



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

**SPECIAL PROVISIONS
PROPOSAL, CONTRACT,
BOND AND PLANS**

FOR

LIKELIKE HIGHWAY

WILSON TUNNEL ELECTRICAL IMPROVEMENTS

PROJECT NO. HWY-OT-SMP-01

DISTRICT OF HONOLULU AND KOOLAUPOKO

ISLAND OF OAHU

FY 2023

TABLE OF CONTENTS

Notice to Bidders

Instructions for Contractor's Licensing

Special Provisions Title Page

Special Provisions

DIVISION 100 - GENERAL PROVISIONS		
Section	Description	Pages
101	Definitions and Terms	101-1a – 101-13a
102	Bidding Requirements and Conditions	102-1a – 102-13a
103	Award And Execution Of Contract	103-1a – 103-5a
104	Scope of Work	104-1a – 104-2a
105	Control Of Work	105-1a – 105-3a
106	Material Restrictions and Requirements	106-1a
107	Legal Relations and Responsibility To Public	107-1a – 107-5a
108	Prosecution And Progress	108-1a – 108-25a
109	Measurement and Payment	109-1a – 109-2a

DIVISION 200 EARTHWORK		
Section	Description	Pages
209	Temporary Water Pollution, Dust, and Erosion Control	209-1a - 209-28a

DIVISION 600 - INCIDENTAL CONSTRUCTION		
Section	Description	Pages
660	Supplemental Requirements for Electrical	660-1a – 660-9a
661	Facility Performance Requirements for Electrical	661-1a – 661-2a
662	Medium Voltage Cables	662-1a – 662-10a
664	Grounding and Bonding for Electrical Systems	664-1a – 664-10a
666	Conduits for Electrical Systems	666-1a – 666-8a
667	Cable Trays for Electrical Systems	667-1a – 667-9a
668	Identification for Electrical Systems	668-1a – 668-10a
699	Mobilization	699-1a

Requirements of Chapter 104, HRS

Wages and Hours of Employees on Public Works Law

Proposal Title Page

Proposal P-1 – P-6

Proposal Schedule P-7 – P-8

Surety Bid Bond

Sample Form Title Page

Contract

Performance Bond (Surety)

Performance Bond

Labor and Material Payment Bond (Surety)

Labor and Material Payment Bond

Chapter 104, HRS Compliance Certificate

Certification of Compliance for Employment of State Residents

END OF TABLE OF CONTENTS

NOTICE TO BIDDERS
(Chapter 103D, HRS)

The receiving of SEALED BIDS for Wilson Tunnel Electrical Improvements Project No. HWY-OT-SMP-01, will begin as advertised on in HiePRO. Bidders are to register and submit bids through HiePRO only. See the following HiePRO link for important information on registering: <https://hiepro.ehawaii.gov/welcome.html>.

Deadline to submit bids is -**Wednesday, October 26, 2022, at 2:00 pm**. Bids received after said due date and time shall not be considered.

The scope of work consists of replacing electrical distribution cables servicing Wilson Tunnel, including all associated accessories and appurtenances. The estimated cost of construction is between \$500,000 and \$600,000.

To be eligible for award, bidders must possess a valid State of Hawaii C-13 and C-63 license at the time of bidding.

A 5% bid adjustment for bidders that are parties to apprenticeship agreements pursuant to Section 103-55.6, Hawaii Revised Statutes (HRS), is applicable to this project.

Compliance with Act 192, SLH 2011 is a requirement for this project whereby a minimum of 80% of the bidder's work force on this project **must** consist of Hawaii residents.

A pre-bid conference is scheduled for **October 11th, 10:00 am via MicroSoft Teams**. All prospective bidders or their representatives (employees) are encouraged to attend, but attendance is not mandatory. **Due to the impacts of COVID 19, the pre-bid meeting will be conducted virtually. Questions applicable to the Project Specifications should be submitted via HiePRO no later than two days prior to the scheduled date of the pre-bid meeting.**

Contact Joel Yago, Project Manager, by phone, at (808) 485-6261, by facsimile at (808) 485-6270 or email at joel.a.yago@hawaii.gov to obtain the link for the pre-bid meeting.

ALL requests for information (RFI) shall be received in writing via HIEPRO no less than 14 calendar days before bid opening. Questions received after the deadline will not be addressed. Verbal requests for information will not receive a response. Anything said at the conference is for clarification purposes and any changes to the bid documents will be made by addendum and posted in HIEPRO.

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

Campaign contributions by State and County Contractors. Contractors are hereby notified of the applicability of Section 11-355, HRS, 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.

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

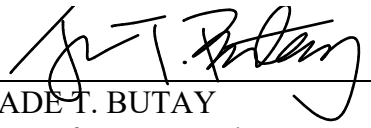
Driving While Impaired (DWI) Education. HDOT encourages all organizations contracted with the DOT to have an employee education program preventing DWI. DWI is defined as operating a motor vehicle while impaired by alcohol or other legal or illegal substances. HDOT promotes this type of program to accomplish 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.

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 will affirmatively ensure that the contract entered into pursuant to this advertisement will 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).

For additional information, contact Joel Yago, Project Manager, by phone, at (808) 485-6261, by facsimile at (808) 485-6270 or email at joel.a.yago@hawaii.gov.

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



JADE T. BUTAY
Director of Transportation

Posted:

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.

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 Transportation Officials
26		
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 **Engineer** - The Highway Administrator, Highways Division, HDOT, or the
270 authorized person delegated to act on the Administrator's behalf.

271

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

273

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

280

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

285

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

288

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

293

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

297

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

300

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

303

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

306

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

310

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

313

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

316
317 **Laboratory** - The testing laboratory of the Highways Division or other testing
318 laboratories that may be designated by the Engineer.

319
320 **Laws** - All Federal, State, and local laws, executive orders and regulations having
321 the force of law.

322
323 **Leveling Course** - An aggregate mixture course of variable thickness used to
324 restore horizontal and vertical uniformity to existing pavements or shoulders.

325
326 **Liquidated Damages** - The amount prescribed in Subsection 108.08 - Liquidated
327 Damages for Failure to Complete the Work or Portions of the Work on Time, to be
328 paid to the State or to be deducted from any payments payable to or, which may
329 become payable to the Contractor.

330
331 **Lump Sum (LS)** - When used as a payment method means complete payment
332 for the item of work described in the contract documents.

333
334 **Material** - Any natural or manmade substance or item specified in the contract to
335 be incorporated in the work.

336
337 **Notice to Bidders** - The advertisement for proposals for all work or materials on
338 which bids are required. Such advertisement will indicate the location of the work
339 to be done or the character of the material to be furnished and the time and place
340 for the opening of proposals.

341
342 **Notice to Proceed** - Written notice from the Engineer to the Contractor identifying
343 the date on which the Contractor is to begin procuring materials and required
344 permits and adjusting work forces, equipment, schedules, etc. prior to beginning
345 physical work.

346
347 **Pavement** - The uppermost layer of material placed on the traveled way or
348 shoulders or both. Pavement and surfacing may be interchangeable.

349
350 **Pavement Structure** - The combination of subbase, base, pavement, surfacing or
351 other specified layer of a roadway constructed on a subgrade to support the traffic
352 load.

353
354 **Payment Bond** - The security executed by the Contractor and surety or sureties
355 furnished to the Department to guarantee payment by the Contractor to laborers,
356 material suppliers and subcontractors in accordance with the terms of the contract.

357

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

366
367 **Pre-Final Inspection** - Inspection scheduled when Contractor notifies Engineer
368 that all physical work on the project, with the exception of planting period and plant
369 establishment period, has been completed. Notice from Contractor of substantial
370 completion will suspend contract time until Contractor receives punchlist from
371 Engineer.

372
373 **Profile Grade** - The elevation or gradient of a vertical plane intersecting the top
374 surface of the proposed pavement.

375
376 **Project Acceptance Date** - The calendar day on which the Engineer accepts the
377 project as completed. See Final Completion.

378
379 **Proposal (Bid)** - The executed document submitted by a Bidder in response to a
380 solicitation request, to perform the work required by the proposed contract
381 documents, for the price quoted and within the time allotted.

382
383 **Public Traffic** - Vehicular or pedestrian movement on a public way.

384
385 **Punchlist** - A list compiled by the Engineer specifying work yet to be completed or
386 corrected by the Contractor in order to substantially complete the contract.

387
388 **Questionnaire** - The specified forms on which the bidder shall furnish required
389 information as to its ability to perform and finance the work.

390
391 **Request for Change Proposal** - A written notice from the Engineer to the
392 Contractor requesting that the Contractor provide a price and/or time proposal for
393 contemplated changes preparatory to the issuance of a field order or change order.

394
395 **Right-of-Way** - Land, property, or property interests acquired by a government
396 agency for, or devoted to transportation purposes.

397
398 **Roadbed** - The graded portion of a highway within top and side slopes, prepared
399 as a foundation for the pavement structure and shoulders.

400
401 **Roadside** - The area between the outside edges of the shoulders and the right-of-
402 way boundaries. Unpaved median areas between inside shoulders of divided
403 highways and infield areas of interchanges are included.

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

406
407 **Shop Drawings** - All drawings, diagrams, illustrations, schedules and other data
408 or information which are specifically prepared or assembled by or for the
409 Contractor and submitted by the Contractor to illustrate some portion of the work.

410
411 **Shoulder** - The portion of the roadway next to the traveled way for:
412 accommodation of stopped vehicles, placement of underground facilities,
413 emergency use, and lateral support of base and surface courses.

414
415 **Sidewalk** - That portion of the roadway primarily constructed for use by
416 pedestrians.

417
418 **Solicitation** - An invitation to bid or request for proposals or any other document
419 issued by the Department to solicit bids or offers to perform a contract. The
420 solicitation may indicate the time and place to receive the bids or offers and the
421 location, nature and character of the work, construction or materials to be provided.

422
423 **Specifications** - Compilation of provisions and requirements to perform
424 prescribed work.

425
426 **(A) Standard Specifications.** Specifications by the State intended for
427 general application and repetitive use.

428
429 **(B) Special Provisions.** Revisions and additions to the standard
430 specifications applicable to an individual project.

431
432 **Standard Plans** - Drawings provided by the State for specific items of work
433 approved for repetitive use.

434
435 **State** - The State of Hawaii, its Departments and agencies, acting through its
436 authorized representative(s).

437
438 **State Waters** – All waters, fresh, brackish, or salt, around and within the State,
439 including, but not limited to, coastal waters, streams, rivers, drainage ditches,
440 ponds, reservoirs, canals, ground waters, and lakes; provided that drainage
441 ditches, ponds, and reservoirs required as a part of a water pollution control system
442 are excluded.

443
444 **Start Work Date** - Date on which Contractor begins physical work on the contract.
445 This date shall also be the beginning of Contract Time.

446
447 **Structures** - Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing,
448 manholes, endwalls, buildings, sewers, service pipes, underdrains, foundation
449 drains, and other such features that may be encountered in the work.

450

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

453

454 **Subcontract** - Any written agreement between the Contractor and its
455 subcontractors which contains the conditions under which the subcontractor is to
456 perform a portion of the work for the Contractor.

457

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

462

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

465

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

469

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

473

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

478

479 (3) All required illumination and lighting for normal and safe use and
480 operation is installed and functional in accordance with the contract
481 documents;

482

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

484

485 (5) The need for temporary traffic controls or lane closures at any time
486 has ceased, except for lane closures required for routine
487 maintenance;

488

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

491

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

494

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

497

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

501

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

504

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

507

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

511

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

515

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

519

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

524

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

536

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

540

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

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(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 is 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,
162 or 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) Proposal Guaranty listed in (1) and (3) shall be in its original
215 form, and shall be received at the Contracts Office, Department of
216 Transportation, 869 Punchbowl Street, Honolulu, Hawaii 96813
217 before the bid deadline.

218
219 In accordance with HRS Chapter 103D-323, the above shall be in a sum
220 not less than 5% of the amount bid.

221
222 **102.09 Delivery of Proposal.** The bidder shall submit the proposal in
223 HlePRO. Bids received after said due date and time shall not be considered.
224 Original bid documents do not have to be submitted. Award will be made based
225 on proposals submitted in HlePRO.

227 **102.10 Withdrawal or Revision of Proposals.** A bidder may withdraw or
228 revise a proposal after the bidder submits the proposal in HlePRO. Withdrawal
229 or revision of proposal must be completed before the time set for the receiving of
230 bids.

231
232 **102.11 Public Opening of Proposals.** Not applicable.

233
234 **102.12 Disqualification of Bidders.** The Department may disqualify a bidder
235 and reject its proposal for the following reasons:

236
237 (1) Submittal of more than one proposal whether under the same or
238 different name.

239
240 (2) Evidence of collusion among bidders. The Department will not
241 recognize participants in collusion as bidders for any future work of the
242 Department until such participants are reinstated as qualified bidders.

243
244 (3) Lack of proposal guaranty.

245
246 (4) Submittal of an unsigned or improperly signed proposal.

247
248 (5) Submittal of a proposal without a listing of subcontractors or
249 containing only a partial or incomplete listing of subcontractors.

250
251 (6) Submittal of an irregular proposal in accordance with Subsection
252 102.07 - Irregular Proposals.

253
254 (7) Evidence of assistance from a person who has been an employee
255 of the agency within the preceding two years and who participated while in
256 State office or employment in the matter with which the contract is directly
257 concerned, pursuant to HRS Chapter 84-15.

258
259 (8) Suspended or debarred in accordance with HRS Chapter 104-25.

260 (9) Failure to complete the prequalification questionnaire, if applicable.

261
262 (10) Failure to attend the mandatory pre-bid meeting, if applicable.

263
264 **102.13 Material Guaranty.** The successful bidder may be required to furnish
265 a statement of the composition, origin, manufacture of materials, and samples.

266
267 **102.14 Substitution of Materials and Equipment Before Bid Opening.** See
268 Subsection 106.13 for Substitution Of Materials and Equipment After Bid
269 Opening.

270

271 **(A) General.** When brand names of materials or equipment are
272 specified in the contract documents, they are to indicate a quality, style,
273 appearance, or performance and not to limit competition. The bidder shall
274 base its bid on one of the specified brand names unless alternate brands
275 are qualified as equal or better in an addendum. Qualification of such
276 proposed alternate brands shall be submitted via email to the Contact
277 person listed in HlePRO for the solicitation and also post a question in
278 HlePRO under the question/answer tab referencing the email with the
279 request. The request must be posted in HlePRO no later than 14
280 calendar days before the bid opening date, not including the bid opening
281 date

282
283 An addendum will be issued to inform all prospective bidders of any
284 accepted substitution in accordance with Subsection 102.17 – Addenda .
285

286 **(B) Statement of Variances.** The statement of variances must list all
287 features of the proposed substitution that differ from the contract
288 documents and must further certify that the substitution has no other
289 variant features. The brochure and information submitted shall be clearly
290 marked showing make, model, size, options, and any other features
291 requested by the Engineer and must include sufficient evidence to
292 evaluate each feature listed as a variance. A request will be denied if
293 submitted without sufficient evidence. If after installing the substituted
294 product, an unlisted variance is discovered, the Contractor shall
295 immediately replace the product with a specified product at no increase in
296 contract price and contract time.

297
298 **(C) Substitution Denial.** Any substitution request not complying with
299 the above requirements will be denied.

300
301 **102.15 Preferences.**

302
303 **(A) Preference for Hawaii Products.** In accordance with ACT 174,
304 SLH 2022, effective June 27, 2022, Hawaii Products Preference shall not
305 apply to solicitations for public works construction. Therefore, the Hawaii
306 Products Preference shall not apply to this project.

307
308 **(B) Preferences for Apprenticeship Programs.** In accordance with
309 ACT 17, SLH 2009 – Apprenticeship Program, a 5% bid adjustment for
310 bidders that are parties to apprenticeship agreements pursuant to Hawaii
311 Revised Statutes (HRS) Section 103-55.6 may be applied to the bidder's
312 price for evaluation purposes. These procedures apply to public works
313 projects with estimated cost of \$250,000 or more and entered into under
314 the provisions of HRS Chapter 103.

315

316 The following provisions apply to this Apprenticeship Program.
317

318 **(1)** Definitions
319

320 **(a)** “Apprenticeable trade”, HRS Section 103-55.6 (c),
321 shall have the same meaning as ‘apprenticeable occupation’
322 pursuant to Hawaii Administrative Rules (HAR) Section 30-
323 1-5.
324

325 **(b)** “Department” means the department of labor and
326 industrial relations.
327

328 **(c)** “Director” means the director of labor and industrial
329 relations.
330

331 **(d)** “Employ” means the employment of a person in an
332 employer-employee relations.
333

334 **(e)** “Governmental body” means as defined in HRS
335 Section 103D-104.
336

337 **(f)** “Party to an apprenticeship agreement” means party
338 to a registered apprenticeship program with the department
339 of labor and industrial relations.
340

341 **(g)** “Preference” means the 5% by which the qualified
342 bidder's offer amount would be decreased for evaluation
343 purposes.
344

345 **(h)** “Public work” shall be as defined in HRS Section 104-
346 2 and HAR Section 12-22-1.
347

348 **(i)** “Registered apprenticeship program” means a
349 construction trade program approved by the department
350 pursuant to HAR Section 12-30-1 and Section 12-30-4.
351

352 **(j)** “Sponsor” means an operator of an apprenticeship
353 program and in whose name the program is approved and
354 registered with the department of labor and industrial
355 relations pursuant to HAR Section 12-30-1.
356

357 **(k)** Offeror – Entity/bidder submitting a proposal to
358 undertake a project.
359

360 **(l)** Procurement Officer – Director of Transportation or
his authorized representative.

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(2) Qualification Procedures

(a) Any bidder seeking the preference must be a party to an apprenticeship agreement registered with the department at the time the offer is made for each apprenticeable trade the bidder will employ to construct the public works projects for which the offer is being made.

1. The apprenticeship agreement shall be registered and conform to the requirements of HRS Chapter 372.

2. Subcontractors do not have to be a party to an apprenticeship agreement for the bidder to obtain the preference.

3. The bidder is not required to have apprentices in its employ at the time of submittal of an offer to qualify for the preference.

(b) The department shall:

1. Develop and maintain a list of construction trades in registered apprenticeship programs which conform to HRS Chapter 372; and

2. Electronically post the list, including any amendments, on the department website (<http://labor.hawaii.gov>).

(c) Bidder is responsible to comply with all submission requirements for registration of its apprenticeship program before requesting a preference.

(d) Bidder shall provide a certification by the sponsor of the respective registered apprenticeship programs covering the relevant trade(s) for the public works project.

(e) *Certification Form 1* issued by the department shall include:

1. Contractor information;

2. Solicitation reference;

3. Trade(s);

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4. Date and name of apprenticeship program;
5. Signature of authorized training coordinator or training trust fund administrator certifying that the contractor is a participant in the program, and that the program is registered with the department;
6. Contract information for sponsor's authorized representative signing the form;
7. Number of apprentices enrolled in the program, number who successfully completed the apprenticeship program in the past 12 months, including whether the contractor is signatory to a collective bargaining agreement for that trade, or if not, provide for attachment of a copy of the agreement between the contractor and the program.

(3) Solicitation Procedures.

(a) If the NTB indicates that this project is covered by this preference, and the offer is less than \$250,000 this preference will still be applicable in determining the lowest bidder.

(b) A claim for this preference must include the following:

1. Allow bidder seeking to claim the preference to state the trades the bidder will employ to perform the work;
2. For each trade to be employed to perform the work, the bidder shall submit a completed signed original *Certification Form 1* verifying participation in an apprenticeship program registered with the department;
3. The *Certification Form 1* shall be authorized by an apprenticeship sponsor of the department's list of registered apprenticeship programs. The authorization shall be an original signature by an authorized official of the apprenticeship sponsor; and

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4. The completed *Certification Form 1* for each trade must be submitted by the bidder with the offer. Previous certifications shall not apply unless allowed by the solicitation.

(c) Upon receiving *Certification Form 1*, the procurement officer will verify with the department that the apprenticeship program is on the list of apprenticeship programs registered with the department. If the programs are not confirmed by the department, the bidder will not qualify for the preference.

(4) Evaluation and Contract Award

(a) If the bidder certifies participation in an apprenticeship program for each trade which will be employed by the bidder for the project, the procurement officer shall apply the preference and decrease the bidder's total bid amount by five per cent (5%) for evaluation purposes.

(b) Should the bidder qualify for other statutory preferences, all applicable preferences shall be applied to the bidder's price.

