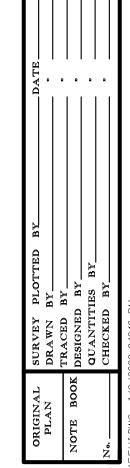




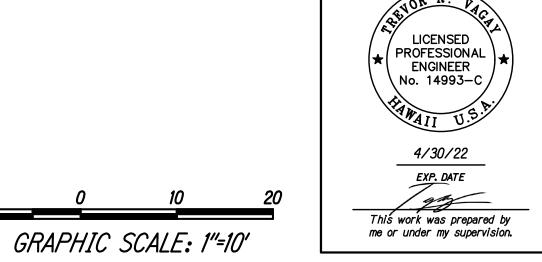
Demolish and Remove Exist. Fence Post and Footing; Install New Gate End Post -Install New Fence Line Post and and Connect Exist. Fence Connect Exist. Fence Fabric; Fabric; See Det. 2 See Det. 2 . 16' Wide _ EC-04 EC-06 Gate existing 6'H chain link fence to remain -Demolish and Remove Exist. Fence Posts and Footing; Install 6'H Chain Link Fence (16 LF) and 6H' Rolling Gate (16 LF); See Det. 1 EC-04 EC-06 -existing r/w

> SITE PLAN - 3 Scale: 1" = 10'



Notes:

1. Contractor shall coordinate with Engineer and Baseyard personnel for actual location of gate.



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

SITE PLAN - 3

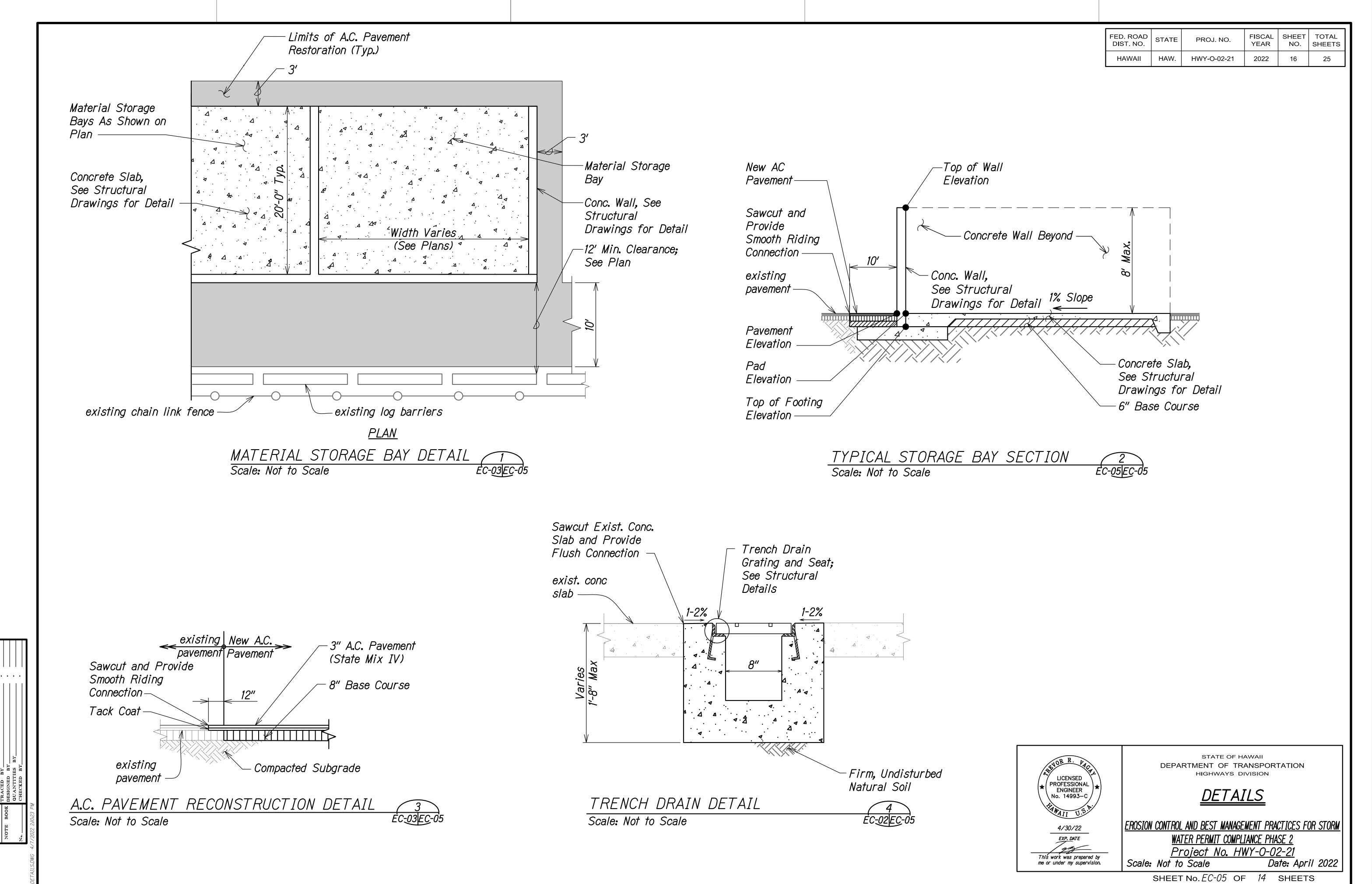
EROSION CONTROL AND BEST MANAGEMENT PRACTICES FOR STORM WATER PERMIT COMPLIANCE PHASE 2

