRACTOR»
Name of Corporation, Partnership, or Individual

Signature and Title of Signer

Notary Seal
NOTARY ACKNOWLEDGEMENT

Subscribed and sworn before me this _____ day of _____
Notary signature _____
Notary public, State of _____
My Commission Expires: _____

Notary Seal
NOTARY CERTIFICATION

Doc. Date: _____ #Pages: _____
Notary Name: _____ Circuit _____
Doc. Description: _____

Notary signature _____
Date _____