(c) The contract amount shall be the original offer amount, exclusive of any preference; the preference is only for evaluation purposes.

(d) Any claims challenging a bidder's representation that the bidder is a participant in an apprenticeship program(s) as claimed, shall be submitted to the procurement officer. The procurement officer will refer the challenge to the department of labor and industrial relations who shall investigate any such claims and shall make a determination.

(5) Contract Administration

(a) For the duration of a contract awarded utilizing the apprenticeship preference, the contractor shall certify each month that work is being conducted on the project, that it continues to be a participant in the relevant apprenticeship program for each trade it employs.

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(b) Monthly certification shall be made on *Monthly Certification Form 2* prepared and made available by the department, be a signed original by the respective apprenticeship program sponsors authorized official, and submitted by the contractor with its monthly payment requests.

(c) Should the contractor fail or refuse to submit its monthly certification forms, or at any time during the construction of the project, cease to be a part to a registered apprenticeship agreement for each apprenticeable trades the contractor employs, or will employ, the contractor will be subject to the following sanctions:

1. Withholding of the requested payment until the required form(s) are submitted;
2. Temporary or permanent cessation of work on the project , without recourse to breach of contract claims by the contractor; provided the agency shall be entitled to restitution for nonperformance or liquidated damages claims; or
3. Proceed to debar or suspend pursuant to HRS Section 103D-702.

(d) If events such as “acts of God,” acts of a public enemy, acts of the State or any other governmental body in its sovereign or contractual capacity, fires, floods, epidemics, freight embargoes, unusually severe weather, or strikes or other labor disputes prevent the contractor from submitting the certification forms, the contractor shall not be penalized as provided herein, provided the contractor completely and expeditiously complies with the certification process when the event is over.

This subsection shall not apply when its application will disqualify the State from receiving federal funds or aid.

(C) Preference for Recycled Products. Recycled Products shall not apply to this project.

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(D) Evaluation Procedures and Contract Award. For bid evaluation, the Engineer will evaluate the bids by applying the applicable preferences selected by the bidders according to the contract. The Engineer will base the calculations for adjustments upon the original bid prices offered. If more than one preference applies, the evaluated bid price shall be the sum of the original bid price plus applicable preference adjustments.

The Engineer will award the contract to the responsible bidder submitting the responsive bid with the lowest evaluated bid price. The contract amount of the contract awarded shall be the original bid price offered exclusive of any preference.

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

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

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 Department reserves the right to reject proposals, waive technicalities
13 or advertise for new proposals, if the rejection, waiver, or new advertisement favors
14 the Department.
15

16 **103.02 Award of Contract.** The award of contract, if it be awarded, will be
17 made within 60 calendar days after the opening of bids, to the lowest responsible
18 and responsive bidder whose bid meets all the requirements and criteria set forth
19 in the invitation for bids. (Through HlePRO). The successful bidder will be notified
20 by letter mailed to the address shown in its proposal, that its proposal has been
21 accepted, and that it has been awarded the contract.
22

23
24 **(1) Requirement for Award.** To be eligible for award, the
25 apparent low bidder will be contacted to submit copies of the
26 documents listed below to demonstrate compliance with HRS
27 Section 103D-310(c). The documents shall be submitted to the
28 Department within 14 days after bid opening unless otherwise
29 specified in the invitation for bids or an extension is granted in writing
30 by the Department. If a valid certificate/clearance is not submitted
31 on a timely basis for award of a contract, a bidder otherwise
32 responsive and responsible may not receive the award. See also
33 Subsection 108.03 – Preconstruction Data Submittal.
34

35 The Department may request the bidders to allow the Department
36 to consider the bids for the issuance of an award beyond the 60 calendar
37 day period. Agreement to such an extension must be made by a bidder
38 in writing. Only bidders who have agreed to such an extension will be
39 eligible for the award.
40

41 **(A) Tax Clearance.** Pursuant to HRS Sections 103D-310(c), 103-53
42 and 103D-328, the successful bidder shall be required to submit a certified
43 copy of its tax clearance issued by the Hawaii State Department of Taxation
44 (DOTAX) and the Internal Revenue Service (IRS) to demonstrate its
45 compliance with HRS Chapter 237. A tax clearance is valid for six (6)
46 months from the most recent approval stamp date on the tax clearance and
47 must be valid on the bid's first legal advertisement date or any date
48 thereafter up to the bid opening date.

49
50 FORM A6, TAX CLEARANCE CERTIFICATE, is available at
51 the following website:

52
53 <https://tax.hawaii.gov/>

54
55 To receive DOTAX Forms by fax or mail, phone
56 (808) 587-7572 or 1-800-222-7572.

57
58 The application for the Tax Clearance Certificate is the responsibility
59 of the bidder and must be submitted directly to the DOTAX or IRS. The
60 approved certificate may then be submitted to the Department.

61
62 **(B) DLIR Certificate of Compliance.** Pursuant to HRS Section 103D-
63 310(c), the successful bidder shall be required to submit a copy (faxed
64 copies are acceptable) of its approved certificate of compliance issued by
65 the Hawaii State Department of Labor and Industrial Relations (DLIR) to
66 demonstrate its compliance with unemployment insurance (HRS Chapter
67 383), workers' compensation (HRS Chapter 386), temporary disability
68 insurance (HRS Chapter 392), and prepaid health care (HRS Chapter 393).
69 The certificate is valid for six (6) months from the most recent approval
70 stamp date on the certificate and must be valid on the bid's first legal
71 advertisement date or any date thereafter up to the bid opening date. For
72 certificates which receive a "pending" approval stamp, a DLIR approval
73 stamp is required prior to the issuance of the Notice to Proceed.

74
75 FORM LIR#27, APPLICATION FOR CERTIFICATE OF
76 COMPLIANCE WITH SECTION 3-122-112, HAR, is available at the
77 following website:

78
79 <http://labor.hawaii.gov/>

80
81 More information is available by calling the DLIR Unemployment Insurance
82 Division at (808) 586-8926.

83
84 Inquiries regarding the status of a LIR#27 Form may be made by
85 calling the DLIR Disability Compensation Division at (808) 586-9200.

87 The application for the Certificate of Compliance is the responsibility
88 of the bidder and must be submitted directly to the DLIR. The approved
89 certificate may then be submitted to the Department.
90

91 **(C) DCCA Certificate of Good Standing.** Pursuant to HRS Section
92 103D-310(c), the successful bidder shall be required to submit a copy
93 (faxed copies are acceptable) of its approved Certificate of Good Standing
94 issued by the Hawaii State Department of Commerce and Consumer Affairs
95 (DCCA), Business Registration Division (BREG) to demonstrate that it is
96 either:

97
98 (1) Incorporated or organized under the laws of the State; or
99

100 (2) Registered to do business in the State as a separate branch
101 or division that is capable of fully performing under the contract.
102

103 The Certificate of Good Standing is valid for six (6) months from the
104 approval date on the certificate and must be valid on the bid's first legal
105 advertisement date or any date thereafter up to the bid opening date. A
106 Hawaii business that is a sole proprietorship, however, is not required to
107 register with the BREG, and therefore not required to submit a Certificate of
108 Good Standing. Bidders are advised that there are costs associated with
109 registering and obtaining a Certificate of Good Standing from the DCCA.
110

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

113
114 <http://cca.hawaii.gov/>
115

116 The application for the Certificate of Good Standing is the
117 responsibility of the bidder and must be submitted directly to the DCCA.
118 The approved certificate may then be submitted to the Department.
119

120 **(D) Hawaii Compliance Express (HCE).** In lieu of the certificates
121 referenced above, the bidder may make available proof of compliance
122 through the Hawaii Compliance Express or any other designated
123 certification process. Bidders may apply and register at the "Hawaii
124 Compliance Express" website:

125
126 <https://vendors.ehawaii.gov/hce/>
127

128 **103.03 Cancellation of Award.** The Department reserves the right to cancel
129 the award of contracts before the execution of said contract by the parties. There
130 will be no liability to the awardee and to other bidders.
131

132 **103.04 Return of Proposal Guaranty.** The Department will return the proposal
133 guaranties, except those of the three lowest bidders, after the Department checks
134 the proposals. The Department will return the proposal guaranties of the remaining
135 two lowest bidders, not awarded the contract, within five working days following
136 the execution of the contract. The Department will return the successful bidder's
137 proposal guaranty after the successful bidder furnishes a bond and executes the
138 contract.

139
140 **103.05 Requirement of Contract Bond.** At the time of execution of the
141 contract, the successful bidder shall file a good and sufficient performance bond
142 and a payment bond on the forms furnished by the Department conditioned for
143 the full and faithful performance of the contract in accordance with the terms and
144 intent thereof and for the prompt payment to all others for all labor and material
145 furnished by them to the bidder and used in the prosecution of the work provided
146 for in the contract. The bonds shall be of an amount equal to 100 percent of the
147 amount of the contract price and include 5 percent of the contract amount
148 estimated to be required for extra work. The bidder shall limit the acceptable
149 performance and payment bonds to the following:

150
151 (a) Legal tender;

152
153 (b) Surety bond underwritten by a company licensed to issue bonds in
154 the State of Hawaii; or

155
156 (c) A certificate of deposit; share certificate; cashier's check; treasurer's
157 check, teller's check drawn by or a certified check accepted by and payable
158 on demand to the State by a bank savings institution or credit union insured
159 by the Federal Deposit Insurance Corporation (FDIC) or the National Credit
160 Union Administration (NCUA).

161
162 1. The bidder may use these instruments only to a maximum of
163 \$100,000.

164
165 2. If the required security or bond amount totals over \$100,000
166 more than one instrument not exceeding \$100,000 each and issued
167 by different financial institutions shall be acceptable.

168
169 Such bonds shall also by the terms inure to the benefit of any and all
170 persons entitled to file claims for labor done or material furnished in the work so as
171 to give them a right of action as contemplated by HRS Section 103D-324.

172
173 **103.06 Execution of the Contract.** The contract bond and HRS Chapter 104
174 - Compliance Certificate, similar to a copy of the same annexed hereto, shall be
175 executed by the successful bidder and returned within ten days after the award of
176 the contract or within such further time as the Director may allow after the bidder
177 has received the contract for execution.

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

181

182 **103.07 Failure to Execute Contract.** Failure to execute the contract and file
183 acceptable bonds shall be cause for the cancellation of the award in accordance
184 with Subsection 103.06 - Execution of the Contract. Also, the Contractor forfeits
185 the proposal guaranty which becomes the property of the Department. This is not
186 a penalty, but liquidated damages sustained by the State. The Department may
187 then make award to the next lowest responsible and responsive bidder or the
188 Department may readvertise and construct the work under contract.”

189

190

191

192

193

END OF SECTION 103

SECTION 104 – SCOPE OF WORK

Make the following amendment to said Section:

(I) Amend Section 104.11(B) Contractor’s Duty to Locate and Protect Utility by adding the following after line 291:

“(4) The Contractor shall contact the Hawaii One Call Center at 811 prior to any execution in a public right of way or on private property.”

(II) Amend Section 104.06 Methods of Price Adjustment as follows:

“104.06 Methods of Price Adjustment. Any adjustment in the contract price pursuant to a change or claim shall be made in one or more of the following ways:

(1) By written agreement on a fixed price adjustment before commencement of the pertinent performance.

(2) By unit prices or other price adjustments specified in the contract or subsequently agreed upon before commencement of the pertinent performance.

(3) The Engineer may base the adjustment for a lump sum item on a calculated proportionate unit price. The Engineer will calculate the proportionate unit price by dividing the original contract lump sum price by the actual or original estimated quantity established by the contract documents.

(4) In any other lawful manner as the parties may mutually agree upon before commencement of the pertinent performance.

(5) At the sole option of the Engineer, work may be paid for on a force account basis in accordance with Subsection 109.06 - Force Account Provisions and Compensation.

(6) By the cost variations attributable to the events or situations with adjustment of profit and fee, all as specified in the contract or subsequently agreed upon before commencement of the pertinent performance.

(7) In the absence of agreement by the parties:

(A) For change orders with value not exceeding \$50,000 by documented actual costs of the work, allowing for overhead and profit as set forth in Section 109.05 - Allowances for Overhead and

47 Profit. A change order shall be issued within fifteen days of
48 submission by the contractor of proper documentation of completed
49 force account work, whether periodic (conforming to the applicable
50 billing cycle) or final. The Engineer shall return any
51 documentation that is defective, to the contractor within fifteen days
52 after receipt, with a statement identifying the defect; or
53

54 **(B)** For change orders with value exceeding \$50,000 by a
55 unilateral determination by the Engineer of the costs attributable to
56 the events or situations with adjustment of profit and fee, all as
57 computed by the Engineer in accordance with applicable sections
58 of HAR Chapters 3-123 and 3-126, and Section 109.05 -
59 Allowances for Overhead and Profit. When a unilateral
60 determination has been made, a unilateral change order shall be
61 issued within ten days. Upon receipt of the unilateral change
62 order, if the contractor does not agree with any of the terms or
63 conditions, or the adjustment or nonadjustment of the contract time
64 or contract price, the contractor shall file a notice of intent to claim
65 within thirty days after the receipt of the written unilateral change
66 order. Failure to file a protest within the time specified shall
67 constitute agreement on the part of the contractor with the terms,
68 conditions, amounts, and adjustment or nonadjustment of the
69 contract time or the contract price set forth in the unilateral change
70 order.
71

72 A contractor shall be required to submit cost or pricing data if any
73 adjustment in contract price is subject to the provisions of HAR Chapter 3-122,
74 Subchapter 15. A fully executed change order or other document permitting
75 billing for the adjustment in price under any method listed in Subsections
76 104.06(1) through 104.06(7) shall be issued within ten days after agreement on
77 the method of adjustment."
78
79
80
81
82
83

84 **END OF SECTION 104**

1 **SECTION 105 – CONTROL OF WORK**
2

3 Make the following amendments to said Section:
4
5

6 (I) Amend **105.01 – Authority** to read as follows:
7

8 “**105.01 Authority.**
9

10 (A) **Authority of the Engineer.** The Engineer is the representative of
11 the Director and has all the authority of the Director with respect to the
12 contract. The Engineer will make decisions on all questions that may
13 arise regarding the contract, such as, but not limited to:
14

15 (1) Interpretation of the contract documents.
16

17 (2) Acceptability of the materials furnished and work performed.
18

19 (3) Manner of performance and rate of progress of the work.
20

21 (4) Acceptable fulfillment of the contract on the part of the
22 Contractor.
23

24 (5) Compensation under the contract.
25

26 The Engineer’s decisions on questions, claims, and disputes will be
27 final and conclusive subject to Subsection 107.15 – Disputes and Claims.
28

29 The Engineer may delegate specific authority to act for the
30 Engineer to a specific person or persons. Such delegation of authority
31 shall be established in writing and shall become effective upon delivery to
32 the Contractor.
33

34 (B) **Authority of the Inspectors.** Inspectors, as a representative of
35 the Engineer or other agencies, will inspect the work done and materials
36 furnished. Such inspection may extend to the preparation, fabrication or
37 manufacture of the materials to be used. The Inspector does not have
38 authority vested in the Engineer unless specifically delegated in writing.
39 The Inspector may not alter or waive the provisions of the contract, issue
40 instructions contrary to the contract, or act as agent or representative of
41 the Contractor.
42

43 Failure of an Inspector at any time to reject non-conforming work
44 shall not be considered a waiver of the State’s right to require work in strict
45 conformity with the contract documents as a condition of final acceptance.
46

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

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Section No.	Description
662	Contract Item No. 662.0100 under Section 662 – Medium Voltage Cables
664	Contract Item No. 664.0100 under Section 664 – Grounding and Bonding for Electrical Systems
666	Contract Item No. 666.0100 under Section 666 – Conduits for Electrical Systems
667	Contract Item No. 667.0100 under Section 667 – Cable Trays for Electrical Systems
668	Contract Item No. 668.0100 under Section 668 – Identification for Electrical Systems

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

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

END OF SECTION 105

1 **SECTION 106 – MATERIAL RESTRICTIONS AND REQUIREMENTS**

2
3 Make the following amendment to said Section:

4
5 **(I)** Amend **106.05(B) – Deviation** by revising the third sentence from line 106
6 to 108 to read as follows:

7
8 “Any deviations will be subject to Subsection 102.14 – Substitution of Materials
9 and Equipment Before Bid Opening.

10
11 **(II)** Amend **106.11 Steel and Iron Construction Material** from line 238
12 to line 277 to read as follows

13
14 “**106.11 Steel and Iron Construction Material.** (Not Applicable)”
15
16
17
18
19

20 **END OF SECTION 106**

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

2
3 Make the following amendments to said Section:

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

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

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

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

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 as an additional insured
46 under the Contractor's insurance policy, is not sufficient to meet the
47 Contractor's insurance obligations.
48

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

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

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

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

86 **(B) Types of Insurance.** Contractor shall purchase and
87 maintain insurance described below which shall provide coverage
88 against claims arising out of the Contractor's operations under the

89 contract, whether such operations be by the Contractor itself or by any
90 subcontractor or by anyone directly or indirectly employed by any of
91 them or by anyone for whose acts any of them may be liable.
92

93 **(1) Workers' Compensation.** The Contractor shall obtain
94 worker's compensation insurance for all persons whom they
95 employ in carrying out the work under this contract. This insurance
96 shall be in strict conformity with the requirements of the most
97 current and applicable State of Hawaii Worker's Compensation
98 Insurance laws in effect on the date of the execution of this contract
99 and as modified during the duration of the contract.
100

101 **(2) Auto Liability.** The Contractor shall obtain Auto Liability
102 Insurance covering all owned, non-owned and hired autos with a
103 Combined single Limit of not less than \$1,000,000 per occurrence
104 for bodily injury and property damage with the State of Hawaii
105 named as additional insured. Refer to SPECIAL CONDITIONS for
106 any additional requirements.
107

108 **(3) General Liability.** The Contractor shall obtain General
109 Liability insurance with a limit of not less than \$2,000,000 per
110 occurrence and in the Aggregates for each of the following:
111

- 112 (a) Products - Completed/Operations Aggregate,
- 113
- 114 (b) Personal & Advertising Injury, and
- 115
- 116 (c) Bodily Injury & Property Damage
117

118 The General Liability insurance shall include the State as an
119 Additional Insured. The required limit of insurance may be provided
120 by a single policy or with a combination of primary and excess
121 policies. Refer to SPECIAL CONDITIONS for any additional
122 requirements.
123

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

135 (II) Add **Section 107.18 Citizen and Residential Labor Force** after line 745
136 to read as follows:

137

138 **“107.18 Citizen and Residential Labor Force.**

139

140 (A) **Citizen Labor.** No person shall be employed as a laborer or
141 mechanic unless such person is a citizen of the United States or eligible to
142 become one; provided that persons without such qualifications may be
143 employed with the approval of the Governor until persons who are citizens
144 and are competent for such services are available for hire.

145

146 (B) **Residential Labor Force.** In accordance with Act 192; SLH 2011,
147 no less than eighty (80) percent of the bidder's labor force working on the
148 contract shall be provided by Hawaii residents. This act applies to all
149 construction procurements under HRS Chapter 103D; however this act
150 does not apply to procurements for professional services under Section
151 103D-304 and small purchases under Section 103D-305. This act is also
152 applicable to any subcontract of \$50,000.00 or more in connection with
153 this contract.

154

155 Resident means a person who is physically present in the State of
156 Hawaii at the time the person claims to have established the person's
157 domicile in the State of Hawaii and shows the person's intent is to make
158 Hawaii the person's primary residence.

159

160 (C) Percentage of workforce shall be determined by dividing the labor
161 hours (including subcontractors) provided by residents working on the
162 project divided by the total number of hours worked by all employees of
163 the contractor in the performance of the contract. Hours worked by
164 employees within shortage trades as determined by the Department of
165 Labor and Industrial Relations shall not be included in the calculation of
166 this percentage.

167

168 (D) Certification of compliance with the forgoing provisions shall be
169 made by the contractor in the form of a written oath submitted to the
170 Procurement Officer on a monthly basis for the duration of the contract.

171

172 (E) Sanctions for non compliance with these provisions are as follows:

173

174 (1) With respect to the General Contractor, withholding of
175 payment on the contract until the Contractor or its Subcontractor
176 complies with HRS Chapter 103B as amended by Act 192, SLH
177 2011.

178

179 **(2)** Proceedings for debarment or suspension of the Contractor
180 or Subcontractor under Hawaii Revised Statutes § 103D-702.

181

182 This Section shall not apply when its application will disqualify the State
183 from receiving federal funds or aid.”