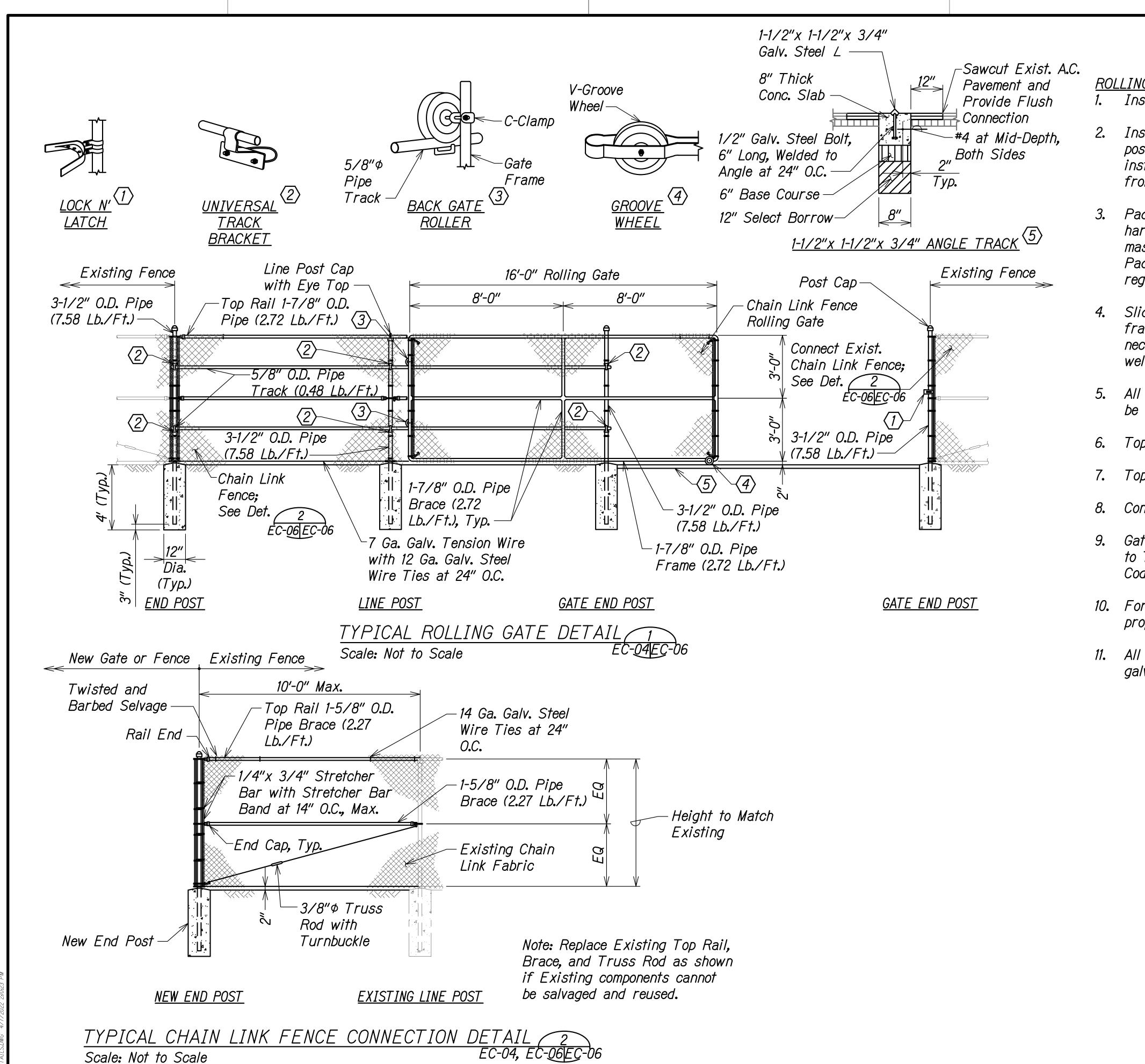
Project No. HWY-0-02-21

Scale: 1" = 10' Date: April 2022

SHEET No. EC-04 OF 14 SHEETS

15





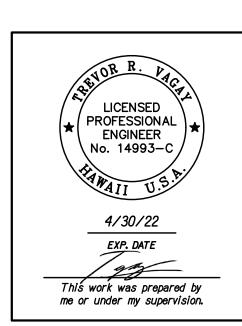
SURVEY
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Scale: Not to Scale

FED. ROAD DIST. NO. FISCAL SHEET TOTAL PROJ. NO. STATE HWY-O-02-21 2022 HAWAII

ROLLING GATE AND FENCE NOTES:

- 1. Install double wheel on gate and back gate rollers with C-Clamps.
- 2. Install universal track brackets (set top end bracket upside down (2) on post and measure lengths to cut the 5/8" pipe track, cut pipe track and install with universal brackets. Set two pipe tracks parallel about one foot from the top and bottom of the posts.
- Padlock shall be pin tumbler cylinder type with brass case and a 5/16"\$\Phi\$ hardened steel shackle. Padlocks shall be keyed differently but master-keyed to the fence system. Two master keys shall be provided. Padlock shall be arranged to be accessible from both sides of the gate, regardless of latching arrangement.
- 4. Sliding wheel gate shall be single overhead, zinc coated steel with all framing and fabric same as fence. Provide intermediate members as necessary to provide rigid construction free from sag or twist. No field welding is permitted.
- 5. All materials for fencing fabric, posts, braces, railings, and gates shall be in accordance with Specification 607-Chain Link Fences and Gates.
- 6. Top rail couplings shall be located within 6" of line post.
- 7. Top of concrete footings shall be crowned to shed water.
- 8. Concrete shall be 2,500 PSI 28-day compressive strength.
- 9. Gate frame shall be of welded pipe construction. All welding shall conform to The Specifications of the American Welding Society "Structural Welding Code".
- 10. For all welded connections: corners shall be mitered and all pipe braces properly coped.
- 11. All welded connections shall be painted with two coats of Z.R.C. cold galvanizing compound.



STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

DETAILS

EROSION CONTROL AND BEST MANAGEMENT PRACTICES FOR STORM WATER PERMIT COMPLIANCE PHASE 2 Project No. HWY-0-02-21

Scale: Not to Scale Date: April 2022

SHEET No. EC-06 OF 14 SHEETS

General:

- Workmanship and materials shall conform to the Hawaii Standard Specifications For Road \$ Bridge However, where reference is made to performance conforming to other standards the more stringent shall apply.
- The Contractor shall compare all the contract documents with each other and report in writing to the Engineer all inconsistencies and omissions.
- The Contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions with the drawings before commencing work. Report in writing to the Engineer all inconsistencies and omissions.
- The Contractor shall be responsible for methods of construction, workmanship and job safety. The Contractor shall provide temporary shoring and bracing as required for stability of structural members and systems.
- Construction loading shall not exceed design live load unless special shoring is provided. Allowable loads shall be reduced in areas where the structure has not attained full design strength.
- The Contractor shall be responsible for protection of the adjacent properties, structures, streets and utilities during the construction period.
- Details noted as typical on the structural drawings shall apply in all conditions unless specifically shown or noted.
- The General Contractor and his Subcontractors must submit in writing any requests for modifications to the plans and specifications.

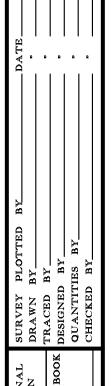
Foundation:

- Foundation design is based on Geotechnical investigation by Hirata \$ Associates, Inc. and memo dated March 15, 2021.
- Contractor shall provide for de-watering of excavation from surface water, ground water or seepage.
- Contractor shall provide for design and installation of all cribbing, sheeting, and shoring necessary to preserve excavations and earth banks.
- Footings shall bear on undisturbed in-situ firm soils or properly compacted structural fill. structural fill shall consist of select granular material. bottom of footings shall be moisture conditioned to about 2 percent above optimum moisture content, and compacted to a minimum 90 percent compaction as determined by ASTM D 1557. Any loose material should be cleaned from the re-compacted subgrade prior to placement of reinforcing steel and concrete.
- The slab-on-grade subgrade shall be scarified to a minimum depth of 6 inches, moisture conditioned to about 2 percent above optimum moisture content, and compacted to a minimum 90 percent compaction as determined by ASTM D 1557. the base course should be compacted in lifts to a minimum of 95 percent compaction as determined by ASTM D 1557.
- Site preparation the proposed cmu material bin areas shall be cleared of all vegetation and other deleterious material. prior to placement of the aggregate base course under the bin slabs-on-grade, the exposed subgrade should be scarified to a minimum depth of 6 inches, moisture conditioned to about 2 percent above optimum moisture content, and compacted to a minimum 90 percent compaction as determined by ASTM D 1557.

Foundation: (cont'd)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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- Any underlying soft and loose soils, indicated by pumping conditions, shall be over excavated to a depth of approximately 12 inches, and replaced with approved onsite granular fills or imported granular structural fill. in the event of soft or wet soil conditions are exposed at the bottom of the 12 inch over excavation, geotextile fabric shall be placed at the bottom of over excavation to facilitate compaction of the 12 inch granular fill layer.
- Onsite fill material onsite granular fills are acceptable for reuse in compacted fills and backfills, except in the aggregate base section located below all concrete slabs-on-grade. all rock fragments larger than 3 inches in maximum dimension shall be removed from the onsite granular fills prior to reuse.
- Imported fill material imported structural fill should be well-graded, non-expansive granular material. specifications for imported granular structural fill shall indicate a maximum particle size of 3 inches, and state that between 8 and 20 percent of soil by weight shall pass the #200 sieve. in addition, the plasticity index of that portion of soil passing the #40 sieve shall not be greater than 10. imported structural fill shall have a cbr expansion value no greater than 1.0 percent and a minimum cbr value of 15 percent, when tested in accordance with ASTM D 1883.
- Compaction all compacted fill and backfill should be placed in horizontal lifts restricted to eight inches in loose thickness and compacted to a minimum 90 percent compaction as determined by ASTM D 1557.
- Contractor shall brace or protect all walls below grade from lateral loads until attaching floors are completely in place and have attained their full design strength.
- The Contractor shall retain and pay for the services of the Geotechinical Engineer during construction to observe and perform testing for the site preparation, placement of fill and backfill, and footing and slab subgrade excavations, compaction, and preparation.



LICENSED PROFESSIONAL ENGINEER 4/30/24 This work was prepared by me or

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

STRUCTURAL NOTES - 1

EROSION CONTROL AND BEST MANAGEMENT PRACTICES FOR STORM WATER PERMIT COMPLIANCE, VARIOUS LOCATIONS ON OAHU; Phase 2 Project No. HWY-0-02-21

Scale: As Shown

Date: April 2022 SHEET No. *EC-07* OF 14 SHEETS

Concrete:

- A. Concrete construction shall be in accordance with the Hawaii Standard Specifications for Road & Bridge Construction & Special Provisions.
- Concrete shall be regular weight hard rock concrete and shall have the following minimum 28 day compressive strengths:

a.	F OOTINGS	
b.	Slabs-on-grade ————	4,000 PSI
<i>C</i> .	Walls —	4,000 PSI
d.	All other concrete ————	4,000 PSI