184

185

186

187

188

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.

108.03

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:
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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.

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

273
 274 (e) Delays caused by the failure to submit sufficient
 275 information and data in a timely manner in the proper form in
 276 order to obtain necessary permits related to the work.

277
 278 (f) Failure to follow the procedure within the time allowed
 279 by contract to request a time extension.

280
 281 (g) Failure of the Contractor to provide evidence sufficient
 282 to support the time extension request.

283
 284 (7) **Reduction in Time.** If the State deletes or modifies any
 285 portion of the work, an appropriate reduction of contract time may be
 286 made in accordance with Subsection 104.02 - Changes.

287
 288 **108.06 Progress Schedules.**

289
 290 (A) **Forms of Schedule.** All schedules shall be submitted using the
 291 specific computer program designated in the bid documents. If no such
 292 scheduling software program is designated, then all schedules shall be
 293 submitted using the latest version of Microsoft Project by Microsoft or
 294 approved equivalent software program.

295
 296 Schedule submittals shall be as follows:

297
 298 (1) **For Contracts \$2,000,000 or less or For Contract Time 100**
 299 **Working Days or 140 Calendar Days or Less.** For contracts of
 300 \$2,000,000 or less or for contract time of 100 working days or 140
 301 calendar days or less, the progress schedule will be a Time Scaled
 302 Logic Diagram (TSLD). The Contractor shall submit a TSLD
 303 submittal package meeting the following requirements and having
 304 these essential and distinctive elements:

305
 306 (a) The major features of work, such as but not limited to
 307 BMP installation, grubbing, roadway excavation, structure
 308 excavation, structure construction, shown in the chronological
 309 order in which the Contractor proposes to work that feature or
 310 work and its location on the project. The schedule shall
 311 account for normal inclement weather, unusual soil or other

- 312 conditions that may influence the progress of the work,
313 schedules, and coordination required by any utility, off or on
314 site fabrications, and other pertinent factors that relate to
315 progress;
- 316
- 317 **(b)** All features listed or not listed in the contract
318 documents that the Contractor considers a controlling factor
319 for the timely completion of the contract work.
- 320
- 321 **(c)** The time span and sequence of the activities or events
322 for each feature, and its interrelationship and
323 interdependencies in time and logic to other features in order
324 to complete the project.
- 325
- 326 **(d)** The total anticipated time necessary to complete work
327 required by the contract.
- 328
- 329 **(e)** A chronological listing of critical intermediate dates or
330 time periods for features or milestones or phases that can
331 affect timely completion of the project.
- 332
- 333 **(f)** Major activities related to the location on the project.
- 334
- 335 **(g)** Non-construction activities, such as submittal and
336 acceptance periods for shop drawings and material,
337 procurement, testing, fabrication, mobilization, and
338 demobilization or order dates of long lead material.
- 339
- 340 **(h)** Set schedule logic for out of sequence activities to
341 retain logic. In addition, open ends shall be non-critical.
- 342
- 343 **(i)** Show target bars for all activities.
- 344
- 345 **(j)** Vertical and horizontal sight lines both major and minor
346 shall be used as well as a separator line between groups.
347 The Engineer will determine frequency and style.
- 348
- 349 **(k)** The file name, print date, revision number, data and
350 project title and number shall be included in the title block.
- 351
- 352 **(l)** Have columns with the appropriate data in them for
353 activity ID, description, original duration, remaining duration,
354 early start, early finish, total float, percent complete,
355 resources. The resource column shall list who is responsible
356 for the work to be done in the activity. These columns shall
357 be to the left of the bar chart.
- 358

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

- 455
- 456 (a) Has a duration longer than five days.
 - 457
 - 458 (b) Is a milestone activity.
 - 459
 - 460 (c) Is a contract item that exceeds \$10,000 on the contract
 461 cost proposal.
 - 462
 - 463 (d) Is a critical path activity.
 - 464
 - 465 (e) Is an activity designated as such by the Engineer.
 - 466

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

- 469
- 470 (a) Quantity, type, make, and model of equipment.
 - 471
 - 472 (b) The manpower to do the work, specifying worker
 473 classification.
 - 474
 - 475 (c) The production rate per eight hour day, or the working
 476 hours established by the contract documents needed to meet
 477 the time indicated on the schedule. If the production rate is
 478 not for eight hours, the number of working hours shall be
 479 indicated.
 - 480
 - 481 (6) Two sets of color time-scaled project evaluation and review
 482 technique charts ("PERT") using the activity box template of Logic –
 483 Early Start or such other template designated by the Engineer.
 - 484

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

487

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

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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.

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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.
583

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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 \$ 2,500.00 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.

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

675
676 (c) Provide adequate supervision on the jobsite.

677
678 (5) The convenience of the State.

679
680 **(B) Partial and Total Suspension.** Suspension of work on some but
681 not all items of work shall be considered a “partial suspension”.
682 Suspension of work on all items shall be considered “total suspension”.
683 The period of suspension shall be computed from the date set out in the
684 written order for work to cease until the date of the order for work to
685 resume.

686
687 **(C) Reimbursement to Contractor.** In the event that the Contractor is
688 ordered by the Engineer in writing as provided herein to suspend all work
689 under the contract for the reasons specified in Subsections 108.10(A)(2),
690 108.10(A)(3), or 108.10(A)(5) of the “Suspension of Work” paragraph, the
691 Contractor may be reimbursed for actual direct costs incurred on work at
692 the jobsite, as authorized in writing by the Engineer, including costs
693 expended for the protection of the work. An allowance of 5 percent for
694 indirect categories of delay costs will be paid on any reimbursed direct
695 costs, including extended branch and home-office overhead and delay
696 impact costs. No allowance will be made for anticipated profits. Payment
697 for equipment which is ordered to standby during such suspension of work
698 shall be made as described in Subsection 109.06(H) - Idle and Standby
699 Equipment.

700
701 **(D) Cost Adjustment.** If the performance of all or part of the work is
702 suspended for reasons beyond the control of the Contractor except an
703 adjustment shall be made for any increase in cost of performance of this
704 contract (excluding profit) necessarily caused by such suspension, and the
705 contract modified in writing accordingly.

706
707 However, no adjustment to the contract price shall be made for any
708 suspension, delay, or interruption:

709
710 (1) For weather related conditions.

711
712 (2) To the extent that performance would have been so
713 suspended, delayed, or interrupted by any other cause, including the
714 fault or negligence of the Contractor.

715
716 (3) Or, for which an adjustment is provided for or excluded under
717 any other provision of this Contract.

718

719 **(E) Claims for Adjustment.** Any adjustment in contract price made
 720 shall be determined in accordance with Subsections 104.02 – Changes and
 721 104.06 – Methods of Price Adjustment.
 722

723 Any claims for such compensation shall be filed in writing with the
 724 Engineer within 30 days after the date of the order to resume work or the
 725 claim will not be considered. The claim shall conform to the requirements
 726 of Subsection 107.15(D) – Making of a Claim. The Engineer will take the
 727 claim under consideration, may make such investigations as are deemed
 728 necessary and will be the sole judge as to the equitability of the claim. The
 729 Engineer’s decision will be final.
 730

731 **(F) No Adjustment.** No provision of this clause shall entitle the
 732 Contractor to any adjustments for delays due to failure of its surety, the
 733 cancellation or expiration of any insurance coverage required by the
 734 contract documents, for suspensions made at the request of the Contractor,
 735 for any delay required under the contract, for suspensions, either partial or
 736 whole, made by the Engineer under Subsection 108.10(A)(4) of the
 737 “Suspension of work” paragraph.
 738

739 **108.11 Termination of Contract for Cause.**
 740

741 **(A) Default.** If the Contractor refuses or fails to perform the work, or any
 742 separable part thereof, with such diligence as will assure its completion
 743 within the time specified in this contract, or any extension thereof, or
 744 commits any other material breach of this contract, and further fails within
 745 seven days after receipt of written notice from the Engineer to commence
 746 and continue correction of the refusal or failure with diligence and
 747 promptness, the Engineer may, by written notice to the Contractor, declare
 748 the Contractor in breach and terminate the Contractor’s right to proceed
 749 with the work or the part of the work as to which there has been delay or
 750 other breach of contract. In such event, the State may take over the work,
 751 perform the same to completion, by contract or otherwise, and may take
 752 possession of, and utilize in completing the work, the materials, appliances,
 753 and plants as may be on the site of the work and necessary therefore.
 754 Whether or not the Contractor’s right to proceed with the work is terminated,
 755 the Contractor and the Contractor’s sureties shall be liable for any damage
 756 to the State resulting from the Contractor’s refusal or failure to complete the
 757 work within the specified time.
 758

759 **(B) Additional Rights and Remedies.** The rights and remedies of the
 760 State provided in this contract are in addition to any other rights and
 761 remedies provided by law.
 762

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

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765 deducted from any monies due or which would or might have become due
766 to the Contractor had it been allowed to complete the work under the
767 contract. If such expense exceeds the sum which would have been
768 payable under the contract, then the Contractor and the surety shall be
769 liable and shall pay the State the amount of the excess.
770

771 In case of termination, the Engineer will limit any payment to the
772 Contractor to the part of the contract satisfactorily completed at the time of
773 termination. Payment will not be made until the work has satisfactorily been
774 completed and all required documents, including the tax clearance required
775 by Subsection 109.11 – Final Payment are submitted by the Contractor.
776 Termination shall not relieve the Contractor or Surety from liability for
777 liquidated damages.
778

779 **(D) Erroneous Termination for Cause.** If, after notice of termination of
780 the Contractor's right to proceed under this section, it is determined for any
781 reason that good cause did not exist to allow the State to terminate as
782 provided herein, the rights and obligations of the parties shall be the same
783 as, and the relief afforded the Contractor shall be limited to, the provisions
784 contained in Subsection 108.12 – Termination for Convenience.
785

786 **108.12 Termination For Convenience.**

787
788 **(A) Terminations.** The Director may, when the interests of the State so
789 require, terminate this contract in whole or in part, for the convenience of
790 the State. The Director will give written notice of the termination to the
791 Contractor specifying the part of the contract terminated and when
792 termination becomes effective.
793

794 **(B) Contractor's Obligations.** The Contractor shall incur no further
795 obligations in connection with the terminated work and on the date set in
796 the notice of termination the Contractor shall stop work to the extent
797 specified. The Contractor shall also terminate outstanding orders and
798 subcontracts as they relate to the terminated work. The Contractor shall
799 settle the liabilities and claims arising out of the termination of subcontracts
800 and orders connected with the terminated work subject to the State's
801 approval. The Engineer may direct the Contractor to assign the
802 Contractor's right, title, and interest under terminated orders or subcontracts
803 to the State. The Contractor must still complete the work not terminated by
804 the notice of termination and may incur obligations as necessary to do so.
805

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

- 809 (1) Any completed work.
810
811 (2) Any partially completed construction, goods, materials, parts,
812 tools, dies, jigs, fixtures, drawings, information, and contract rights
813 (hereinafter called "construction material") that the Contractor has
814 specifically produced or specially acquired for the performance of the
815 terminated part of this contract.
816
817 (3) The Contractor shall protect and preserve all property in the
818 possession of the Contractor in which the State has an interest. If
819 the Engineer does not elect to retain any such property, the
820 Contractor shall use its best efforts to sell such property and
821 construction materials for the State's account in accordance with the
822 standards of HRS Chapter 490:2-706.
823
824 **(D) Compensation.**
825
826 (1) The Contractor shall submit a termination claim specifying the
827 amounts due because of the termination for convenience together
828 with cost or pricing data, submitted to the extent required by HAR
829 Subchapter 15, Chapter 3-122. If the Contractor fails to file a
830 termination claim within one year from the effective date of
831 termination, the Engineer may pay the Contractor, if at all, an amount
832 set in accordance with Subsection 108.12(D)(3).
833
834 (2) The Engineer and the Contractor may agree to a settlement
835 provided the Contractor has filed a termination claim supported by
836 cost or pricing data submitted as required and that the settlement
837 does not exceed the total contract price plus settlement costs
838 reduced by payments previously made by the State, the proceeds of
839 any sales of construction, supplies, and construction materials under
840 Subsection 108.12(C)(3), and the proportionate contract price of the
841 work not terminated.
842
843 (3) Absent complete agreement, the Engineer will pay the
844 Contractor the following amounts less any payments previously
845 made under the contract:
846
847 (a) The cost of all contract work performed prior to the
848 effective date of the notice of termination work plus a 5
849 percent markup on the actual direct costs, including amounts
850 paid to subcontractor, less amounts paid or to be paid for
851 completed portions of such work; provided, however, that if it
852 appears that the Contractor would have sustained a loss if the
853 entire contract would have been completed, no markup shall
854 be allowed or included and the amount of compensation shall

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

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

864
 865 **(c)** The total sum to be paid the Contractor shall not
 866 exceed the total contract price reduced by the amount of any
 867 sales of construction supplies, and construction materials.

868
 869 **(4)** Cost claimed, agreed to, or established by the State shall be
 870 in accordance with HAR Chapter 3-123.

871
 872 **108.13 Pre-Final and Final Inspections.**

873
 874 **(A) Inspection Requirements.** Before the Engineer undertakes a final
 875 inspection of any work, a pre-final inspection must first be conducted. The
 876 Contractor shall notify the Engineer that the work has reached substantial
 877 completion and is ready for pre-final inspection.

878
 879 **(B) Pre-Final Inspection.** Before notifying the Engineer that the work
 880 has reached substantial completion, the Contractor shall inspect the project
 881 and test all installed items with all of its subcontractors as appropriate. The
 882 Contractor shall also submit the following documents as applicable to the
 883 work:

884
 885 **(1)** All written guarantees required by the contract.

886
 887 **(2)** Two accepted final field-posted drawings as specified in
 888 Section 648 – Field-Posted Drawings;

889
 890 **(3)** Complete weekly certified payroll records for the Contractor
 891 and Subcontractors.

892
 893 **(4)** Certificate of Plumbing and Electrical Inspection.

894
 895 **(5)** Certificate of building occupancy as required.

896
 897 **(6)** Certificate of Soil and Wood Treatments.

898
 899 **(7)** Certificate of Water System Chlorination.

900

901 (8) Certificate of Elevator Inspection, Boiler and Pressure Pipe
902 Inspection.

903
904 (9) Maintenance Service Contract and two copies of a list of all
905 equipment installed.

906
907 (10) Current Tax clearance. The contractor will be required to
908 submit an additional tax clearance certificate when the final payment
909 is made.

910
911 (11) And any other final items and submittals required by the
912 contract documents.

913
914 **(C) Procedure.** When in compliance with the above requirements, the
915 Contractor shall notify the Engineer in writing that the project has reached
916 substantial completion and is ready for pre-final inspection.

917
918 The Engineer will then make a preliminary determination as to
919 whether or not the project is substantially complete and ready for pre-final
920 inspection. The Engineer may, in writing, postpone until after the pre-final
921 inspection the Contractor's submittal of any of the items listed in Subsection
922 108.13(B) – Pre-Final Inspection, herein, if in the Engineer's discretion it is
923 in the interest of the State to do so.

924
925 If, in the opinion of the Engineer, the project is not substantially
926 complete, the Engineer will provide the Contractor a punchlist of specific
927 deficiencies in writing which must be corrected or finished before the work
928 will be ready for a pre-final inspection. The Engineer may add to or
929 otherwise modify this punchlist from time to time. The Contractor shall take
930 immediate action to correct the deficiencies and must repeat all steps
931 described above including written notification that the work is ready for pre-
932 final inspection.

933
934 After the Engineer is satisfied that the project appears substantially
935 complete a final inspection shall be scheduled within ten working days after
936 receipt of the Contractor's latest letter of notification that the project is ready
937 for final inspection.

938
939 If, as a result of the pre-final inspection, the Engineer determines the
940 work is not substantially complete, the Engineer will inform the Contractor in
941 writing as to specific deficiencies which must be corrected before the work
942 will be ready for another pre-final inspection. If the Engineer finds the work
943 is substantially complete but finds deficiencies that must be corrected
944 before the work is ready for final inspection, the Engineer will prepare in
945 writing and deliver to the Contractor a punchlist describing such
946 deficiencies.

947 At any time before final acceptance, the Engineer may revoke the
 948 determination of substantial completion if the Engineer finds that it was not
 949 warranted and will notify the Contractor in writing the reasons therefore
 950 together with a description of the deficiencies negating the declaration.

951
 952 When the date of substantial completion has been determined by the
 953 State, liquidated damages for the failure to complete the punchlist, if due to
 954 the State will be assessed in pursuant to Subsection 108.08(B) - Liquidated
 955 Damages for Failure to Complete the Punchlist.

956
 957 **(D) Punchlist; Clean Up and Final Inspection.** Upon receiving a
 958 punchlist after pre-final inspection, the Contractor shall promptly devote all
 959 required time, labor, equipment, materials and incidentals to correct and
 960 remedy all punchlist deficiencies. The Engineer may add to or otherwise
 961 modify this punchlist until substantial completion of the project.

962
 963 Before final inspection of the work, the Contractor shall clean all
 964 ground occupied by the Contractor in connection with the work of all
 965 rubbish, excess materials temporary structures and equipment, shall
 966 remove all graffiti and defacement of the work and all parts of the work and
 967 the worksite must be left in a neat and presentable condition to the
 968 satisfaction of the Engineer.

969
 970 Final inspection will occur within ten working days after the
 971 Contractor notifies the Engineer in writing that all punchlist deficiencies
 972 remaining after the pre-final inspection have been completed and the
 973 Engineer concurs. If the Engineer determines that deficiencies still remain
 974 at the final inspection, the work will not be accepted and the Engineer will
 975 notify the Contractor, in writing, of the deficiencies which shall be corrected
 976 and the steps above repeated.

977
 978 If the Contractor fails to correct the deficiencies and complete the
 979 work by the established or agreed date, the State may correct the
 980 deficiencies by whatever method it deems appropriate and deduct the cost
 981 from any payments due the Contractor.

982
 983 **108.14 Substantial Completion and Final Acceptance.**

984
 985 **(A) Substantial Completion.** When the Engineer finds that the
 986 Contractor has satisfactorily completed all work for the project in
 987 compliance with the contract, with the exception of the planting period and
 988 the plant establishment period, the Engineer will notify the Contractor, in
 989 writing, of the project's substantial completion, effective as of the date of the
 990 final inspection. The substantial completion date shall determine end of
 991 contract time and relieve contractor of any additional accumulation of
 992 liquidated damages for failure to complete the punchlist.

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(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.

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(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:

- 1085 (1) All written guarantees required by the contract.
- 1086
- 1087 (2) Complete and certified weekly payrolls for the Contractor and
- 1088 its subcontractor's.
- 1089
- 1090 (3) Certificate of plumbing and electrical inspection.
- 1091
- 1092 (4) Certificate of building occupancy.
- 1093
- 1094 (5) Certificate for soil treatment and wood treatment.
- 1095
- 1096 (6) Certificate of water system chlorination.
- 1097
- 1098 (7) Certificate of elevator inspection, boiler and pressure pipe
- 1099 installation.
- 1100
- 1101 (8) Tax clearance.
- 1102
- 1103 (9) All other documents required by the Contract or by law.
- 1104

1105 **(B) Failure to Meet Closing Requirements.** The Contractor shall meet
1106 the applicable closing requirements within 60 days from the date of Project
1107 Acceptance or the agreed to Punchlist complete date. Should the
1108 Contractor fail to comply with these requirements, the Engineer may
1109 terminate the contract for cause.”

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END OF SECTION 108

1 **SECTION 109 - MEASUREMENT AND PAYMENT**

2
3 Make the following amendment to said Section:

4
5 **(I)** Amend **Subsection 109.05 Allowances for Overhead and Profit** by
6 revising lines 101 to 110 to read as follows:
7

8 **“(1)** 20 percent of the direct cost for any work performed by the
9 Contractor’s own labor force.

10
11 **(2)** 20 percent of the direct cost for any work performed by each
12 subcontractor’s own labor force.

13
14 **(3)** For the Contractor or any subcontractor for work performed
15 by their respective subcontractor or tier subcontractor, 10 percent
16 of the amount due to the performing subcontractor or tier
17 subcontractor.”
18

19 **(II)** Amend **109.08(A) Monthly Payment** by adding the following after line
20 411:
21

22 **“(1) Retainage.** If the Engineer finds that the Contractor is
23 progressing satisfactorily in completing the project work and:
24

25 **a.** Less than 50% of the whole contract cost is complete,
26 the Engineer shall retain 5% of the value of the work done
27 until the Engineer makes final payment;
28

29 **b.** More than 50% of the whole contract cost is
30 complete, the Engineer may make the remaining progress
31 payments in full.
32

33 **c.** After satisfactory completion of work other than
34 landscaping items, the Engineer may adjust the amount of
35 retainage to 15% of the landscaping items or 2½% of the
36 total contract amount whichever is less. Do not use this
37 subsection if the contract is only landscaping.”
38

39 **(III)** Amend **Subsection 109.08(B) Payment for Material On Hand** by
40 revising lines 421 to 423 to read as follows:
41

42 **“(2)** The materials shall be stored and handled in accordance
43 with Subsection 105.14 – Storage and Handling of Materials and
44 Equipment.”
45
46

47 **(IV)** Amend **Subsection 109.11 Final Payment** by revising lines 568 to 576
48 to read as follows:

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(3) A current “Certificate of Vendor Compliance” issued by the Hawaii Compliance Express (HCE). The Certificate of Vendor Compliance is used to certify the Contractor’s compliance with

(a) Section 103D-328, HRS (for all contracts \$25,000 or more) which requires a current tax clearance certificate issued by the Hawaii State Department of Taxation and the Internal Revenue Service;

(b) Chapters 383, 386, 392, and 393, HRS; and

(c) Subsection 103D-310(c), HRS. The State reserves the right to verify that compliance is current prior to the issuance of final payment. Contractors are advised that non-compliance status will result in final payment being withheld until compliance is attained.

Sums necessary to meet the claims of any governmental agencies may be withheld from the sums due the Contractor until said claims have been fully and completely discharged or otherwise satisfied.”

END OF SECTION 109

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
101 1. An identification of potential pollutants and their
102 sources.
- 103
104 2. A list of all materials and heavy equipment to be
105 used during construction.
- 106
107 3. Descriptions of the methods and devices used to
108 minimize the discharge of pollutants into State waters,
109 drainage or sewer systems.
- 110
111 4. Details of the procedures used for the
112 maintenance and subsequent removal of any erosion or
113 siltation control devices.
- 114
115 5. Methods of removing and disposing hazardous
116 wastes encountered or generated during construction.
- 117
118 6. Methods of removing and disposing concrete and
119 asphalt pavement cutting slurry, concrete curing water,
120 and hydrodemolition water.
- 121
122 7. Spill Control and Prevention and Emergency Spill
123 Response Plan.
- 124
125 8. Fugitive dust control, including dust from grinding,
126 sweeping, or brooming off operations or combination
127 thereof.
- 128
129 9. Methods of storing and handling of oils, paints
130 and other products used for the project.
- 131
132 10. Material storage and handling areas, and other
133 staging areas.
- 134
135 11. Concrete truck washouts.

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- 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:
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(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 (1) Immediately initiate, and complete within the timeframe shown
315 above, the installation of temporary non-vegetative stabilization
316 measures to prevent erosion;

317
318 (2) Complete all soil conditioning, seeding, watering or irrigation
319 installation, mulching, and other required activities related to the
320 planting and initial establishment of vegetation as soon as conditions
321 or circumstances allow it on the site; and

322
323 (3) Notify and provide documentation to the Engineer the
324 circumstances that prevent the Contractor from meeting the deadlines
325 above for stabilization and the schedule the Contractor will follow for
326 initiating and completing initial stabilization and as agreed to by the
327 Engineer.

328
329 Follow the applicable requirements of the specifications and special
330 provisions including Section 619 Planting and Section 641 Hydro-Mulch
331 Seeding.

332
333 Immediately after seeding or planting the area to be vegetatively
334 stabilized, to the extent necessary to prevent erosion on the seeded or
335 planted area, select, design, and install non-vegetative erosion controls that
336 provide cover (e.g., mulch, rolled erosion control products) to the area while
337 vegetation is becoming established.

338
339 Protect exposed or disturbed surface area with mulches, grass seeds
340 or hydromulch. Spray mulches at a rate of 2,000 pounds per acre. Add
341 tackifier to mix at a rate of 85 pounds per acre. Apply grass seeds at a rate
342 of 125 pounds per acre. For hydromulch, use the ingredients and rates
343 required for mulches and grass seeds. Submit recommendations from a
344 licensed Landscape Architect when deviating from the application rates
345 above.

346
347 Apply fertilizer to mulches, grass seed or hydromulch per
348 manufacturer's recommendations. Submit recommendations from a licensed
349 Landscape Architect when deviating from the manufacturer's
350 recommendations.

351
352 Install velocity dissipation measures when exposing erodible surfaces
353 greater than 15 feet in height.

354
355 BMP measures shall be in place and operational at the end of work
356 day or as required by Section 209.03(B) Construction Requirements.

357

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

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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	540 Lump Sum
541 Additional Water Pollution, Dust, and Erosion Control	542 Force Account

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. • <i>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.</i> • <i>Dispose of construction and non- construction solid waste in accordance with State DOH regs.</i> • <i>Load removed non- recyclable vegetation directly onto trucks; cover and transport to a licensed facility</i> 	<p>See Solid Waste Management Section SM-6. <i>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>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. SC-7 Silt Fence <i>or Filter Fabric Fence</i> 2. SC-2 Vegetated Filter Strips and Buffers 3. SC-6 Compost Filter Berm/Sock 4. SC-8 Sandbag Barrier 5. SC-9 Brush or Rock Filter <p><i>Sediment Basins and Detention Ponds</i></p> <ol style="list-style-type: none"> 1. SC-4 Sediment Trap 2. SC-5 Sediment Basin <p>SC-3 Check Dams</p> <p><i>EC-6 Level Spreader</i></p> <p><i>SM-20 Paving Operations</i></p> <p><i>SC-10 Construction Roads and Parking Area Stabilization</i></p>

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
		<p>Controlling Storm Water Flowing onto and Through the Project</p> <ol style="list-style-type: none"> 1. EC-3 Run-On Diversion 2. EC-5 Earth Dike, Swales and Ditches <p>Post Construction BMPs</p> <ol style="list-style-type: none"> 1. EC-2 Flared Culvert End Sections 2. EC-10 Rip-Rap and Gabion Inflow Protection 3. EC-8 Outlet Protection and Velocity Dissipation Devices 4. SM-22 Topsoil Management <p>Non-Structural BMPs</p> <ol style="list-style-type: none"> 1. SM-1 Construction BMP Training 2. SM-14 Scheduling 3. SM-15 Location of Potential Sources of Sediment 4. SM-17 Preservation of Existing Vegetation

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>Materials associated with painting, such as paint and paint wash solvent</p>	<ul style="list-style-type: none"> • Hazardous chemicals shall be well-labeled and stored in original containers. • Keep ample supply of cleanup materials on site. • Dispose container only after all of the product has been used. • Remove as much paint from brushes on painted surface. • 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. • 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. • Do not dump liquid wastes into the storm drainage system. • Filter and re-use solvents and thinners. • Dispose of oil-based paints and residue as a hazardous waste. • Ensure collection, removal, and disposal of hazardous waste complies with regulations. • Immediately clean up spills and leaks. • Properly store paints, solvents, and epoxy compounds. • Properly store and dispose waste materials generated from painting and structure repair and construction activities. • Mix paints in a covered and contained area, when possible, to minimize adverse impacts from spills. • Do not apply traffic paint or thermoplastic if rain is forecasted. • 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. <p>Provide Storm Drain Inlet Protection and/or Perimeter Sediment Controls as applicable.</p>	<p>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.</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>See <i>Material Storage and Handling</i> Use Section SM-2, <i>Stockpile Management</i> Section SM-3, and <i>Hazardous Materials and Waste Management</i> Section SM-9, and <i>Spill Prevention and Control</i> SM-10</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"> • Ensure collection, removal, and disposal of hazardous waste complies with manufacturer's recommendations and is in compliance with federal, state, and local requirements. • See Hazardous Materials and Waste Management Section SM-9 and Vehicle and Equipment Management, Vehicle and Equipment Maintenance SM-12 for additional requirements. 	
Metals and Building Materials	<ul style="list-style-type: none"> • Inspect construction waste and recycling areas regularly. • Schedule solid waste collection regularly. • If building materials or metals are stored on site (such as rebar or galvanized poles) store under cover under tarps or in containers. • Minimize the amount of material stored on site. • Do not stockpile uncovered metals or other building materials in close proximity to discharge points. • See Solid Waste Management Section SM-6 for additional requirements. 	See Solid Waste Management Section SM-6
Contaminated Soil	<ul style="list-style-type: none"> • See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Materials and Waste Management Section SM-9 for additional requirements. • At minimum contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheets. 	See Waste Management, Contaminated Soil Management Section SM-8 and/or Hazardous Materials and Waste Management Section SM-9

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"> • Do not over spray water for dust control purposes which will result in runoff from the area. • Apply water as conditions require. • Washing down of debris or dirt into drainage, sewage systems, or State waters is not allowed. • <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>See Dust Control Section SM-19 for additional requirements.</p>	See Dust Control Section SM-19
<i>Concrete Truck Wash Water</i>	<ul style="list-style-type: none"> • Disposal of concrete truck wash water via percolation is prohibited. • Wash concrete-coated vehicles or equipment off-site or in the designated wash area. • 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. • Runoff from the on-site concrete wash area shall be contained in a temporary pit or level bermed area where the concrete can set. • Design the area so that no overflow can occur due to inadequate wash area sizing or precipitation. • The temporary pit shall be lined with plastic to prevent seepage of wash water into the ground. • Allow wash water to evaporate or collect wash water and all concrete debris in a concrete washout system bin. • Do not dump liquid wastes into storm drainage system. • Dispose of liquid and solid concrete wastes in compliance with federal, state, and local standards. • See Waste Management, Concrete <i>Wash and Waste Management</i> Section SM-4 for additional requirements. 	See Waste Management, Concrete <i>Wash and Waste Management</i> Section SM-4

Pollutant Source	Appropriate Site-Specific BMP to be Implemented	BMP Requirements
Sediment Track-Out	<ul style="list-style-type: none"> • Include Stabilized Construction Entrance at all points that exit onto paved roads. • A sediment trapping device is required if a wash rack is used in conjunction with the stabilized construction entrance/exit. • The pavement shall not be cleaned by washing down the street. • 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. • Use BMPs for adjacent drainage structures. • Remove sediment tracked onto the street by the end of the day in which the track-out occurs. • Restrict vehicle use to properly designated exit points. • Include additional BMPs that remove sediment prior to exit when minimum dimensions cannot be met. <p>See Stabilized Construction Entrance/Exit Section SC-11 for additional requirements.</p>	See Stabilized Construction Entrance/Exit Section SC-11
Irrigation Water	<ul style="list-style-type: none"> • Consider irrigation requirements. • Where possible, avoid species which require irrigation. • Design, timing and application methods of irrigation water to eliminate the runoff of excess irrigation water into the storm water drainage system. <p>See Seeding and Planting Section EC-12 and California Stormwater BMP Handbook SD-12 Efficient Irrigation included in SWPPP Attachment A for additional requirements.</p>	See Seeding and Planting Section EC-12 and California Stormwater BMP Handbook SD-12 Efficient Irrigation
Hydrotesting Effluent	<ul style="list-style-type: none"> • 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. 	Site specific BMPs will be included in the NOI/NPDES Permit Form F submittal.

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 wastewater 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.

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END OF SECTION 209

HWY-OT-SMP-01

209-28a

1-14-22

1 Make this section a part of the Standard Specifications:

2
3 **"SECTION 660 - SUPPLEMENTAL REQUIREMENTS FOR ELECTRICAL**

4
5
6 **660.01 General.**

7
8 SUMMARY

9
10 **(A) Section Includes:**

11
12 **(1)** Supplemental requirements generally applicable to the Work
13 specified in Sections 662, 664, 666, 667, and 668. This Section is
14 also referenced by related Work specified in other Divisions.

15
16 **(B) Related Requirements:**

17
18 **(1)** Section 661 "Facility Performance Requirements for Electrical"
19 for seismic-load, wind-load, acoustical, and other field conditions
20 applicable to Work specified in this Section.

21
22 **(C) References**

23
24 Abbreviations and Acronyms for Electrical Terms and Units of
25 Measure:

26 A: Ampere, unit of electrical current.

27 AC or ac: Alternating current.

28 AIC: Ampere interrupting capacity.

29 AL, Al, or ALUM: Aluminum.

30 AWG: American wire gauge; see ASTM B258.

31 BIL: Basic impulse insulation level.

32 CB: Circuit breaker.

33 Copper-aluminum, revised.

34 CU or Cu: Copper.

35 CU-AL or AL-CU: Copper-aluminum.

36 EGC: Equipment grounding conductor.

37 EPSS: Emergency power supply system.

38 ESS: Energy storage system.

39 FLC: Full-load current.

40 ft: Foot.

41 GEC: Grounding electrode conductor.

42 GFCI: Ground-fault circuit interrupter.

43 GFPE: Ground-fault protection of equipment.

44 GND: Ground.

45 HDPE: High-density polyethylene.

46 HP or hp: Horsepower.

47 HVAC: Heating, ventilating, and air conditioning.

48 Hz: Hertz.

49 inch: Inch. To avoid confusion, the abbreviation "in." is not used.
50 kAIC: Kiloampere interrupting capacity.
51 kcmil or MCM: One thousand circular mils.
52 kV: Kilovolt.
53 kVA: Kilovolt-ampere.
54 kVA_r or kVAR: Kilovolt-ampere reactive.
55 kW: Kilowatt.
56 kWh: Kilowatt-hour.
57 LV: Low voltage.
58 MCC: Motor-control center.
59 MLO: Main lugs only.
60 MV: Medium voltage.
61 MVA: Megavolt-ampere.
62 MW: Megawatt.
63 MWh: Megawatt-hour.
64 NC: Normally closed.
65 NO: Normally open.
66 OCPD: Overcurrent protective device.
67 PF or pf: Power factor.
68 PVC: Polyvinyl chloride.
69 SPD: Surge protective device.
70 TVSS: Transient voltage surge suppressor.
71 UL: (standards) Underwriters Laboratories, Inc.; (product categories)
72 UL, LLC.
73 UL CCN: UL Category Control Number.
74 V: Volt, unit of electromotive force.
75 V(ac): Volt, alternating current.
76 V(dc): Volt, direct current.
77 VA: Volt-ampere, unit of complex electrical power.
78 VAR: Volt-ampere reactive, unit of reactive electrical power.
79 W: Watt, unit of real electrical power.
80 Wh: Watt-hour, unit of electrical energy usage.

Abbreviations and Acronyms for Electrical Raceway Types:

81
82
83
84 EMT: Electrical metallic tubing.
85 ENT: Electrical nonmetallic tubing.
86 ERM_C: Electrical rigid metal conduit.
87 HDPE: HDPE underground conduit (thick wall).
88 IMC: Steel electrical intermediate metal conduit.
89 LFMC: Liquidtight flexible metal conduit.
90 LFNC: Liquidtight flexible nonmetallic conduit.
91 PVC: Rigid PVC conduit.
92 RMC: See ERM_C.
93
94
95

96 Abbreviations and Acronyms for Electrical Single-Conductor and
97 Multiple-Conductor Cable Types:

98
99 AC: Armored cable.
100 MC: Metal-clad cable.
101 MI: Mineral-insulated, metal-sheathed cable.
102 MV: Medium-voltage cable.
103 RHH: (high heat) Thermoset rubber, heat-resistant cable.
104 RHW: Thermoset rubber, moisture-resistant cable.
105 TC: Tray cable.
106 TC-ER: Tray cable, exposed run.
107 THW: Thermoplastic, heat- and moisture-resistant cable.
108 THHN: Thermoplastic, heat-resistant cable with nylon jacket outer
109 sheath.
110 THHW: Thermoplastic, heat- and moisture-resistant cable.
111 THWN: Thermoplastic, moisture- and heat-resistant cable with nylon
112 jacket outer sheath.
113 TW: Thermoplastic, moisture-resistant cable.
114 XHH: Cross-linked polyethylene, heat-resistant cable.
115 XHHW: Cross-linked polyethylene, heat- and moisture-resistant
116 cable.

117
118 Abbreviations and Acronyms for Electrical Flexible Cord Types:
119 Definitions:

120
121 Basic Impulse Insulation Level (BIL): Reference insulation level
122 expressed in impulse crest voltage with a standard wave not longer
123 than 1.5 times 50 microseconds and 1.5 times 40 microseconds.
124

125 Cable: In accordance with NIST NBS Circular 37 and IEEE standards,
126 in the United States for the purpose of interstate commerce, the
127 definition of "cable" is (1) a conductor with insulation, or a stranded
128 conductor with or without insulation (single-conductor cable); or (2) a
129 combination of conductors insulated from one another (multiple-
130 conductor cable).
131

132 Conductor: In accordance with NIST NBS Circular 37 and IEEE
133 standards, in the United States for the purpose of interstate
134 commerce, the definition of "conductor" is (1) a wire or combination
135 of wires not insulated from one another, suitable for carrying an
136 electric current; (2) (National Electrical Safety Code) a material,
137 usually in the form of wire, cable, or bar, suitable for carrying an
138 electric current; or (3) (general) a substance or body that allows a
139 current of electricity to pass continuously along it.
140

141 Designated Seismic System: A system component that requires
142 design in accordance with Ch. 13 of ASCE/SEI 7 and for which the
143 Component Importance Factor is greater than 1.0.

144 Direct Buried: Installed underground without encasement in concrete
145 or other protective material.

146
147 Enclosure: The case or housing of an apparatus, or the fence or
148 wall(s) surrounding an installation, to prevent personnel from
149 accidentally contacting energized parts or to protect the equipment
150 from physical damage. Types of enclosures and enclosure covers
151 include the following:

- 152
- 153 a. Conduit Body: A means for providing access to the interior of
154 a conduit or tubing system through one or more removable
155 covers at a junction or terminal point. In the United States,
156 conduit bodies are listed in accordance with outlet box
157 requirements.
 - 158
 - 159 b. Conduit Box: A box having threaded openings or knockouts for
160 conduit, EMT, or fittings.
 - 161
 - 162 c. Junction Box: A box with a blank cover that joins different runs
163 of raceway or cable and provides space for connection and
164 branching of the enclosed conductors.
 - 165
 - 166 d. Pull Box: A box with a blank cover that joins different runs of
167 raceway and provides access for pulling or replacing the
168 enclosed cables or conductors.
 - 169
 - 170 e. Termination Box: An enclosure designed for installation of
171 termination base assemblies consisting of bus bars, terminal
172 strips, or terminal blocks with provision for wire connectors to
173 accommodate incoming or outgoing conductors, or both.

174
175 Jacket: A continuous nonmetallic outer covering for conductors or
176 cables.

177
178 Plenum: A compartment or chamber to which one or more air ducts
179 are connected and that forms part of the air distribution system.

180
181 Sheath: A continuous metallic covering for conductors or cables.

182
183 UL Category Control Number (CCN): An alphabetic or alphanumeric
184 code used to identify product categories covered by UL's Listing,
185 Classification, and Recognition Services.