- C. Concrete delivery tickets shall record all free water in the mix: at batching by plant, for consistency by driver, and any additional request by Contractor if permitted by the mix design.
- D. Reinforcing bars and other items to be cast in the concrete shall be secured in position prior to placement of concrete.
- E. The Contractor shall locate construction joints so as not to impair the strength of the structure and to minimize shrinkage stresses. Submit location of construction joints to the Engineer for approval, unless otherwise noted.
- F. Non-shrink grout shall be a premixed non-metallic formula, capable of developing a minimum compressive strength of 3,000 PSI in 1 day and 5,000 PSI in 28 days.
- G. Maximum Water to Cementitious Material Ratio Shall be 0.50. Unless otherwise indicated.
- H. The Engineer shall be notified at least 3 working days prior to any concrete pour. No concrete shall be poured prior to observation by the Engineer or his representative.
- I. The Following Items Shall Be Submitted To The Engineer For Review:
 - A. Concrete Mix Designs Shall Be Prepared For Each Type And Strength Of Concrete Required, Determined By Either Laboratory Trial Mix Or Field Data Bases, As Follows:
 - 1. Normal Weight Concrete Shall Be Proportioned According To ACI 211.1 and ACI 301.
 - 2. Concrete For Foundations Shall Have a 5" Maximum Slump.
 - 3. Concrete For Slabs-On-Grade Shall Have a Minimum Cement Content Of 470 lbs/c.y. And a 4" Maximum Slump.

Concrete (Cont'd):

- J. Testing Agency: The Contractor Shall Engage a Qualified Independent Testing and Inspection Agency To Sample Materials and Perform Tests During Concrete Placement, and Submit Test Reports. Testing Services Shall Include: Testing of Composite Samples of Fresh Concrete Obtained According to ASTC C172 to The Following Requirements:
 - A. Testing Frequency: One Composite Sample Shall Be Obtained For Each Day's Pour Of Each Concrete Mix Exceeding 5 C.Y. But Less Than 25 C.Y., Plus One Set For Each Additional 50 C.Y. Or Fraction Thereof.
 - B. Slump Tests Shall Be Performed Per ASTM C143. One Test Shall Be Made at The Point of Placement for Each Composite Sample, But Not Less Than One Test For Each Day's Pour Of Each Concrete Mix. Additional Tests Shall Be Performed When Concrete Consistency Appears to Change.
 - C. Compression Test Specimens Shall Conform to ASTM C31. One Set of Four Standard Cylinder Specimens For Each Composite Sample Shall Be Cast and Laboratory Cured. Compressive Strength Tests Shall Conform To ASTM C39. One Laboratory Cured Specimen Shall Be Tested at 7 Days, Two at 28 Days, and One Retained For Later Testing if Required.
 - D. Cost of Testing Will Be Borne By The Contractor.

Reinforcing Steel:

- A. Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60.
- B. Clear concrete cover for reinforcing bars shall be as follows, unless otherwise noted:

a.	Footings, etc. cast against earth ————	<i>— 3"</i>
b.	Footings, etc. formed and exposed	
	to earth or weather	2"
<i>C</i> .	Walls	
	1. Faces exposed to earth or weather	
	#5 bars and smaller	1 1/
	#6 bars and larger	2"

- C. Clear distance between the surface of a bar and any surface of a masonry unit shall be not less than 1/2 inch, unless otherwise noted.
- D. Reinforcing steel shall be spliced where indicated on plans. Provide lap splice length per typical details and schedule, unless otherwise
- E. Bar laps shall be made away from points of maximum stress. Unless noted otherwise, splices, laps, dowel extensions and embedments shall be 48 bar diameters, but not less than 24 inches. Splices shall be staggered where possible.
- F. Unless otherwise noted, all horizontal reinforcing steel at wall and wall footing corners and intersections shall extend to the far face of the corner and hooked a length of 48 bar diameters, but not less than 24 inches, around the corner.
- G. Bar bends and hooks shall be "standard hooks" in accordance with ACI 318.

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HAWAII	HAW.	HWY-O-02-21	2022	19	25

Reinforcing Steel (Cont'd):

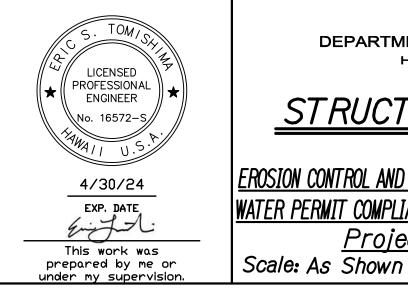
- The Following Items Shall Be Submitted To The Engineer For Review:
 - A. Steel Reinforcement Shop Drawings Which Shall Include Details of Fabrication, Bending, Placement, Material, Grade, Schedules, and Bends, Prepared According to ACI 315, "Details and Detailing Of Concrete Reinforcement.
 - B. Material Certificates, Signed By Manufacturers Certifying That The Material And Grade Indicated For Reinforcing Bars Comply With The Requirements.

Epoxied Anchor Installations:

- A. Epoxy used for anchoring threaded rods and reinforcing steel into existing concrete shall be Hilti HIT-RE 500 V3 system, Simpson SET-3G system, Powers Pure 110+, or approved equal, and shall be installed per manufacturer's recommendations.
- B. Anchors shall be installed with the minimum embedment requirements as indicated on the drawings.

Inspection of Work and Materials:

- A. Contractor shall be responsible for ensuring that inspection of portions of the work, as required by the Hawaii Standard Specifications for Road \$ Bridge Construction \$ Special Provisions, is made at the appropriate time. The Contractor shall give timely notice of when and where inspections are to be made and provide access for the Inspector. The Contractor shall correct defective work at no additional cost to the Owner and pay for re-inspection.
- The following structural work \(\phi \) material requires inspection:
 - a. Concrete
 - Reinforcing steel
 - Post installed anchors or exist reinforcing steel into concrete