186
187 Voltage Class: For specified circuits and equipment, voltage classes
188 are defined as follows:

189

- 190 a. Low Voltage (LV): Having electromotive force between any
191 two conductors, or between a single conductor and ground,
192 that is rated above 30 V but not exceeding 1000 V.
193
194 b. Medium Voltage (MV): Having electromotive force between
195 any two conductors, or between a single conductor and
196 ground, that is rated about 1 kV but not exceeding 69 kV.
197

198 Wire: In accordance with NIST NBS Circular 37 and IEEE standards,
199 in the United States for the purpose of interstate commerce, the
200 definition of "wire" is a slender rod or filament of drawn metal. A group
201 of small wires used as a single wire is properly called a "stranded
202 wire." A wire or stranded wire covered with insulation is properly
203 called an "insulated wire" or a "single-conductor cable." Nevertheless,
204 when the context indicates that the wire is insulated, the term "wire"
205 will be understood to include the insulation.
206

207 **(D) COORDINATION**

208 Interruption of Existing Electrical Service: Do not interrupt electrical service
209 to facilities occupied by Owner or others unless permitted under the following
210 conditions:
211

- 212 **(1)** Notify Owner no fewer than 14 days days in advance of
213 proposed interruption of electrical service.
214
215 **(2)** Do not proceed with interruption of electrical service without
216 Owner's written permission.
217
218 **(3)** Coordinate interruption with systems impacted by outage
219 including, but not limited to, the following:
220
221 a. Exercising generators.
222
223 b. Emergency lighting.
224
225 c. Fire-alarm systems.
226

227 Arrange to provide temporary electrical power in accordance with
228 requirements specified in Section 622.
229

230 **(E) PREINSTALLATION MEETINGS**

231 Electrical Preconstruction Conference: Schedule conference with Architect
232 and Owner, not later than 10 days after notice to proceed. Agenda topics
233 include, but are not limited to, the following:
234
235

- 236 **(1)** Electrical installation schedule.
237

- 238 (2) Utility work coordination and class of service requests.
239
240 (3) Commissioning activities.
241
242 **(F) SEQUENCING**
243 Conduct and submit results of power system studies before submitting
244 Product Data and Shop Drawings for electrical equipment.
245
246 **(G) ACTION SUBMITTALS**
247 Coordination Drawings for Cable Tray Routing: Reflected ceiling plan(s),
248 supplemented by sections and other details, drawn to scale, in accordance
249 with Section 648 "Field Posted Drawings," on which the following items are
250 shown and coordinated with each other, using input from installers of the
251 items involved:
252
253 (1) Elevation, size, and route of cable trays.
254
255 (2) Relationships between components and adjacent structural,
256 electrical, and mechanical elements.
257
258 (3) Vertical and horizontal offsets and transitions.
259
260 (4) Elevation and size of sleeves for wall, ceiling, and floor cable
261 penetrations.
262
263 (5) Locations where cable tray crosses conduit.
264
265 (6) Items blocking access around cable trays, including the
266 following:
267
268 a. Light fixtures.
269
270 b. Fire-alarm devices.
271
272 c. Wall-mounted equipment.
273
274 d. Equipment racks.
275
276 (7) Indicate clear dimension between cable tray and walls or
277 obstructions that are closer than 10 ft (3 m).
278 Coordination Drawings for Conduit Routing: Conduit routing plans,
279 drawn to scale, on which the following items are shown and
280 coordinated with each other, using input from installers of items
281 involved:
282
283 (8) Structural members in paths of conduit groups with common
284 supports.

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- (9)** HVAC and plumbing items and architectural features in paths of conduit groups with common supports.
Coordination Drawings for Large Equipment Indoor Installations:
- (10)** Location plan, drawn to scale, showing heavy equipment or truck access paths to loading dock or other freight access into building. Indicate available width and height of doors or openings.
- (11)** Floor plan for entry floor and floor where equipment is located, drawn to scale, showing heavy equipment access paths for maintenance and replacement, with the following items shown and coordinated with each other, based on input from installers of the items involved:
- a.** Dimensioned concrete bases, outlines of equipment, conduit entries, and grounding equipment locations.
 - b.** Dimensioned working clearances and dedicated areas below and around electrical equipment where obstructions and tripping hazards are prohibited.
- (H) INFORMATIONAL SUBMITTALS**
Electrical Installation Schedule: At preconstruction meeting, and periodically thereafter as dates change, provide schedule for electrical installation Work to Owner and Architect including, but not limited to, milestone dates for the following activities:
- (1)** Orders placed for major electrical equipment.
 - (2)** Arrival of major electrical equipment on-site.
 - (3)** Preinstallation meetings specified in Sections 662, 664, 666, 667, and 668.
 - (4)** Utility service outages.
 - (5)** Utility service inspection and activation.
 - (6)** System startup, testing, and commissioning activities for major electrical equipment.
 - (7)** Requests for inspections by authorities having jurisdiction.
Qualification Statements:
 - (8)** For medium-voltage cable Installer.

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(I) CLOSEOUT SUBMITTALS

Facility EPM Program Binders:

- (1) Complete Set: On USB media that is clearly and permanently labeled with attached placard on lanyard to prevent misplacement.
- (2) Volumes 2 and 8: Reproducible hardcopy on archival quality, 28 lb (105 GSM), acid-free, bond paper.

(J) QUALIFICATIONS

Qualified Regional Manufacturer: Manufacturer, possessing qualifications, that maintains a service center capable of providing training, parts, and emergency on-site repairs to Project site with response time less than eight hours.

Structural Professional Engineer: Professional engineer possessing active qualifications, with expertise in structural engineering.

Electrical Professional Engineer: Professional engineer possessing active qualifications, with expertise in electrical engineering, including electrical power system modeling and analysis of electrical safety in accordance with NFPA 70E.

Medium-Voltage Cable Installer: Entity possessing active qualifications with training and manufacturer certification to install, splice, and terminate medium-voltage cable.

Medium-Voltage Electrical Testing and Inspecting Agency: Entities possessing active credentials from a qualified electrical testing laboratory recognized by authorities having jurisdiction.

- (1) On-site electrical testing supervisors must have documented certification and experience with testing electrical equipment in accordance with NETA testing standards.

(K) FIELD CONDITIONS

Modeling, analysis, product selection, installation, and quality control for Work specified in Sections 662, 664, 666, 667, and 668 must comply with requirements specified in Section 661 "Facility Performance Requirements for Electrical."

Service Conditions for Electrical Power Equipment: Besides conditions specified in Section 661 "Facility Performance Requirements for Electrical," specified electrical power equipment must be suitable for operation under service conditions specified as usual service conditions in applicable NEMA PB series, IEEE C37 series, and IEEE C57 series standards, except for the following:

381 **660.02 Products.** Materials shall meet the requirements specified in the
382 following subsections of Division 700 - Materials.

383

384 **(A) SUBSTITUTION LIMITATIONS FOR ELECTRICAL EQUIPMENT**

385 Substitution requests for electrical equipment will be entertained under the
386 following conditions:

387

388 **(1)** Substitution requests may be submitted for consideration prior
389 to the Electrical Preconstruction Conference if accompanied by value
390 analysis data indicating that substitution will comply with Project
391 performance requirements while significantly increasing value for
392 Owner throughout life of facility.

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394

395 **660.03 Execution.**

396

397 **(A) INSTALLATION OF ELECTRICAL WORK**

398 Unless more stringent requirements are specified in the Contract
399 Documents or manufacturers' written instructions, comply with NFPA
400 70 and NECA NEIS 1 for installation of Work specified in Sections
401 662, 664, 666, 667, and 668. Consult Architect for resolution of
402 conflicting requirements.

403

404 **(B) FIELD QUALITY CONTROL**

405

406 Administrant for Medium-Voltage Electrical Tests and Inspections:

407

408 **(1)** Engage qualified medium-voltage electrical testing and
409 inspecting agency to administer and perform tests and inspections.

410

411 Administrant for Low-Voltage Electrical Tests and Inspections:

412

413 **(2)** Engage qualified low-voltage electrical testing and inspecting
414 agency to administer and perform tests and inspections.

415

416 **661.04 Method of Measurement.** (Not Used)

417

418 **661.05 Basis of Payment.** (Not Used)

419

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425

END OF SECTION 660

1 Make this section a part of the Standard Specifications:

2
3 **"SECTION 661 - FACILITY PERFORMANCE REQUIREMENTS FOR**
4 **ELECTRICAL**

5
6 **661.01 General.**

7
8
9 **(A) SUMMARY**

10 Section Includes:

11
12 **(1)** Field conditions and other facility performance requirements
13 applicable to Work specified in Sections 662, 664, 666, 667, and 668.

14
15 **661.02 Field Conditions.**

16
17 **(A) Seismic Hazard Design Loads:**

18
19 **(1)** Unless otherwise indicated on Contract Documents, specified
20 Work must withstand seismic hazard design loads determined in
21 accordance with requirements specified in this Section, adjusted for
22 installed elevation above or below grade.

23
24 **a.** The term "withstand" means "unit must remain in place
25 without separation of parts from unit when subjected to
26 specified seismic hazard design loads and unit must be fully
27 operational after seismic event."

28 **(2)** Perform calculations to obtain force information necessary to
29 properly select seismic-restraint devices, fasteners, and anchorage.
30 Perform calculations using methods acceptable to applicable code
31 authorities and as presented in ASCE/SEI 7-05

32
33 **a.** Building Occupancy Category: I

34
35 **(B) Altitude:**

36
37 **(1)** Sea level to 1100 ft. (300 m).

38
39 **(C) Ground Water:**

40
41 **(1)** Assume ground-water level is at grade level unless a lower
42 water table is noted on Drawings.

43
44 **661.03 Execution. (Not Used)**

45
46
47
48 **661.04 Method of Measurement. (Not Used)**

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55

661.05 Basis of Payment. (Not Used)

END OF SECTION 661

1 Make this section a part of the Standard Specifications:

2
3 **"SECTION 662 - MEDIUM-VOLTAGE CABLES**

4
5
6 **662.01 General.**

7
8 **(A) SUMMARY**

9
10 Section Includes:

11
12 **(1)** Medium voltage shielded power cables, sizes #1/0 through
13 2000 kcmil.

14
15 **(2)** Splices, terminations and accessories.

16
17 **(B) SUBMITTALS**

18
19 **(1)** Product Data: For each type of product.

20
21 **(2)** Product Schedule: Indicate type, use, location, and termination
22 locations.

23
24 **(3)** Installer qualifications

25
26 **(C) QUALITY ASSURANCE**

27
28 **(1)** Installer: Engage a cable splicer, trained and certified by splice
29 material manufacturer, to install, splice, and terminate medium-
30 voltage cable. Cable splicer shall have a minimum of 2000 hours
31 experience with terminating and installing medium voltage cable.
32 Furnish satisfactory proof of such experience for each employee, who
33 splices or terminates the cables prior to any work.

34
35 **(2)** Source Limitations: Obtain cables and accessories through
36 one source form a single manufacturer.

37
38 **662.02 Products.** Materials shall meet the requirements specified in the
39 following subsections of Division 700 - Materials.

40
41 **(A) MANUFACTURERS**

42
43 **(1)** Manufacturers: Subject to compliance with requirements,
44 provide product by one of the following or approved equal:

45
46 **a.** Cables:

47
48 **(i)** General Cable Technologies Corporation.

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(ii) Okonite Company

(iii) Southwire Company

b. Cable Splicing and Terminating Products and Accessories:

(i) 3M; Electrical Product Division.

(B) CABLES

(1) Cable Type: Single conductor, UL type MV105.

(2) Comply with UL 1072, AEIC CS 8, ICEA S-93-693/NEMA WC74, and ICEA S-97-682.

(3) Conductor: Annealed, soft drawn Copper, Compact round, concentric lay, Class B.

(4) Insulation: discharge free, no lead, Ethylene-Propylene Rubber (EPR), color contrasted with strand and insulation shields.

a. Voltage Rating: 15 kV.

b. Insulation Thickness: 133% insulation level.

(5) Stand Shielding: Black extruded semi-conducting thermoset copolymer applied directly over the conductor.

(6) Insulation Shield: Black extruded semiconducting thermoset copolymer applied directly over the insulation.

(7) Shielding: Copper Tape, 5 mils thick, helically applied with 25% overlap, over semiconducting insulation shield, or six solid copper corrugated drain wires embedded longitudinally in composite layers of semi conducting thermoset copolymer and CPE.

(8) Cable Jacket: Chlorinated Polyethylene, CPE per ICEA and UL 1072.

(9) Identification: The following minimum legend shall be printed on the jacket and repeated at not more than two foot intervals:

a. Manufacturer / plant no.

b. Conductor size (AWG or kcmil)

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- c. CU
- d. EPR
- e. SHLD
- f. Voltage (kV)
- g. Insulation level (133%)
- h. Insulation thickness (mills), MV-105.

(C) SPLICE KITS

- (1)** Comply with IEEE 404; type as recommended by cable or splicing kit manufacturer for the application.
- (2)** Splicing Products: As recommended, in writing, by splicing kit manufacturer for specific sizes, ratings, and configurations of cable conductors. Include all components required for complete splice, with detailed instructions.
 - a. Heat-shrink splicing kit of uniform, cross-section, polymeric construction with outer heat-shrink jacket.
 - b. Pre-molded, cold-shrink-rubber, in-line splicing kit.

(D) SOLID TERMINATIONS

- (1)** Multi-conductor Cable Sheath Seals: Type recommended by seal manufacturer for type of cable and installation conditions, including orientation.
 - a. Compound-filled, cast-metal body, metal-clad cable terminator for metal-clad cable with external plastic jacket.
 - b. Cold-shrink sheath seal kit with preformed sleeve opening sized for cable and insulated conductors.
 - c. Heat-shrink sheath seal kit with phase-and ground-conductor re-jacketing tubes, cable-end sealing boot, and sealing or plugs for unused ground-wire opening in boot.
- (2)** Shielded-Cable Terminations: Comply with the following classes of IEEE 48. Insulation class is equivalent to that of cable. Include shield ground strap for shielded cable terminations.

- 144 **a.** Class 1 Terminations: Modular type, furnished as a kit,
145 with stress-relief tube; multiple, molded-silicone rubber,
146 insulator modules; shield ground strap; and compression-type
147 connector.
- 148
- 149 **b.** Class 1 Terminations: Heat-shrink type with heat-
150 shrink inner stress control and outer non-tracking tubes;
151 multiple, molded, non-tracking skirt modules; and
152 compression-type connector.
- 153
- 154 **c.** Class 2 Terminations, Indoors: Kit with stress-relief
155 tube, non-tracking insulator tube, shield ground strap, and
156 compression-type connector. Include silicone-rubber tape,
157 cold shrink-rubber sleeve, or heat-shrink plastic-sleeve
158 moisture seal for end of insulation whether or not supplied with
159 kits.
- 160
- 161 **d.** Medium voltage cable terminations and splices: long
162 barrel, 2-hole hydraulic crimp lugs.

163

164 **(E)** SEPARABLE INSULATED CONNECTORS

165

- 166 **(1)** Description: Modular system, complying with IEEE 386, with
167 disconnecting, single-pole, cable terminators and with matching,
168 stationary, plug-in, dead-front terminals designed for cable voltage
169 and for sealing against moisture.
- 170
- 171 **(2)** Terminations at Distribution Points: Modular type, consisting
172 of terminators installed on cables and modular, dead-front, terminal
173 junctions for interconnecting cables.
- 174
- 175 **(3)** Load-Break Cable Terminators: Elbow-type units with 200-A
176 load make/break and continuous current rating; coordinated with
177 insulation diameter, conductor size, and material of cable being
178 terminated. Include test point on terminator body that is capacitance
179 coupled.
- 180
- 181 **(4)** Dead-Break Cable Terminators: Elbow-type unit with 600-A
182 continuous-current rating; designed for de-energized disconnecting
183 and connecting; coordinated with insulation diameter, conductor
184 size, and material of cable being terminated. Include test point on
185 terminator body that is capacitance coupled.
- 186
- 187 **(5)** Dead-Front Terminal Junctions: Modular bracket-mounted
188 groups of dead-front stationary terminals that mate and match with
189 above cable terminators. Two-, three-, or four-terminal units as
190 indicated, with fully rated, insulated, watertight conductor connection
191 between terminals and complete with grounding lug, manufacturer's

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standard accessory stands, stainless-steel mounting brackets, and attaching hardware.

- a. Protective Cap: Insulating, electrostatic-shielding, water-sealing cap with drain wire.
- b. Portable Feed-Through Accessory: Two-terminal, dead-front junction arranged for removable mounting on accessory stand of stationary terminal junction.
- c. Grounding Kit: Jumpered elbows, portable feed-through accessory units, protective caps, test rods suitable for concurrently grounding three phases of feeders and carrying case.
- d. Standoff Insulator: Portable, single dead-front terminal for removable mounting on accessory stand of stationary terminal junction. Insulators suitable for fully insulated isolation of energized cable-elbow terminator.

(6) Tool Set: Shotgun hot stick with energized terminal indicator and carrying case.

(7) Ground Bails: Heavy duty grounding bails shall be provided to accommodate portable grounding equipment

(F) ARC-PROOFING MATERIALS

(1) Tape for First Course on Metal Objects: Scotch 88 or approved equal, 10-mil- (250-micrometer-) thick, corrosion protective, moisture-resistant, PVC pipe-wrapping tape.

(2) Arc-Proofing Tape: Scotch 77 or approved equal, fireproof tape, flexible, conformable, and intumescent to 0.3 inch (8 mm) thick, compatible with cable jacket.

(3) Self-fusing Silicon Tape: Scotch 70 or approved equal, high temperature, arc and track resistant tape composed of self-fusing, inorganic silicone rubber.

(4) Glass-Cloth Tape: Scotch 69 or approved equal, Pressure-sensitive adhesive type, 1/2 inch (13 mm) wide

(G) SOURCE QUALITY CONTROL

(1) Test and inspect cables according to ICEA S-97-682 before shipping.

240 (2) Test strand-filled cables for water-penetration resistance
241 according to ICEA T-31-610, using a test pressure of 5 psig (35 kPa).

242

243

244 **662.03 Execution.**

245

246 (A) INSTALLATION

247

248 (1) Minimum Cable size shall be #1/0 AWG.

249

250 (2) Cables for all circuits shall be 15 kV rated.

251

252 (3) Install cables according to IEEE 576.

253

254 (4) Pull Conductors: Do not exceed manufacturer's
255 recommended maximum pulling tensions and sidewall pressure
256 values for single or multi-conductor cables.

257

258 a. A strand dynamometer/tension meter shall be used
259 during the cable installation, readings shall be recorded, and
260 a report submitted for each cable pull and witnessed by a
261 representative of the NU Electric Shop.

262

263 b. Where necessary, use manufacturer-approved pulling
264 compound or lubricant that will not deteriorate conductor or
265 insulation.

266

267 c. Use pulling means, including fish tape, cable, rope, and
268 basket-weave cable grips that will not damage cables and
269 raceways. Do not use rope hitches for pulling attachment to
270 cable.

271

272 d. Provide cable lengths with liberal allowances of slack
273 for terminations.

274

275 e. Cable shall not be pulled with the ends open, cable
276 ends shall be moisture proofed at all times until terminations
277 are installed.

278

279 (5) Install underground cables in Sch. 40 PVC conduits in
280 concrete encased ductbanks.

281

282 (6) In buildings and at road crossings, install cables in concrete
283 encased Rigid Galvanized Conduit (Heavy-wall).

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285 (7) Provide a 1" PVC conduit centered in the top of the ductbank
286 containing a green-jacketed #12 awg copper "tracer" wire.

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- (8)** Medium voltage cables shall not be direct buried.
- (9)** Install permanent markers at ends of cable runs, changes in direction, and splices.
- (10)** Install "buried-cable" warning tape above ductbanks. Comply with Section 668, "Identification for Electrical Systems." Tape damaged during construction shall be completely replaced.
- (11)** In manholes, hand holes, pull boxes, junction boxes, and cable vaults, train cables around walls by the longest route from entry to exit and support cables with suitable UL listed non-metallic racks, located at intervals adequate to prevent sag.
- (12)** Pull all cables in continuous lengths, splices in feeder circuits shall be avoided unless necessitated by the length of the run more than 500 feet. Locations of all splices shall be approved by the Engineer or his representative in writing.
- (13)** Outdoor splices and terminations shall be performed in dry conditions only.
- (14)** Three –Way splices are not permitted.
- (15)** Install separable insulated-connector components as follows:
 - a.** Protective Cap: At each terminal junction, with one on each terminal to which no feeder is indicated to be connected.
 - b.** Portable Feed-Through Accessory: Three.
 - c.** Standoff Insulator: Three.
- (16)** Arc Proofing: Unless otherwise indicated, arc proof medium-voltage cable at locations not protected by conduit, cable tray, or termination materials such as transformers, switchgear, and manholes. In addition to arc-proofing tape manufacturer's written instructions, apply arc proofing as follows:
 - a.** Clean cable sheath.
 - b.** Wrap metallic cable components with 10-mil (250-micrometer) pipe-wrapping tape.
 - c.** Smooth surface contours with electrical insulation putty.

- 335 d. Apply arc-proofing tape in one half-lapped layer with
336 coated side toward cable.
337
- 338 e. Band arc-proofing tape with 1-inch- (25-mm-) wide
339 bands of half-lapped, adhesive, glass cloth tape 2 inches (50
340 mm) O.C.
341
- 342 **(17)** Apply firestopping to electrical penetrations of fire-rated floor
343 and wall assemblies to restore original fire-resistance rating of
344 assembly.
345
- 346 a. All penetrations shall be under constant visual
347 surveillance until firestopping is applied.
348
- 349 b. Products: Cooper B –Line, 3M, Hilti, Specified
350 Technologies, Inc., or approved equal.
351
- 352 **(18)** Ground shields of shielded cable at terminations, splices, and
353 separable insulated connectors. Ground metal bodies of terminators,
354 splices, cable and separable insulated-connector fittings, and
355 hardware.
356
- 357 **(B)** **CONNECTIONS**
358
- 359 **(1)** Tighten electrical connectors and terminals according to
360 manufacturer's published torque-tightening values. If manufacturer's
361 torque values are not indicated, use those specified in UL 486A-
362 486B.
363
- 364 **(2)** Make splices, terminations, and taps that are compatible with
365 conductor material.
366
- 367 **(C)** **IDENTIFICATION**
368
- 369 **(1)** Identify cables according to Section 668, "Identification for
370 Electrical Systems."
371
- 372 a. Identify individual phases at termination points.
373
- 374 b. In manholes, cables shall be identified where cables
375 enter and leave the manhole. Identify circuit number and
376 voltage.
377
- 378 c. Use embossed brass tags tie wrapped to cable
379 Feeders and Branch Circuits:
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(D) FIELD QUALITY CONTROL

(1) Tests and Inspections:

a. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

b. Perform each of the following visual and electrical tests:

(i) Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.

(ii) Test bolted connections for high resistance using one of the following:

- 1.** A low-resistance ohmmeter.
- 2.** Calibrated torque wrench.

(iii) Inspect compression-applied connectors for correct cable match and indentation.

(iv) Inspect for correct identification.

(v) Inspect cable jacket and condition.

(vi) Continuity test on each conductor and cable.

(vii) Uniform resistance of parallel conductors.

c. Initial Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

(i) Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

(ii) Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of

430 deficiencies detected, remedial action taken, and
431 observations after remedial action.

432
433 d. Follow-up Infrared Scanning: Perform an additional
434 follow-up infrared scan of each switch 11 months after date of
435 Substantial Completion.

436
437
438 **662.04 Method of Measurement.** Medium voltage cable work will be paid on
439 a lump sum basis. Measurement for payment will not apply.

440
441 **662.05 Basis of Payment.** The Engineer will pay for the accepted medium
442 voltage cable work for the electrical system on a contract lump sum basis. The
443 price shall include furnishing and installing the items, and all tools, labor, equipment,
444 and incidentals necessary to complete the work. Payment will be full compensation
445 for the work prescribed in this section and the contract documents.

446
447 The Engineer will pay for the following pay items when included in the
448 proposal schedule:

Pay Item	Pay Unit
Medium Voltage Cables	Lump Sum"

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END OF SECTION 662

1 Make this section a part of the Standard Specifications:

2
3 **"SECTION 664 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

4
5
6 **664.01 General.** This work shall consist of furnishing all labor, materials and
7 equipment to install in place and in operating condition underground and surface
8 mounted structures required for the facilities of Hawaiian Electric Company, herein
9 referred to as HECO; Hawaiian Telcom, herein referred to as HECO; the
10 Department of Transportation, herein referred to as DOT. Such works shall be
11 performed and tested at the indicated locations in accordance with the
12 requirements herein specified and the indicated details, or as ordered by the
13 Engineer, and includes but is not limited to the following:

14
15 **(A) SUMMARY**

16
17 **(1) Section Includes:**

- 18
19 a. Grounding and bonding conductors.
20
21 b. Grounding and bonding clamps.
22
23 c. Grounding and bonding bushings.
24
25 d. Grounding and bonding hubs.
26
27 e. Grounding and bonding connectors.
28
29 f. Grounding and bonding busbars.
30
31 g. Grounding (earthing) electrodes.

32
33 **(1) Related Requirements:**

- 34
35 a. Section 660 "Supplemental Requirements for
36 Electrical" for additional abbreviations, definitions, submittals,
37 qualifications, testing agencies, and other Project
38 requirements applicable to Work specified in this Section.
39
40 b. Section 661 "Facility Performance Requirements for
41 Electrical" for seismic-load, wind-load, acoustical, and other
42 field conditions applicable to Work specified in this Section.

43 **(B) ACTION SUBMITTALS**

44
45 **(1) Product Data:**

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47 a. For each type of product indicated.

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(2) Shop Drawings: Plans showing dimensioned locations of grounding features described in "Field Quality Control" Article, including the following:

- a.** Test wells.
- b.** Rod electrodes.
- c.** Grounding arrangements and connections for separately derived systems.

(3) Field Quality-Control Submittals:

- a.** Field quality-control reports.

(C) CLOSEOUT SUBMITTALS

(1) Operation and Maintenance Data:

a. In addition to items specified in Section 660 "Supplemental Requirements for Electrical," include the following:

(i) Plans showing locations of grounding features described in "Field Quality Control" Article, including the following:

- 1.** Test wells.
- 2.** Rod electrodes.

(ii) Instructions for periodic testing and inspection of grounding features at medium voltage switchgears, cable tray system, medium voltage junction box based on NFPA 70B.

- 1.** Tests must determine if ground-resistance or impedance values remain within specified maximums, and instructions must recommend corrective action if values do not.
- 2.** Include recommended testing intervals.

95 **664.02 Products.** Materials shall meet the requirements specified in the
96 following subsections of Division 700 - Materials.

97
98 **(A) GROUNDING AND BONDING CONDUCTORS**

99
100 **(1) Equipment Grounding Conductor:**

101
102 **a.** General Characteristics: 600 V, THHN/THWN-2 or
103 THWN-2, copper wire or cable, green color, in accordance.

104
105 **(2) ASTM - Bare Copper Grounding and Bonding Conductor:**

106
107 **a.** Referenced Standards: Complying with one or more of
108 the following:

109
110 **(i)** Soft or Annealed Copper Wire: ASTM B3

111
112 **(ii)** Concentric-Lay Stranded Copper Conductor:
113 ASTM B8.

114
115 **(iii)** Tin-Coated Soft or Annealed Copper Wire:
116 ASTM B33.

117
118 **(iv)** 19-Wire Combination Unilay-Stranded Copper
119 Conductor: ASTM B787/B787M.

120
121 **(B) GROUNDING AND BONDING CLAMPS**

122
123 **(1) Description:** Clamps suitable for attachment of grounding and
124 bonding conductors to grounding electrodes, pipes, tubing, and
125 rebar.

126
127 **(2) Performance Criteria:**

128
129 **a.** Regulatory Requirements:

130
131 **(i)** Listed and labeled in accordance with NFPA 70,
132 by qualified electrical testing laboratory recognized by
133 authorities having jurisdiction, and marked for intended
134 location and application.

135
136 **b.** Listing Criteria:

137
138 **(i)** Grounding and Bonding Equipment: UL CCN
139 KDER; including UL 467.

140
141 **(ii)** Grounding and Bonding Equipment for
142 Communications: UL CCN KDSH; including UL 467.

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(3) UL KDER and KDSH - Hex-Fitting-Type Pipe and Rod Grounding and Bonding Clamp:

a. General Characteristics:

- (i)** Two pieces with stainless steel bolts.
- (ii)** Clamp Material: Brass.
- (iii)** Listed for outdoor use.

(4) UL KDER and KDSH - U-Bolt-Type Pipe and Rod Grounding and Bonding Clamp:

a. General Characteristics:

- (i)** Clamp Material: Brass.
- (ii)** Listed for outdoor use.

(5) UL KDER and KDSH - Strap-Type Pipe and Rod Grounding and Bonding Clamp :

a. General Characteristics:

- (i)** Clamp Material: Copper.
- (ii)** Listed for outdoor use.

b. General Characteristics: Mechanical-type, terminal, ground wire access from four directions; with dual, tin-plated or silicon bronze bolts.

(C) GROUNDING AND BONDING BUSHINGS

(1) Description: Bonding bushings connect conduit fittings, tubing fittings, threaded metal conduit, and unthreaded metal conduit to metal boxes and equipment enclosures, and have one or more bonding screws intended to provide electrical continuity between bushing and enclosure. Grounding bushings have provision for connection of bonding or grounding conductor and may or may not also have bonding screws.

(2) Performance Criteria:

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- a. Regulatory Requirements:
 - (i) Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - b. Listing Criteria:
 - (i) Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - (3) UL KDER - Bonding Bushing
 - a. General Characteristics: Threaded bushing with insulated throat.
 - (4) UL KDER - Grounding Bushing
 - a. General Characteristics: Threaded bushing with insulated throat and mechanical-type wire terminal.
- (D) GROUNDING AND BONDING CONNECTORS**
- (1) Source Limitations: Obtain products from single manufacturer.
 - (2) Performance Criteria:
 - a. Regulatory Requirements:
 - (i) Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.
 - b. Listing Criteria:
 - (i) Grounding and Bonding Equipment: UL CCN KDER; including UL 467.
 - (ii) Grounding and Bonding Equipment for Communications: UL CCN KDSH; including UL 467.
 - (3) UL KDER - Pressure-Type Grounding and Bonding Busbar Cable Connector:

239 a. General Characteristics: Copper or copper alloy, for
240 compression bonding of one or more conductor directly to
241 copper busbar. Listed for direct burial.

242
243 (4) UL KDER - Lay-In Lug Mechanical-Type Grounding and
244 Bonding Busbar Terminal:

245
246 a. General Characteristics: Mechanical-type, terminal
247 with set screw.

248
249 (5) UL KDER - Crimped Lug Pressure-Type Grounding and
250 Bonding Busbar Terminal :

251
252 a. General Characteristics: Cast silicon bronze,
253 solderless compression-type wire terminals; with long barrel
254 and two holes spaced on 5/8 or 1 inch (16 or 25 mm) centers
255 for two-bolt connection to busbar.

256
257 (6) UL KDER - Split-Bolt Service-Post Pressure-Type Grounding
258 and Bonding Busbar Terminal :

259
260 a. Characteristics: Bolts that surround cable and bond to
261 cable under compression when nut is tightened after
262 assembly is screwed into busbar opening.

263
264 (7) UL KDER - Crimped Pressure-Type Grounding and Bonding
265 Cable Connector :

266
267 a. General Characteristics: Crimp-and-compress
268 connectors that bond to conductor when connector is
269 compressed around conductor.

270
271 (i) Copper, C and H shaped.

272
273 (8) UL KDER - Split-Bolt Pressure-Type Grounding and Bonding
274 Cable Connector :

275
276 a. General Characteristics: Bolts that surround cable and
277 bond to cable under compression when nut is tightened.

278
279 (i) Copper.

280
281
282 **664.03 Execution.**

283
284 (A) EXAMINATION

285

- 286 (1) Examine facility's grounding electrode system and equipment
287 grounding for compliance with requirements for maximum ground-
288 resistance level and other conditions affecting performance of
289 grounding and bonding of electrical system.
290
291 (2) Inspect test results of grounding system measured at point of
292 electrical service equipment connection.
293
294 (3) Prepare written report, endorsed by Installer, listing conditions
295 detrimental to performance of the Work.
296
297 (4) Proceed with connection of electrical service equipment only
298 after unsatisfactory conditions have been corrected.
299
300 (B) SELECTION OF GROUNDING AND BONDING CONDUCTORS
301
302 (1) Conductors: Install solid conductor for 8 AWG and smaller,
303 and stranded conductors for 6 AWG and larger unless otherwise
304 indicated.
305
306 (2) Bonding Conductor: 4 AWG or 6 AWG, stranded conductor.
307
308 (3) Bonding Jumper: Copper tape, braided conductors terminated
309 with copper ferrules; 1-5/8 inch (41 mm) wide and 1/16 inch (1.6 mm)
310 thick.
311
312 (C) SELECTION OF CONNECTORS
313
314 (1) Conductor Terminations and Connections:
315
316 a. Pipe and Equipment Grounding Conductor
317 Terminations: Bolted connectors.
318
319 b. Underground Connections: Welded connectors except
320 at test wells and as otherwise indicated.
321
322 c. Connections to Ground Rods at Test Wells: Bolted
323 connectors.
324
325 (D) INSTALLATION
326
327 (1) Comply with manufacturer's published instructions.
328
329
330 (2) Special Techniques:
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332 a. Conductors:
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(i) Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

b. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.

(i) Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.

(ii) Make connections with clean, bare metal at points of contact.

(iii) Make aluminum-to-steel connections with stainless steel separators and mechanical clamps.

(iv) Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.

(v) Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

(vi) Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate adjacent parts.

2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.

3. Use exothermic-welded connectors for outdoor locations; if disconnect-type connection is required, use bolted clamp.

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c. Equipment Grounding:

(i) Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Armored and metal-clad cable runs.

(ii) Grounding Method: At each grounding location, drive grounding rod vertically until top is 6 inch (150 mm) below finished grade. Connect rod to fence with 6 AWG conductor. Connect conductor to each fence component at grounding location.

(E) FIELD QUALITY CONTROL

(1) Tests and Inspections:

a. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

b. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with calibrated torque wrench in accordance with manufacturer's published instructions.

(2) Nonconforming Work:

a. Grounding system will be considered defective if it does not pass tests and inspections.

b. Remove and replace defective components and retest.

(F) PROTECTION

(1) After installation, protect grounding and bonding cables and equipment from construction activities. Remove and replace items that are contaminated, defaced, damaged, or otherwise caused to be unfit for use prior to acceptance by Owner.

428 **664.04 Method of Measurement.** Grounding and bonding work for electrical
429 systems will be paid on a lump sum basis. Measurement for payment will not apply.

430
431 **664.05 Basis of Payment.** The Engineer will pay for the accepted grounding
432 and bonding work for the electrical system on a contract lump sum basis. The price
433 shall include furnishing and installing the items, and all tools, labor, equipment, and
434 incidentals necessary to complete the work. Payment will be full compensation for
435 the work prescribed in this section and the contract documents.

436
437 The Engineer will pay for the following pay items when included in the
438 proposal schedule:

Pay Item	Pay Unit
Grounding and Bonding for Electrical Systems	Lump Sum"

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END OF SECTION 664

1 Make this section a part of the Standard Specifications:

2
3 **"SECTION 666 - CONDUITS FOR ELECTRICAL SYSTEMS**

4
5
6 **666.01 General.**

7
8 **(A) SUMMARY**

9
10 **(1) Section Includes:**

- 11
12 **a.** Type EMT-A and Type EMT-SS duct raceways and
13 elbows.
14
15 **b.** Type PVC duct raceways and fittings.
16
17 **c.** Fittings for conduit, tubing, and cable.
18
19 **d.** Solvent cements.

20
21 **(2) Related Requirements:**

- 22
23 **a.** Section 660 "Supplemental Requirements for
24 Electrical" for additional abbreviations, definitions, submittals,
25 qualifications, testing agencies, and other Project
26 requirements applicable to Work specified in this Section.
27
28 **b.** Section 661 "Facility Performance Requirements for
29 Electrical" for seismic-load, wind-load, acoustical, and other
30 field conditions applicable to Work specified in this Section.

31
32 **(B) DEFINITIONS**

- 33
34 **(1) Conduit:** A structure containing one or more duct raceways.

35
36 **(C) ACTION SUBMITTALS**

37
38 **(1) Product Data:**

- 39
40 **a.** Type EMT-A and Type EMT-SS duct raceways and
41 elbows.
42
43 **b.** Type PVC duct raceways and fittings.
44
45 **c.** Fittings for conduit, tubing, and cable.
46
47 **d.** Solvent cements.
48

49 **666.02 Products.** Materials shall meet the requirements specified in the
50 following subsections of Division 700 - Materials.

51
52 **(A) TYPE EMT-A AND TYPE EMT-SS DUCT RACEWAYS AND**
53 **ELBOWS**

54
55 **(1) Performance Criteria:**

56
57 **a. Regulatory Requirements:** Listed and labeled in
58 accordance with NFPA 70, by qualified electrical testing
59 laboratory recognized by authorities having jurisdiction, and
60 marked for intended location and application.

61
62 **b. Listing Criteria:** UL CCN FJMX; including UL 797A.

63
64 **(2) Source Quality Control:**

65
66 **a. Product Data:** Prepare and submit catalog cuts,
67 brochures, and performance data illustrating size, physical
68 appearance, and other characteristics of product.

69
70 **b. Manufacturer's Published Instructions:** Prepare and
71 submit installation, testing, and operating instructions for
72 product.

73
74 **(B) TYPE PVC DUCT RACEWAYS AND FITTINGS**

75
76 **(1) Performance Criteria:**

77
78 **a. Regulatory Requirements:** Listed and labeled in
79 accordance with NFPA 70, by qualified electrical testing
80 laboratory recognized by authorities having jurisdiction, and
81 marked for intended location and application.

82
83 **b. Listing Criteria:** UL CCN DZYR; including UL 651.

84
85 **(2) Source Quality Control:**

86
87 **a. Product Data:** Prepare and submit catalog cuts,
88 brochures, and performance data illustrating size, physical
89 appearance, and other characteristics of product.

90
91 **b. Manufacturer's Published Instructions:** Prepare and
92 submit installation, testing, and operating instructions for
93 product.

94
95 **(3) UL DZYR - Schedule 40 Rigid PVC Conduit (PVC-40) and**
96 **Fittings:**

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- a. Dimensional Specifications: Schedule 40.
- b. Options:
 - (i) Minimum Trade Size: Metric designator 21 (trade size 3/4).
 - (ii) Markings: For use with maximum 90 deg C wire.

(C) FITTINGS FOR CONDUIT, TUBING, AND CABLE

(1) Performance Criteria:

a. Regulatory Requirements: Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

(2) Source Quality Control:

- a. Product Data: Prepare and submit catalog cuts, brochures, and performance data illustrating size, physical appearance, and other characteristics of product.
- b. Manufacturer's Published Instructions: Prepare and submit installation, testing, and operating instructions for product.

(D) SOLVENT CEMENTS

(1) Performance Criteria:

a. Regulatory Requirements: Listed and labeled in accordance with NFPA 70, by qualified electrical testing laboratory recognized by authorities having jurisdiction, and marked for intended location and application.

b. Listing Criteria: UL CCN DWTT; including UL 514B.

(2) Source Quality Control:

a. Product Data: Prepare and submit catalog cuts, brochures, and performance data illustrating size, physical appearance, and other characteristics of product.

143 **b.** Manufacturer's Published Instructions: Prepare and
144 submit installation, testing, and operating instructions for
145 product.
146

147 **666.03 Execution.**

148
149 **(A) SELECTION OF CONDUITS FOR ELECTRICAL SYSTEMS**

150
151 **(1)** Unless more stringent requirements are specified in Contract
152 Documents or manufacturers' published instructions, comply with
153 NFPA 70 for selection of duct raceways. Consult Architect for
154 resolution of conflicting requirements.
155

156 **(2)** Outdoors:

157
158 **a.** Exposed: Corrosion-resistant EMT or PVC-80.

159
160 **b.** Concealed Aboveground: EMT, PVC-80, or PVC-40.
161

162 **(3)** Indoors:

163
164 **a.** Exposed: EMT or PVC-80.

165
166 **b.** Concealed in Ceilings and Interior Walls and Partitions:
167 EMT, PVC-80, or PVC-40.
168

169 **(B) INSTALLATION OF CONDUITS FOR ELECTRICAL SYSTEMS**

170
171 **(1)** Comply with manufacturer's published instructions.
172

173 **(2)** Reference Standards for Installation: Unless more stringent
174 installation requirements are specified in Contract Documents or
175 manufacturers' published instructions, comply with the following:
176

177 **a.** Type EMT-A: Article 358 of NFPA 70 and NECA NEIS
178 102.

179
180 **b.** Type PVC: Article 356 of NFPA 70 and NECA NEIS
181 111.

182
183 **c.** Expansion Fittings: NEMA FB 2.40.
184

185 **(3)** Special Installation Techniques:

186
187 **a.** General Requirements for Installation of Duct
188 Raceways:
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(i) Complete duct raceway installation before starting conductor installation.

(ii) Provide stub-ups through floors with coupling threaded inside for plugs, set flush with finished floor. Plug coupling until conduit is extended above floor to final destination or a minimum of 2 ft (0.6 m) above finished floor.

(iii) Make bends in duct raceway using large-radius preformed ells except for parallel bends. Field bending must be in accordance with NFPA 70 minimum radii requirements. Provide only equipment specifically designed for material and size involved.

(iv) Install conduits parallel or perpendicular to building lines.

(v) Support conduit within 12 inch (300 mm) of enclosures to which attached.

(vi) Install devices to seal duct raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal interior of duct raceways at the following points:

1. Where an underground service duct raceway enters a building or structure.
2. Conduit extending from interior to exterior of building.
3. Where otherwise required by NFPA 70.

(vi) Do not install conduits within 2 inch (50 mm) of the bottom side of a metal deck roof.

(viii) Keep duct raceways at least 6 inch (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal duct raceway runs above water and steam piping.