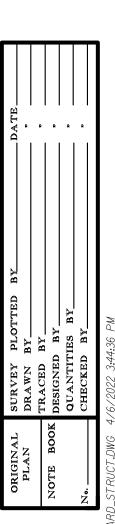


STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

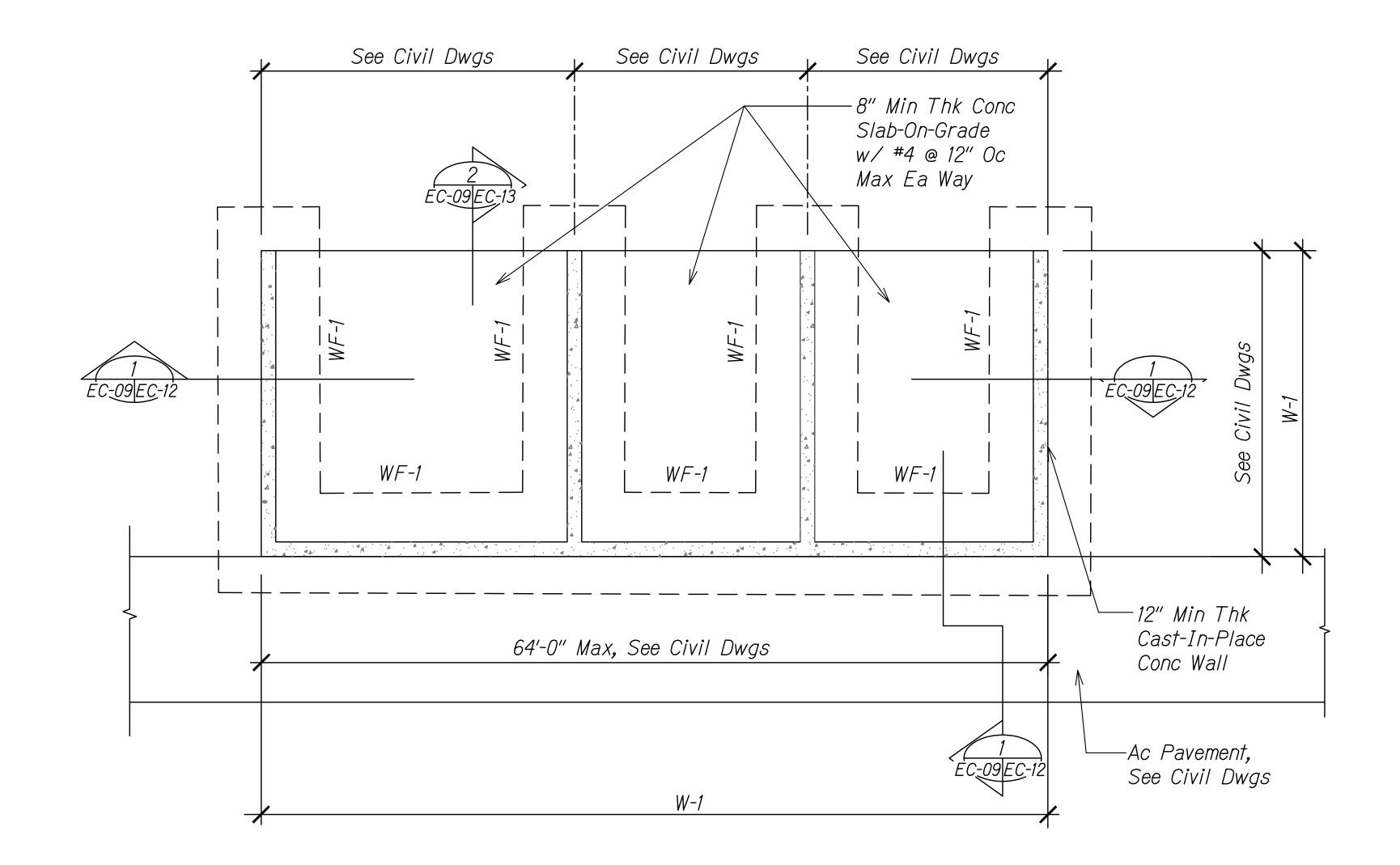
STRUCTURAL NOTES - 2

EROSION CONTROL AND BEST MANAGEMENT PRACTICES FOR STORM WATER PERMIT COMPLIANCE, VARIOUS LOCATIONS ON OAHU; Phase 2 Project No. HWY-0-02-21 Date: April 2022

SHEET No. *EC-08* OF 14 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-02-21	2022	20	25



KEEHI BASEYARD - MATERIAL STORAGE BIN 1 FOUNDATION PLAN
Scale: 3/16" = 1'-0"

LICENSED
PROFESSIONAL
ENGINEER
No. 16572-S

4/30/24

EXP. DATE
This work was
prepared by me or
under my supervision.

<u>Legend:</u>

Indicates Full Height Conc Wall

Indicates Wall Footing Type, See Sections On Sheet EC-12

Indicates Conc Wall Type, See

All Conc Walls Shall Be Type

W-1 Unless Otherwise Noted.

Section On Sheet EC-12.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI BASEYARD MATERIAL STORAGE BIN 1
FOUNDATION PLAN