(ix) Cut conduit perpendicular to the length. For conduits metric designator 53 (trade size 2) and larger, use roll cutter or a guide to make cut straight and perpendicular to the length. Ream inside of conduit to remove burrs.

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(x) Install pull wires in empty duct raceways. Provide polypropylene or monofilament plastic line with not less than 200 lb (90 kg) tensile strength. Leave at least 12 inch (300 mm) of slack at both ends of pull wire. Cap underground duct raceways designated as spare above grade alongside duct raceways in use.

(xi) Install duct raceways square to the enclosure and terminate at enclosures without hubs with locknuts on both sides of enclosure wall. Install locknuts hand tight, plus one-quarter turn more.

1. Termination fittings with shoulders do not require two locknuts.

(xii) Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to metric designator 35 (trade size 1-1/4) and insulated throat metal bushings on metric designator 41 (trade size 1-1/2) and larger conduits terminated with locknuts..

(xiii) Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound that maintains electrical conductivity to threads of duct raceway and fittings before making up joints. Follow compound manufacturer's published instructions.

b. Types PVC:

(i) Do not install Type PVC conduit where ambient temperature exceeds 122 deg F (50 deg C). Conductor ratings must be limited to 75 deg C except where installed in a trench outside buildings with concrete encasement, where 90 deg C conductors are permitted.

(ii) Comply with manufacturer's published instructions for solvent welding and fittings.

c. Duct Raceway Terminations at Locations Subject to Moisture or Vibration:

(i) Provide insulating bushings to protect conductors, including conductors smaller than 4 AWG.

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d. Duct Fittings: Install fittings in accordance with NEMA FB 2.10 guidelines.

(i) EMT: Provide setscrew or compression, steel fittings. Comply with NEMA FB 2.10.

e. Expansion-Joint Fittings:

(i) Install in runs of aboveground PVC that are located where environmental temperature change may exceed 30 deg F (17 deg C) and that have straight-run length that exceeds 25 ft (7.6 m). Install in runs of aboveground EMT conduit that are located where environmental temperature change may exceed 100 deg F (55 deg C) and that have straight-run length that exceeds 100 ft (30 m).

(ii) Install type and quantity of fittings that accommodate temperature change listed for the following locations:

1. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F (70 deg C)] temperature change.

2. Outdoor Locations Exposed to Direct Sunlight: 155 deg F (86 deg C) temperature change.

3. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F (70 deg C) temperature change.

(iii) Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F (0.06 mm per meter of length of straight run per deg C) of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F (0.0115 mm per meter of length of straight run per deg C) of temperature change for metal conduits.

(iv) Install expansion fittings at locations where conduits cross building or structure expansion joints.

334 (v) Install expansion-joint fitting with position,
335 mounting, and piston setting selected in accordance
336 with manufacturer's published instructions for
337 conditions at specific location at time of installation.
338 Install conduit supports to allow for expansion
339 movement.

340
341 f. Identification: Provide labels for conduit assemblies,
342 duct raceways, and associated electrical equipment.

343 (i) Provide warning signs.
344

345
346 (C) PROTECTION

347 (1) Protect coatings, finishes, and cabinets from damage and
348 deterioration.
349

350 a. Repair damage to galvanized finishes with zinc-rich
351 paint recommended by manufacturer.
352

353 b. Repair damage to PVC coatings or paint finishes with
354 matching touchup coating recommended by manufacturer.
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358 **666.04 Method of Measurement.** Conduit work for Electrical Systems will be
359 paid on a lump sum basis. Measurement for payment will not apply.

360
361 **666.05 Basis of Payment.** The Engineer will pay for the accepted conduit work
362 for electrical system on a contract lump sum basis. The price shall include
363 furnishing and installing the items, and all tools, labor, equipment, and incidentals
364 necessary to complete the work. Payment will be full compensation for the work
365 prescribed in this section and the contract documents.

366
367 The Engineer will pay for the following pay items when included in the
368 proposal schedule:

369 Pay Item	370 Pay Unit
371 Conduits for Electrical Systems	372 Lump Sum"

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END OF SECTION 666

1 Make this section a part of the Standard Specifications:

2
3 **"SECTION 667 - CABLE TRAYS FOR ELECTRICAL SYSTEMS**

4
5
6 **667.01 General.**

7
8 **(A) SUMMARY**

9
10 **(1) Section Includes:**

- 11
12 **a.** Ladder cable tray.
13
14 **b.** Cable tray accessories.
15
16 **c.** Warning signs.

17
18 **(2) Related Requirements:**

- 19
20 **a.** Section 660 "Supplemental Requirements for
21 Electrical" for additional abbreviations, definitions, submittals,
22 qualifications, testing agencies, and other Project
23 requirements applicable to Work specified in this Section.
24
25 **b.** Section 661 "Facility Performance Requirements for
26 Electrical" for seismic-load, wind-load, acoustical, and other
27 field conditions applicable to Work specified in this Section.

28
29 **(B) ACTION SUBMITTALS**

30
31 **(1) Product Data:** For each type of product.

- 32
33 **a.** Include data indicating dimensions and finishes for
34 each type of cable tray indicated.

35
36 **(2) Shop Drawings:** For each type of cable tray.

- 37
38 **a.** Show fabrication and installation details of cable trays,
39 including plans, elevations, and sections of components and
40 attachments to other construction elements. Designate
41 components and accessories, including clamps, brackets,
42 hanger rods, splice-plate connectors, expansion-joint
43 assemblies, straight lengths, and fittings.

- 44
45
46 **b.** Cable tray layout, showing cable tray route to scale,
47 with relationship between the tray and adjacent structural,
48 electrical, and mechanical elements. Include the following:

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- (i) Vertical and horizontal offsets and transitions.
- (ii) Clearances for access above and to sides of cable trays.
- (iii) Vertical elevation of cable trays above the floor or bottom of ceiling structure.
- (iv) Load calculations to show dead and live loads as not exceeding manufacturer's rating for tray and its support elements.

(3) Delegated Design Submittal: For seismic restraints.

- a. Seismic-Restraint Details: Signed and sealed by a qualified professional engineer who is licensed in the state where Project is located and who is responsible for their preparation.
- b. Design Calculations: Calculate requirements for selecting seismic restraints.
- c. Detail fabrication, including anchorages and attachments to structure and to supported cable trays.

(C) INFORMATIONAL SUBMITTALS

- (1)** Field quality-control reports.

667.02 Products. Materials shall meet the requirements specified in the following subsections of Division 700 - Materials.

(A) PERFORMANCE REQUIREMENTS

- (1)** Delegated Design: Engage a qualified structural professional engineer to design cable tray supports and seismic bracing.

(B) GENERAL REQUIREMENTS FOR CABLE TRAY

- (1)** Cable Trays and Accessories: Identified as defined in NFPA 70 and marked for intended location, application, and grounding.
- a. Source Limitations: Obtain cable trays and components from single manufacturer.

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(2) Sizes and Configurations: See the Cable Tray Schedule on Drawings for specific requirements for types, materials, sizes, and configurations.

(3) Structural Performance: See articles on individual cable tray types for specific values for the following parameters:

a. Uniform Load Distribution: Capable of supporting a uniformly distributed load on the indicated support span when supported as a simple span and tested according to NEMA VE 1.

b. Concentrated Load: A load applied at midpoint of span and centerline of tray.

c. Load and Safety Factors: Applicable to both side rails and rung capacities.

(C) LADDER CABLE TRAY

(1) Description:

a. Configuration: Two longitudinal side rails with transverse rungs swaged or welded to side rails, complying with NEMA VE 1.

b. Width: 12 inch (300 mm) unless otherwise indicated on Drawings.

c. Minimum Usable Load Depth: 6 inch (150 mm).

d. Straight Section Lengths: 10 ft. (3.0 m) except where shorter lengths are required to facilitate tray assembly.

e. Rung Spacing: 6 inch (150 mm) on center.

f. Radius-Fitting Rung Spacing: 9 inch (225 mm) at center of tray's width.

g. Minimum Cable-Bearing Surface for Rungs: 7/8 inch (22 mm) width with radius edges.

h. No portion of the rungs must protrude below the bottom plane of side rails.

i. Structural Performance of Each Rung: Capable of supporting a maximum cable load, with a safety factor of 1.5,

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plus a 200 lb. (90 kg) concentrated load, when tested according to NEMA VE 1.

- j.** Fitting Minimum Radius: 12 inch (300 mm).
- k.** Class Designation: Comply with NEMA VE 1, Class 10A
- l.** Splicing Assemblies: Bolted type using serrated flange locknuts.
- m.** Splice-Plate Capacity: Splices located within support span must not diminish rated loading capacity of cable tray.
- n.** Covers: Solid type made of same materials and with same finishes as cable tray.

(2) Materials and Finishes:

- a.** Steel:
 - (i)** Straight Section and Fitting Side Rails and Rungs: Steel complies with the minimum mechanical properties of ASTM A1008/A1008M, Grade 33, Type 2.
 - (ii)** Steel Tray Splice Plates: ASTM A1011/A1011M, HSLAS, Grade 50, Class 1.
 - (iii)** Fasteners: Steel complies with the minimum mechanical properties of ASTM A510/A510M, Grade 1008.
 - (iv)** Finish:
 - 1.** Hot-dip galvanized after fabrication, complying with ASTM A123/A123M, Class B2, with galvanized, ASTM B633 hardware.
 - 2.** Hot-dip galvanized after fabrication, complying with ASTM A653/A653M, G90 (Z275), with galvanized, ASTM B633 hardware.
 - 3.** Powder-coat enamel paint, with chromium-zinc plated, ASTM F1136 or stainless steel, Type 316, ASTM F593 and ASTM F594 hardware.

191 (a) Powder-Coat Enamel: Cable tray
192 manufacturer's recommended primer
193 and corrosion-inhibiting treatment, with
194 factory-applied powder-coat paint.

195
196 (b) Epoxy-Resin Prime Coat: Cold-
197 curing epoxy primer, MPI# 101.

198
199 4. Factory-standard primer, ready for field
200 painting, with chromium-zinc-plated hardware
201 according to ASTM F1136.

202
203 5. Black oxide finish for support accessories
204 and miscellaneous hardware according to
205 ASTM D769.

206
207 (D) CABLE TRAY ACCESSORIES

208
209 (1) Fittings: Tees, crosses, risers, elbows, and other fittings as
210 indicated, of same materials and finishes as cable tray.

211
212 (2) Cable tray supports and connectors, including bonding
213 jumpers, as recommended by cable tray manufacturer.

214
215 (E) WARNING SIGNS

216
217 (1) Lettering: 1-1/2 inch (40 mm) high, black letters on yellow
218 background, with legend "WARNING! NOT TO BE USED AS
219 WALKWAY, LADDER, OR SUPPORT FOR LADDERS OR
220 PERSONNEL."

221
222 (2) Comply with Section 668 "Identification for Electrical Systems."

223
224 (F) SOURCE QUALITY CONTROL

225
226 (1) Testing: Test and inspect cable trays according to NEMA VE
227 1.

228
229 **667.03 Execution.**

230
231 (A) INSTALLATION OF CABLE TRAY

232
233 (1) Install cable tray and support systems according to NEMA VE
234 2.

235
236 (2) Install cable tray as a complete system, including fasteners,
237 hold-down clips, support systems, barrier strips, adjustable

- 238 horizontal and vertical splice plates, elbows, reducers, tees, crosses,
239 cable dropouts, adapters, covers, and bonding.
240
- 241 **(3)** Install cable tray, so that the tray is accessible for cable
242 installation and all splices are accessible for inspection and
243 adjustment.
244
- 245 **(4)** Remove burrs and sharp edges from cable trays.
246
- 247 **(5)** Fasten cable tray supports to building structure and install
248 seismic restraints.
249
- 250 **(6)** Place supports, so that spans do not exceed maximum spans
251 on schedules, and provide clearances shown on Drawings. Install
252 intermediate supports when cable weight exceeds the load-carrying
253 capacity of tray rungs.
254
- 255 **(7)** Construct supports from channel members, threaded rods,
256 and other appurtenances furnished by cable tray manufacturer.
257 Arrange supports in trapeze or wall-bracket form as required by
258 application.
259
- 260 **(8)** Support assembly to prevent twisting from eccentric loading.
261
- 262 **(9)** Install center-hung supports for single-rail trays designed for
263 60 versus 40 percent eccentric loading condition, with a safety factor
264 of 3.
265
- 266 **(10)** Do not install more than one cable tray splice between
267 supports.
268
- 269 **(11)** Make connections to equipment with flanged fittings fastened
270 to cable trays and to equipment. Support cable trays independent of
271 fittings. Do not carry weight of cable trays on equipment enclosure.
272
- 273 **(12)** Install expansion connectors where cable trays cross building
274 expansion joints and in cable tray runs that exceed recommended
275 dimensions. Space connectors and set gaps according to applicable
276 standard.
277
- 278 **(13)** Make changes in direction and elevation using manufacturer's
279 recommended fittings.
280
- 281 **(14)** Make cable tray connections using manufacturer's
282 recommended fittings.
283
- 284 **(15)** Seal penetrations through fire and smoke barriers.
285

286 (16) Install cable trays with enough workspace to permit access for
287 installing cables.

288
289 (17) Install permanent covers and cover clamps, if used, after
290 installing cable.

291
292 (18) Install warning signs in visible locations on or near cable trays
293 after cable tray installation.

294
295 (B) CABLE TRAY GROUNDING

296
297 (1) Ground cable trays according to NFPA 70 unless additional
298 grounding is specified. Comply with requirements in Section 664
299 "Grounding and Bonding for Electrical Systems."

300
301 (2) Cable trays with electrical power conductors must be bonded
302 together with splice plates listed for grounding purposes or with listed
303 bonding jumpers.

304
305 (3) Cable trays with single-conductor power conductors must be
306 bonded together with a grounding conductor run in the tray along
307 with the power conductors and bonded to the tray at 72 inch (1800
308 mm) intervals. The grounding conductor must be sized according to
309 NFPA 70, Article 250.122, "Size of Equipment Grounding
310 Conductors," and Article 392, "Cable Trays."

311
312 (4) Bond cable trays to power source for cables contained within
313 with bonding conductors sized according to NFPA 70, Article
314 250.122, "Size of Equipment Grounding Conductors."

315
316 (C) INSTALLATION OF CABLES

317
318 (1) Install cables only when each cable tray run has been
319 completed and inspected.

320
321 (2) Fasten cables on horizontal runs with cable clamps or cable
322 ties. Tighten clamps only enough to secure the cable, without
323 indenting the cable jacket. Install cable ties with a tool that includes
324 an automatic pressure-limiting device.

325
326 (3) Fasten cables on vertical runs to cable trays every 18 inch
327 (450 mm).

328
329 (4) Fasten and support cables that pass from one cable tray to
330 another or drop from cable trays to equipment enclosures. Fasten
331 cables to the cable tray at the point of exit and support cables
332 independent of the enclosure. The cable length between cable trays

333 or between cable tray and enclosure must be no more than 72 inch
334 (1800 mm).

335

336 **(D) CONNECTIONS**

337

338 **(1)** Remove paint from all connection points before making
339 connections. Repair paint after the connections are completed.

340

341 **(2)** Connect raceways to cable trays according to requirements in
342 NEMA VE 2 and NEMA FG 1.

343

344 **(E) FIELD QUALITY CONTROL**

345

346 **(1)** Tests and Inspections:

347

348 **a.** After installing cable trays and after electrical circuitry
349 has been energized, survey for compliance with
350 requirements.

351

352 **b.** Visually inspect cable insulation for damage. Correct
353 sharp corners, protuberances in cable trays, vibrations, and
354 thermal expansion and contraction conditions, which may
355 cause or have caused damage.

356

357 **c.** Verify that the number, size, and voltage of cables in
358 cable trays do not exceed that permitted by NFPA 70.

359

360 **d.** Verify that there are no intruding items, such as pipes,
361 hangers, or other equipment, in the cable tray.

362

363 **e.** Remove dust deposits, industrial process materials,
364 trash of any description, and any blockage of tray ventilation.

365

366 **f.** Visually inspect each cable tray joint and each ground
367 connection for mechanical continuity. Check bolted
368 connections between sections for corrosion. Clean and
369 retorque in suspect areas.

370

371 **g.** Check for improperly sized or installed bonding
372 jumpers.

373

374 **h.** Check for missing, incorrect, or damaged bolts, bolt
375 heads, or nuts. When found, replace with specified hardware.

376

377 **i.** Perform visual and mechanical checks for adequacy of
378 cable tray grounding; verify that all takeoff raceways are
379 bonded to cable trays. Test entire cable tray system for
380 continuity. Maximum allowable resistance is 1 ohm.

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(2) Prepare test and inspection reports.

(F) PROTECTION

(1) Protect installed cable trays and cables.

a. Install temporary protection for cables in open trays to safeguard exposed cables against falling objects or debris during construction. Temporary protection for cables and cable tray can be constructed of wood or metal materials and must remain in place until the risk of damage is over.

b. Repair damage to galvanized finishes with zinc-rich paint recommended by cable tray manufacturer.

c. Repair damage to paint finishes with matching touchup coating recommended by cable tray manufacturer.

667.04 Method of Measurement. Cable Tray work for the electrical system will be paid on a lump sum basis. Measurement for payment will not apply.

667.05 Basis of Payment. The Engineer will pay for the accepted electrical system on a contract lump sum basis. The price shall include furnishing and installing the items, and all tools, labor, equipment, and incidentals necessary to complete the work. 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
Cable Trays for Electrical Systems	Lump Sum"

END OF SECTION 667

1 Make this section a part of the Standard Specifications:

2
3 **"SECTION 668 - IDENTIFICATION FOR ELECTRICAL SYSTEMS**

4
5
6 **668.01 General.**

7
8 **(A) SUMMARY**

9
10 **(1) Section Includes:**

- 11
12 **a.** Labels.
13
14 **b.** Bands and tubes.
15
16 **c.** Tapes and stencils.
17
18 **d.** Tags.
19
20 **e.** Signs.
21
22 **f.** Cable ties.
23
24 **g.** Miscellaneous identification products.

25
26 **(2) Related Requirements:**

- 27
28 **a.** Section 660 "Supplemental Requirements for
29 Electrical" for additional abbreviations, definitions,
30 submittals, qualifications, testing agencies, and other Project
31 requirements applicable to Work specified in this Section.
32
33 **b.** Section 661 "Facility Performance Requirements for
34 Electrical" for seismic-load, wind-load, acoustical, and other
35 field conditions applicable to Work specified in this Section.

36
37 **(B) ACTION SUBMITTALS**

38
39 **(1) Product Data:**

- 40
41 **a.** Labels.
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43 **b.** Bands and tubes.
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45 **c.** Tapes and stencils.
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47 **d.** Tags.
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- e. Signs.
- f. Cable ties.
- g. Miscellaneous identification products.

668.02 Products. Materials shall meet the requirements specified in the following subsections of Division 700 - Materials.

(A) PERFORMANCE REQUIREMENTS

- (1)** Comply with ASME A13.1.
- (2)** Comply with 29 CFR 1910.144 for color identification of hazards; 29 CFR 1910.145 for danger, caution, warning, and safety instruction signs and tags; and the following:
 - a. Ceiling-mounted hangers, supports, cable trays, and raceways must be finished, painted, or suitably marked safety yellow where less than 7.7 ft (2.3 m) above finished floor.
- (3)** Signs, labels, and tags required for personnel safety must comply with the following standards:
 - a. Safety Colors: NEMA Z535.1.
 - b. Facility Safety Signs: NEMA Z535.2.
 - c. Safety Symbols: NEMA Z535.3.
 - d. Product Safety Signs and Labels: NEMA Z535.4.
 - e. Safety Tags and Barricade Tapes for Temporary Hazards: NEMA Z535.5.
- (4)** Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - a. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

(B) COLOR AND LEGEND REQUIREMENTS

- (1)** Raceways and Cables Carrying Circuits at More Than 1000 V:
 - a. Black letters on orange field.

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b. Legend: "DANGER - CONCEALED HIGH VOLTAGE WIRING."

(2) Warning Label Colors:

a. Identify system voltage with black letters on orange background.

(3) Warning labels and signs must include, but are not limited to, the following legends:

a. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."

b. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 3 FEET MINIMUM."

(4) Equipment Identification Labels:

a. Black letters on white field.

(C) LABELS

(1) Vinyl Wraparound Labels: Preprinted, flexible labels laminated with clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.

(2) Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.