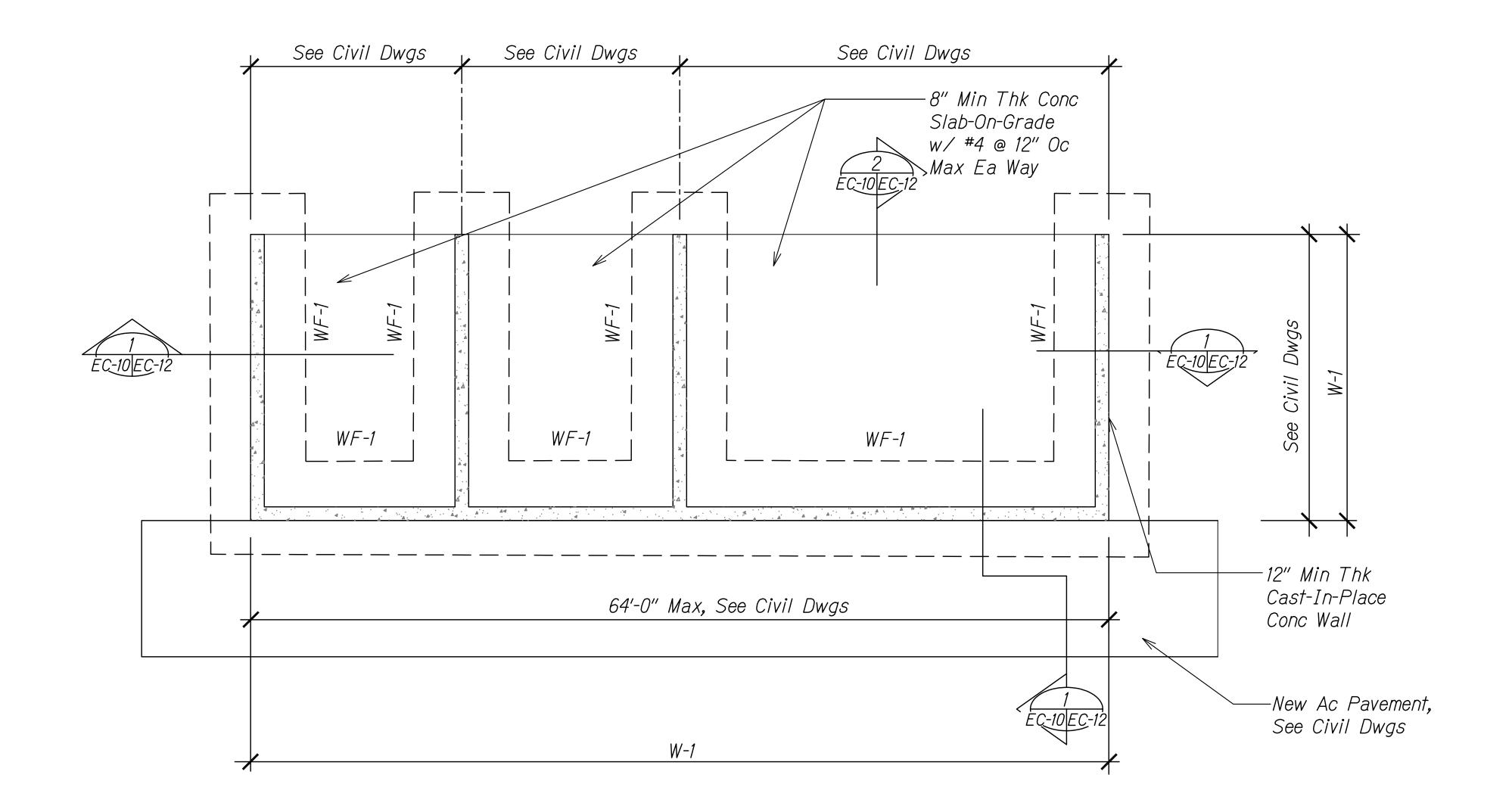
EROSION CONTROL AND BEST MANAGEMENT PRACTICES FOR STORM
WATER PERMIT COMPLIANCE, VARIOUS LOCATIONS ON OAHU; Phase 2

Project No. HWY-0-02-21

Scale: 3/16" = 1'-0" Date: April 2022

SHEET No. *EC-09* OF *14* SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-02-21	2022	21	25



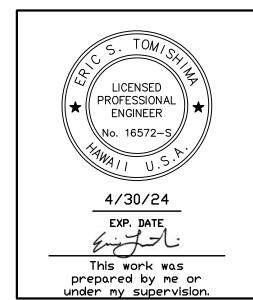
<u>Legend:</u>

Indicates Full Height Conc Wall

WF-1 Indicates Wall Footing Type, See Sections On Sheet EC-12

> Indicates Conc Wall Type, See Section On Sheet EC-12. All Conc Walls Shall Be Type W-1 Unless Otherwise Noted.

KEEHI BASEYARD - MATERIAL STORAGE BIN 2 FOUNDATION PLAN
Scale: 3/16" = 1'-0"



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KEEHI BASEYARD MATERIAL STORAGE BIN 2
FOUNDATION PLAN

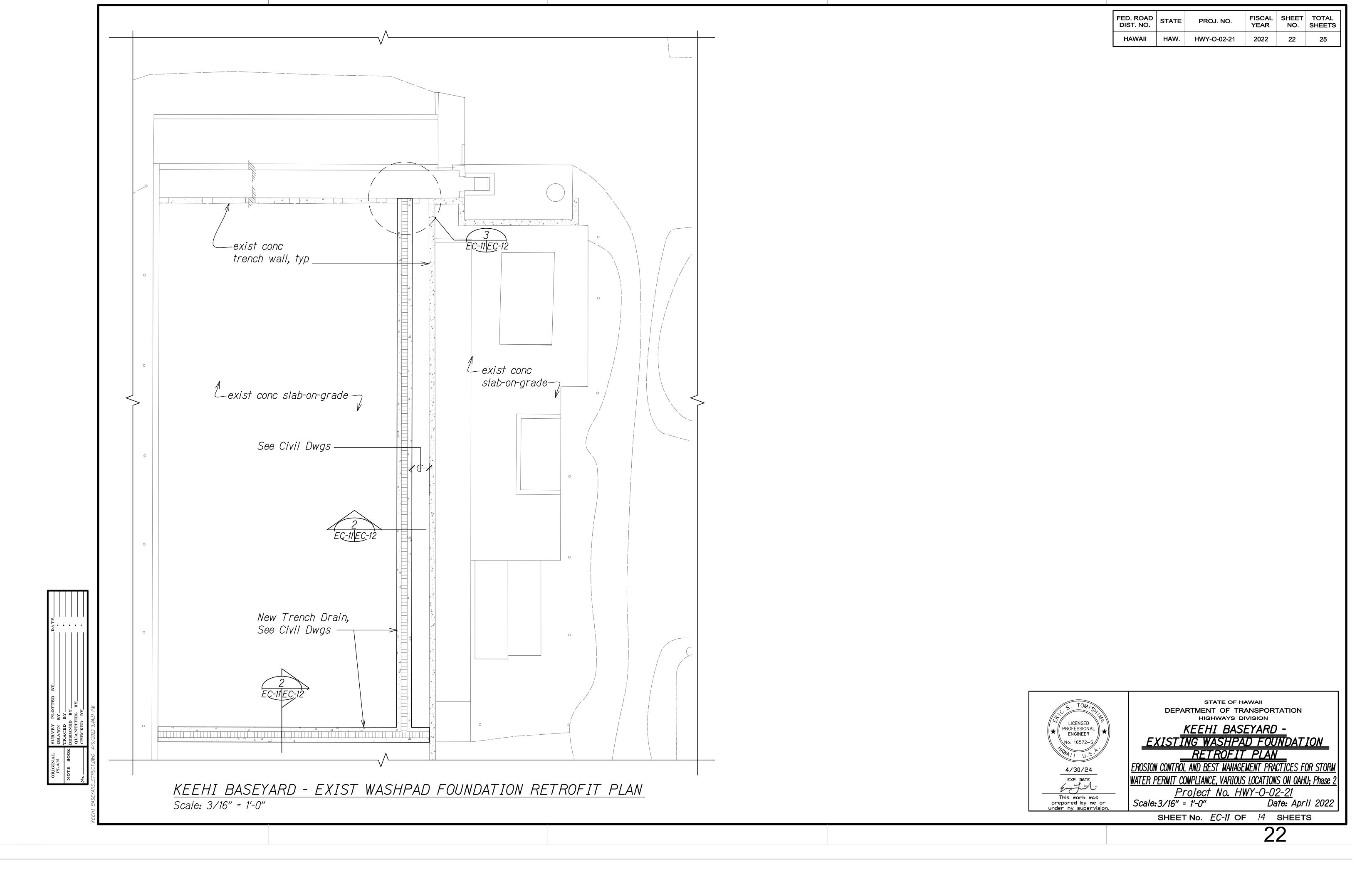
EROSION CONTROL AND BEST MANAGEMENT PRACTICES FOR STORM
WATER PERMIT COMPLIANCE, VARIOUS LOCATIONS ON OAHU; Phase 2