(3) Self-Adhesive Wraparound Labels: Preprinted, 3 mil (0.08 mm) thick, polyester flexible label with acrylic pressure-sensitive adhesive.

a. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over legend. Labels sized such that clear shield overlaps entire printed legend.

b. Marker for Labels:

(i) Permanent, waterproof, black ink marker recommended by tag manufacturer.

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(ii) Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.

(4) Self-Adhesive Labels: Polyester, thermal, transfer-printed, 3 mil (0.08 mm) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.

a. Minimum Nominal Size:

(i) 1-1/2 by 6 inch (37 by 150 mm) for raceway and conductors.

(ii) 3-1/2 by 5 inch (76 by 127 mm) for equipment.

(iii) As required by authorities having jurisdiction.

(D) BANDS AND TUBES

(1) Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inch (50 mm) long, with diameters sized to suit diameters and that stay in place by gripping action.

(2) Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tubes with machine-printed identification labels, sized to suit diameter and shrunk to fit firmly. Full shrink recovery occurs at maximum of 200 deg F (93 deg C). Comply with UL 224.

(E) TAPES AND STENCILS

(1) Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

(2) Floor Marking Tape: 2 inch (50 mm) wide, 5 mil (0.125 mm) pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.

(F) SIGNS

(1) Baked-Enamel Signs:

a. Preprinted aluminum signs, high-intensity reflective, punched or drilled for fasteners, with colors, legend, and size required for application.

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- b. 1/4 inch (6.4 mm) grommets in corners for mounting.
- c. Nominal Size: 7 by 10 inch (180 by 250 mm).

(2) Metal-Backed Butyrate Signs:

- a. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs, with 0.0396 inch (1 mm) galvanized-steel backing, punched and drilled for fasteners, and with colors, legend, and size required for application.
- b. 1/4 inch (6.4 mm) grommets in corners for mounting.
- c. Nominal Size: 10 by 14 inch (250 by 360 mm).

(3) Laminated Acrylic or Melamine Plastic Signs:

- a. Engraved legend.
- b. Thickness:
 - (i) For signs up to 20 sq. inch (129 sq. cm), minimum 1/16 inch (1.6 mm) thick.
 - (ii) For signs larger than 20 sq. inch (129 sq. cm), 1/8 inch (3.2 mm) thick.

(G) MISCELLANEOUS IDENTIFICATION PRODUCTS

(1) Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).

(2) Fasteners for Labels and Signs: Self-tapping, stainless steel screws or stainless steel machine screws with nuts and flat and lock washers.

668.03 Construction Requirements.

(A) PREPARATION

(1) Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

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(B) INSTALLATION

- (1)** Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.

- (2)** Install identifying devices before installing acoustical ceilings and similar concealment.

- (3)** Verify identity of item before installing identification products.

- (4)** Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.

- (5)** Apply identification devices to surfaces that require finish after completing finish work.

- (6)** Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.

- (7)** System Identification for Raceways and Cables over 1000 V: Identification must completely encircle cable or conduit. Place adjacent identification of two-color markings in contact, side by side.
 - a.** Secure tight to surface of conductor, cable, or raceway.

- (8)** Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from floor.

- (9)** Accessible Fittings for Raceways: Identify cover of junction and pull box of the following systems with wiring system legend and system voltage. System legends must be as follows:
 - a.** "HIGH VOLTAGE."

- (10)** Vinyl Wraparound Labels:
 - a.** Secure tight to surface of raceway or cable at location with high visibility and accessibility.

- 287 **b.** Attach labels that are not self-adhesive type with clear
288 vinyl tape, with adhesive appropriate to location and
289 substrate.
290
291 **(11)** Snap-Around Labels: Secure tight to surface at location with
292 high visibility and accessibility.
293
294 **(12)** Self-Adhesive Wraparound Labels: Secure tight to surface at
295 location with high visibility and accessibility.
296
297 **(13)** Self-Adhesive Labels:
298
299 **a.** Install unique designation label that is consistent with
300 wiring diagrams, schedules, and operation and maintenance
301 manual.
302
303 **b.** Unless otherwise indicated, provide single line of text
304 with 1/2 inch (13 mm) high letters on 1-1/2 inch (38 mm) high
305 label; where two lines of text are required, use labels 2 inch
306 (50 mm) high.
307
308 **(14)** Snap-Around Color-Coding Bands: Secure tight to surface at
309 location with high visibility and accessibility.
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311 **(15)** Heat-Shrink, Preprinted Tubes: Secure tight to surface at
312 location with high visibility and accessibility.
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314 **(16)** Marker Tapes: Secure tight to surface at location with high
315 visibility and accessibility.
316
317 **(17)** Self-Adhesive Vinyl Tape: Secure tight to surface at location
318 with high visibility and accessibility.
319
320 **(18)** Tape and Stencil: Comply with requirements in painting
321 Sections for surface preparation and paint application.
322
323 **(19)** Floor Marking Tape: Apply stripes to finished surfaces
324 following manufacturer's instructions.
325
326 **(20)** Baked-Enamel Signs:
327
328 **a.** Attach signs that are not self-adhesive type with
329 mechanical fasteners appropriate to location and substrate.
330
331 **b.** Unless otherwise indicated, provide single line of text
332 with 1/2 inch (13 mm) high letters on minimum 1-1/2 inch (38
333 mm) high sign; where two lines of text are required, use
334 signs minimum 2 inch (50 mm) high.

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(21) Metal-Backed Butyrate Signs:

a. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to location and substrate.

b. Unless otherwise indicated, provide single line of text with 1/2 inch (13 mm) high letters on 1-1/2 inch (38 mm) high sign; where two lines of text are required, use labels 2 inch (50 mm) high.

(22) Laminated Acrylic or Melamine Plastic Signs:

a. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to location and substrate.

b. Unless otherwise indicated, provide single line of text with 1/2 inch (13 mm) high letters on 1-1/2 inch (38 mm) high sign; where two lines of text are required, use labels 2 inch (50 mm) high.

(C) IDENTIFICATION SCHEDULE

(1) Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.

(2) Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.

(3) Concealed Raceways, Duct Banks, More Than 1000 V, within Buildings: Tape and stencil. Stencil legend "DANGER - CONCEALED HIGH-VOLTAGE WIRING" with 3 inch (75 mm) high, black letters on 20 inch (500 mm) centers.

a. Locate identification at changes in direction, at penetrations of walls and floors, and at 10 ft (3 m) maximum intervals.

(4) Accessible Raceways, Armored and Metal-Clad Cables, More Than 1000 V: Vinyl wraparound labels, Snap-around labels, Self-adhesive labels, or Snap-around color-coding bands for raceway and cables.

- 382 a. Locate identification at changes in direction, at
383 penetrations of walls and floors, at 50 ft (15 m) maximum
384 intervals in straight runs, and at 25 ft (7.6 m) maximum
385 intervals in congested areas.
386
- 387 **(5)** Accessible Fittings for Raceways and Cables within
388 Buildings: Identify cover of junction and pull box of the following
389 systems with self-adhesive labels containing wiring system legend
390 and system voltage. System legends must be as follows:
391
- 392 a. "HIGH VOLTAGE"
393
- 394 **(6)** Power-Circuit Conductor Identification, More Than 1000 V:
395 For conductors in vaults, pull and junction boxes, manholes, and
396 handholes, use nonmetallic preprinted tags colored and marked to
397 indicate phase, and separate tag with circuit designation.
398
- 399 **(7)** Concealed Raceways and Duct Banks, More Than 1000 V,
400 within Buildings: Apply floor marking tape to the following finished
401 surfaces:
402
- 403 a. Floor surface directly above conduits running beneath
404 and within 12 inch (300 mm) of floor that is in contact with
405 earth or is framed above unexcavated space.
406
- 407 b. Wall surfaces directly external to raceways concealed
408 within wall.
409
- 410 c. Accessible surfaces of concrete envelope around
411 raceways in vertical shafts, exposed in building, or
412 concealed above suspended ceilings.
413
- 414 **(8)** Workspace Indication: Apply floor marking tape or tape and
415 stencil to finished surfaces. Show working clearances in direction of
416 access to live parts. Workspace must comply with NFPA 70 and 29
417 CFR 1926.403 unless otherwise indicated. Do not install at flush-
418 mounted panelboards and similar equipment in finished spaces.
419
- 420 **(9)** Instructional Signs: Self-adhesive labels, including color
421 code for grounded and ungrounded conductors.
422
- 423 **(10)** Warning Labels for Indoor Cabinets, Boxes, and Enclosures
424 for Power and Lighting: Self-adhesive labels, Baked-enamel
425 warning signs, or Metal-backed, butyrate warning signs.
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- 427 a. Apply to exterior of door, cover, or other access.
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- 429 **(11)** Arc Flash Warning Labeling: Self-adhesive labels.

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(12) Equipment Identification Labels:

a. Indoor Equipment: Self-adhesive label, Baked-enamel signs, Metal-backed butyrate signs, or Laminated acrylic or melamine plastic sign.

b. Equipment to Be Labeled:

(i) Enclosures and electrical cabinets.

(ii) Access doors and panels for concealed electrical items.

668.04 Method of Measurement. Identification work for electrical systems will be paid on a lump sum basis. Measurement for payment will not apply.

668.05 Basis of Payment. The Engineer will pay for the accepted identification work for electrical systems on a contract lump sum basis. The price shall include furnishing and installing the items, and all tools, labor, equipment, and incidentals necessary to complete the work. 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
Identification for Electrical Systems	Lump Sum"

END OF SECTION 668

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

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: LIKELIKE HIGHWAY WILSON TUNNEL ELECTRICAL
IMPROVEMENTS**

PROJECT NO.: HWY-OT-SMP-01

**COMPLETION TIME: 70 Working days from the Start Work Date from
the Department.**

DESIGN PROJECT MANAGER:

**NAME: Joel Yago
ADDRESS: 727 Kakoi Street, Honolulu, HI 96819
PHONE NO.:(808) 485-6261
EMAIL: joel.a.yago@hawaii.gov
FAX NO.: (808) 485-6270**

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.

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 103D-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. 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, the Notice to Bidders, the Special Provisions, the Technical Provisions, the Proposal, the Contract and Bond Forms, and the 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 Joint Contractor or Subcontractor and the nature of work to be done by each. It is understood that failure to comply with the aforementioned requirements may be cause for rejection of the bid submitted.

	<u>Name of Subcontractor</u>	<u>Nature and Scope of Work</u>
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____

	<u>Name of Joint contractor</u>	<u>Nature and Scope of Work</u>
1.	_____	_____
2.	_____	_____
3.	_____	_____

("None" or if left blank indicates no Subcontractor or Joint Contractor; if more space is needed, attach additional sheets.)

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

By _____
Authorized Signature

Title

Business Address

Email Address

Date

Contact Person (If different from above.)

Phone Number and Email Address

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.

PREFERENCES

Bidders agree that preferences shall be taken into consideration to determine the low bidder in accordance with said Sections and the rules promulgated, however, the award of contract will be in the amount of the bid offered exclusive of any preferences.

A. HAWAII PRODUCTS PREFERENCE

In accordance with ACT 174, SLH 2022, effective June 27, 2022, Hawaii Products Preference shall not apply to solicitations for public works construction. Therefore, the Hawaii Products Preference shall not apply to this project.

B. APPRENTICESHIP PROGRAMS PREFERENCE

In accordance with ACT 17, SLH 2009 – Apprenticeship Program, a 5% bid adjustment for bidders that are parties to apprenticeship agreements pursuant to Hawaii Revised Statutes (HRS) Section 103-55.6 may be applied to the bidder's price for evaluation purposes.

Any bidder seeking this preference must be a party to an apprenticeship agreement registered with the Department of Labor and Industrial Relations at the time the offer is made for each apprenticeable trade the bidder will employ to construct the public works projects for which the offer is being made.

The bidder is responsible for complying with all submission requirements for registration of its apprenticeship program before requesting the preference.

() Yes, I wish to be considered for the Apprenticeship Programs Preference. I have included Certification Form(s) 1 with my bid.

C. RECYCLED PRODUCT PREFERENCE

Recycled product preference shall not apply to this proposal.

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
209.0100	Installation, Maintenance, Monitoring, and Removal of BMP	L.S.	L.S.	L.S.	\$ _____
209.0200	Additional Water Pollution, Dust, and Erosion Control	F.A.	F.A.	F.A.	\$ <u>50,000.00</u>
643.0100	Maintenance of Existing Landscape Areas	F.A.	F.A.	F.A.	\$ <u>50,000.00</u>
645.1000	Traffic Control	L.S.	L.S.	L.S.	\$ _____
648.0100	Field-Posted Drawings	L.S.	L.S.	L.S.	\$ _____
662.0100	Medium Voltage Cables	L.S.	L.S.	L.S.	\$ _____
664.0100	Grounding and Bonding for Electrical Systems	L.S.	L.S.	L.S.	\$ _____
666.0100	Conduits for Electrical Systems	L.S.	L.S.	L.S.	\$ _____
667.0100	Cable Trays for Electrical Systems	L.S.	L.S.	L.S.	\$ _____
668.0100	Identification for Electrical Systems	L.S.	L.S.	L.S.	\$ _____
699.1000	Mobilization (Not to Exceed 6 Percent of the Sum of All Items Excluding the Bid Price of this Item)	L.S.	L.S.	L.S.	\$ _____
Sum of All Items					\$ _____

PROPOSAL SCHEDULE

ITEM NO.	ITEM	APPROX. QUANTITY	UNIT	UNIT PRICE	AMOUNT
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NOTES:

- 1. Bidders must complete all unit prices and amounts. Failure to do so may be grounds for rejection of bid.
- 2. Bids shall include all Federal, State, County, and other applicable taxes and fees.
- 3. The SUM OF ALL ITEMS will be used to determine the lowest responsible bidder.
- 4. If a discrepancy occurs between unit bid price and the bid price, the unit bid price shall govern.

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

FORMS

Contents

Contract

Performance Bond (Surety)

Performance Bond

Labor and Material Payment Bond (Surety)

Labor and Material Payment Bond

Chapter 104 Compliance Certificate

Certification of Compliance for Employment of State Residents

C O N T R A C T

THIS AGREEMENT, made this _____ day _____ 20_____, by and between the STATE OF HAWAII, by its Director of Transportation, hereinafter referred to as "STATE," and _____ whose business and/or post office address is _____

_____ hereafter 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

or such a part thereof as shall be required by the STATE, the total amount of which labor, material 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 _____ DOLLARS (\$ _____) as follows:

which sum shall be provided from the following fund(s):

all in accordance with the specifications, the special provisions, if any, the notice to bidders, the instructions to bidders, the proposal, and plans for _____, 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, undertaking 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 _____ DOLLARS (\$ _____) 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. In any event, extras shall not exceed _____ DOLLARS (\$ _____) in lawful money and shall be provided from the following fund(s):

Where Federal funds are involved, it is covenanted and agreed by and between the parties hereto that the sums of

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.

The CONTRACTOR further agrees to execute the attached non-gratuity affidavit form prior to payment of the final estimate by the STATE.

All words used herein in the singular number shall extend to and include the plural. All words used in the plural number 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

By _____
Director of Transportation

By _____

By _____

APPROVED AS TO FORM

Deputy Attorney General

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 Obligee 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 Obligee 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 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, and shall deliver the Project to the Obligee, 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 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.

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

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 _____

**PROVISIONS TO BE INCLUDED IN
CONSTRUCTION PROCUREMENT SOLICITATIONS**

1. Definitions for terms used in HRS Chapter 103B as amended by Act 192, SLH 2011:
 - a. "Contract" means contracts for construction under 103D, HRS.
 - b. "Contractor" has the same meaning as in Section 103D-104, HRS, provided that "contractor" includes a subcontractor where applicable.
 - c. "Construction" has the same meaning as in Section 103D-104, HRS.
 - d. "General Contractor" means any person having a construction contract with a governmental body.
 - e. "Procurement Officer" has the same meaning as in Section 103D-104, HRS.
 - f. "Resident" means a person who is physically present in the State of Hawai'i at the time the person claims to have established the person's domicile in the State of Hawai'i and shows the person's intent is to make Hawai'i the person's primary residence.
 - g. "Shortage trade" means a construction trade in which there is a shortage of Hawai'i residents qualified to work in the trade as determined by the Department of Labor and Industrial Relations.

2. HRS Chapter 103B as amended by Act 192, SLH 2011--Employment of State Residents Requirements:
 - a. A Contractor awarded a contract shall ensure that Hawai'i residents comprise not less than 80% of the workforce employed to perform the contract work on the project. The 80% requirement shall be determined by dividing the total number of hours worked on the contract by Hawai'i residents, by the total number of hours worked on the contract by all employees of the Contractor in the performance of the contract. The hours worked by any Subcontractor of the Contractor shall count towards the calculation for this section. The hours worked by employees within shortage trades, as determined by the Department of Labor and Industrial Relations (DLIR), shall not be included in the calculation for this section.

- b. Prior to award of a contract, an Offeror/Bidder may withdraw an offer/bid without penalty if the Offeror/Bidder finds that it is unable to comply with HRS Chapter 103B as amended by Act 192, SLH 2011.
- c. Prior to starting any construction work, the Contractor shall submit the subcontract dollar amount for each of its Subcontractors.
- d. The requirements of this section shall apply to any subcontract of \$50,000 or more in connection with the Contractor; that is, such Subcontractors must also ensure that Hawai'i residents comprise not less than 80% of the Subcontractor's workforce used to perform the subcontract.
- e. The Contractor and any Subcontractor whose subcontract is \$50,000 or more shall comply with the requirements of HRS Chapter 103B as amended by Act 192, SLH 2011.
 - 1) Certification of compliance shall be made in writing under oath by an officer of the General Contractor and applicable Subcontractors and submitted with the final payment request.
 - 2) The certification of compliance shall be made under oath by an officer of the company by completing a "Certification of Compliance for Employment of State Residents" form and executing the Certificate before a licensed notary public.
 - 3) In addition to the certification of compliance as indicated above, the Contractor and Subcontractors shall maintain records such as certified payrolls for laborers and mechanics who performed work at the site and time sheets for all other employees who performed work on the project. These records shall include the names, addresses and number of hours worked on the project by all employees of the Contractor and Subcontractor who performed work on the project to validate compliance with HRS Chapter 103B as amended by Act 192, SLH 2011. The Contractor and Subcontractors shall retain these records and provide access to the State for a minimum period of four (4) years after the final payment, except that if any litigation, claim, negotiation, investigation, audit or other action involving the records has been started before the expiration of the four-year period, the Contractor and Subcontractors shall retain the records until completion of the action and resolution of all issues that arise from it, or until the end of the four-year period, whichever occurs later. Furthermore, it shall be the Contractor's responsibility to enforce compliance with this provision by any Subcontractor.

- f. A General Contractor or applicable Subcontractor who fails to comply with this section shall be subject to any of the following sanctions:
- 1) With respect to the General Contractor, withholding of payment on the contract until the Contractor or its Subcontractor complies with HRS Chapter 103B as amended by Act 192, SLH 2011.
 - 2) Proceedings for debarment or suspension of the Contractor or Subcontractor under Hawai'i Revised Statutes §103D-702.
3. Conflict with Federal Law: This section shall not apply if the application of this section is in conflict with any federal law, or if the application of this section will disqualify the State from receiving Federal funds or aid.

**CERTIFICATION OF COMPLIANCE
FOR
EMPLOYMENT OF STATE RESIDENTS
HRS CHAPTER 103B, AS AMENDED BY ACT 192, SLH 2011**

Project Title: _____

Agency Project No: _____

Contract No.: _____

As required by Hawai'i Revised Statutes Chapter 103B, as amended by Act 192, Session Laws of Hawaii 2011--Employment of State Residents on Construction Procurement Contracts, I hereby certify under oath, that I am an officer of _____ and
(Name of Contractor or Subcontractor Company)
for the Project Contract indicated above, _____ was in
(Name of Contractor or Subcontractor Company)
compliance with HRS Chapter 103B, as amended by Act 192, SLH 2011, by employing a workforce of which not less than eighty percent are Hawai'i residents, as calculated according to the formula in the solicitation, to perform this Contract.

I am an officer of the **Contractor** for this contract.

I am an officer of a **Subcontractor** for this contract.

CORPORATE SEAL

(Name of Company)

(Signature)

(Print Name)

(Print Title)

Subscribed and sworn to me before this
____ day of _____, 2011.

Doc. Date: _____ # of Pages _____ 1st Circuit

Notary Name: _____

Doc. Description: _____

Notary Public, 1st Circuit, State of Hawai'i
My commission expires: _____

Notary Signature _____ Date

NOTARY CERTIFICATION