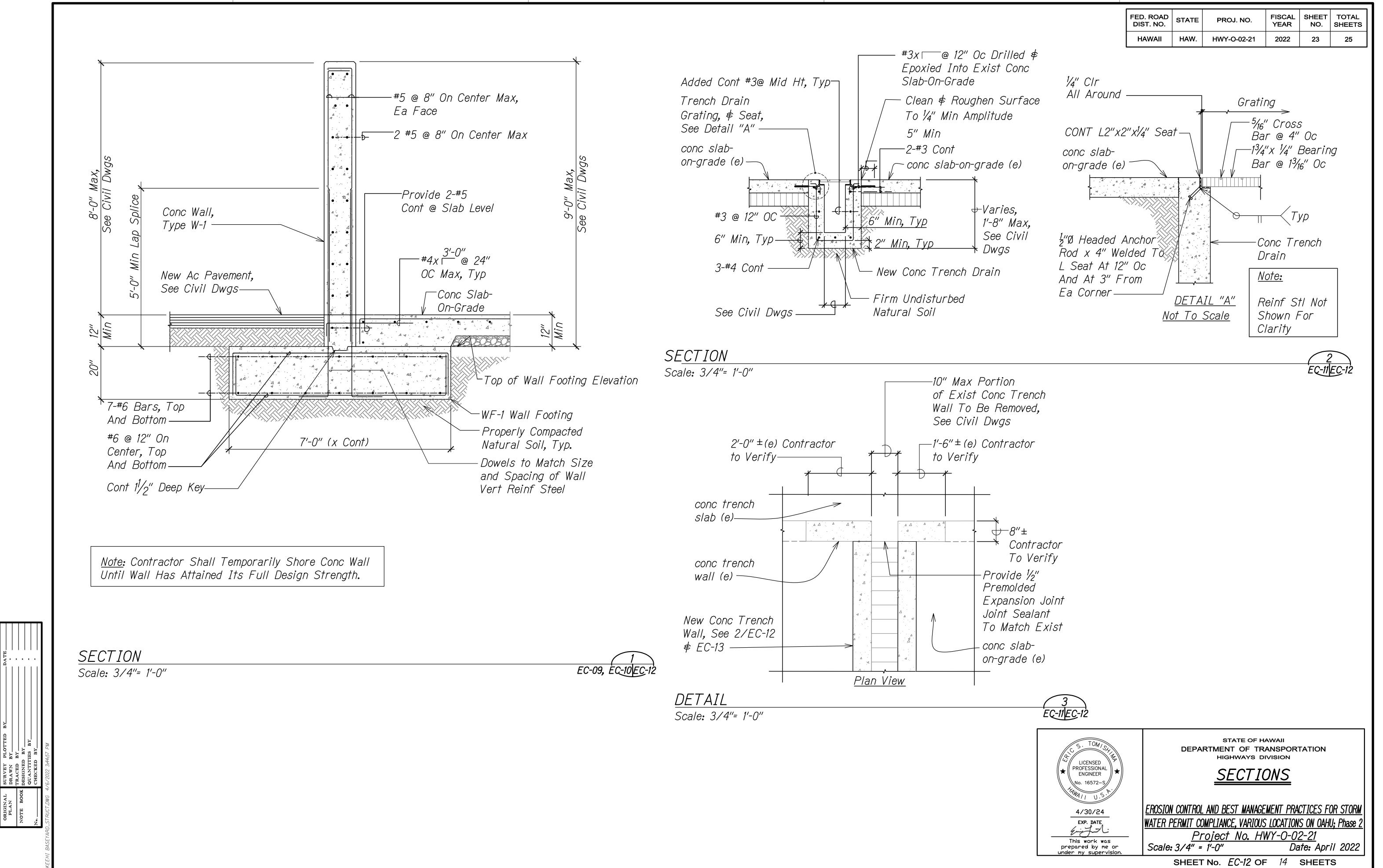
Project No. HWY-O-02-21

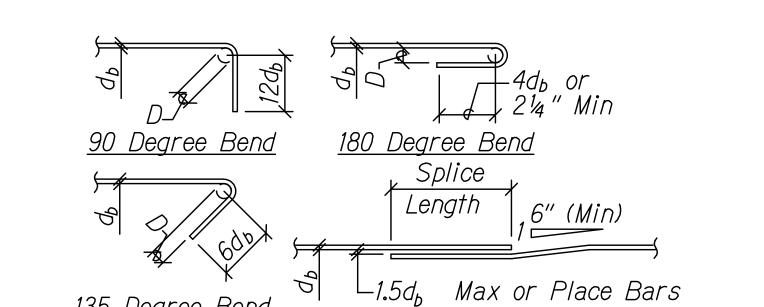
Scale: 3/16" = 1'-0" Date: April 2022

SHEET No. *EC-10* OF 14 SHEETS

No. ______CHECKE!
HI BASEYARD_STRUCT.DWG 4/6/2022 3;



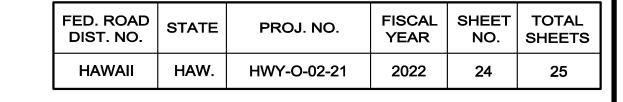


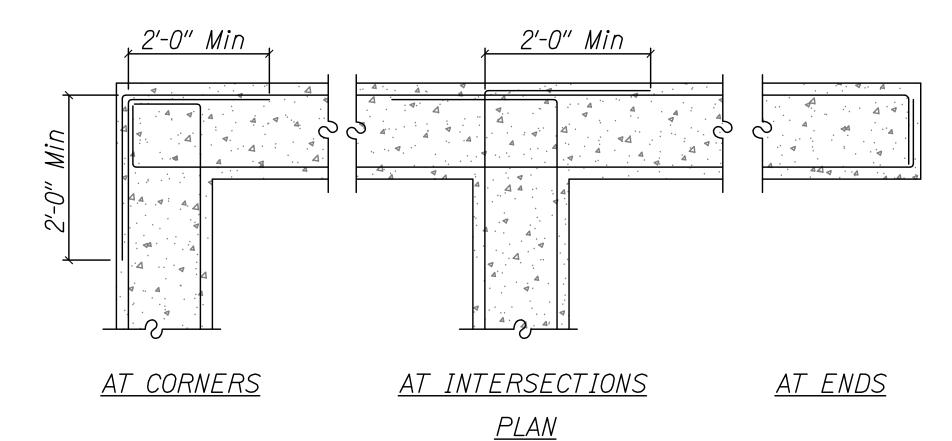


In Contact Wire Together $D = 6d_b$ For #8 and Smaller D = 8d_b For #9 To #11

Lengths Are For Concrete Beams ♦ Columns With Rebar Spaced 1 Bar Diameter Min O.C. And Concrete Walls with Rebars Spaced 2 Bar Diameters Min O.C. Increase Bar Length 50% For Bars Spaced Closer Than Minimums Specified.

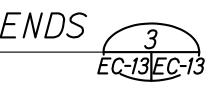
2. "Top Bars" Are Horizontal Bars With 12" Or More Of Concrete Cast Below.

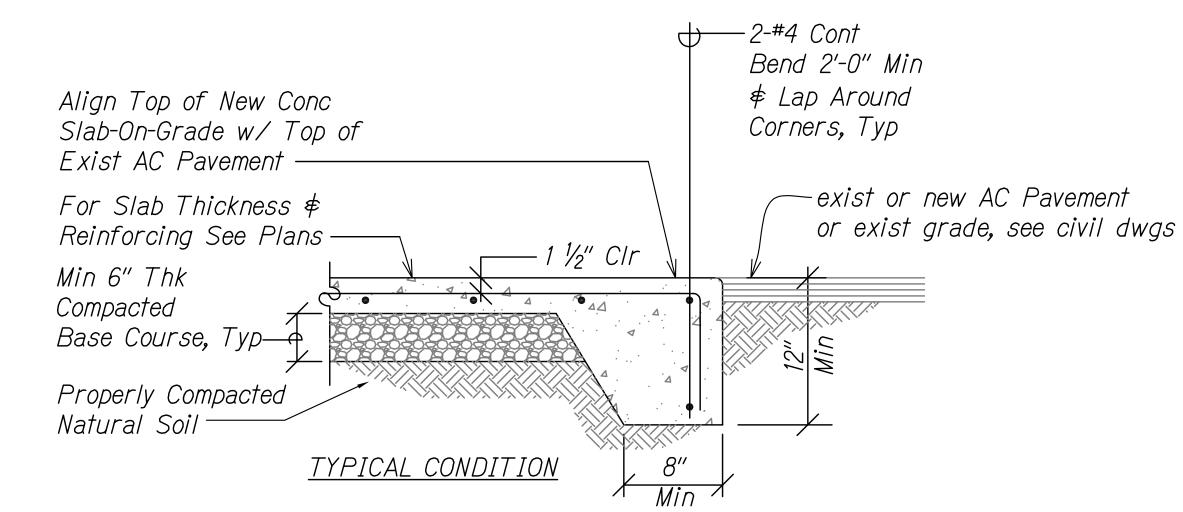




TYPICAL REINFORCING AT CONCRETE WALL FOOTING ENDS /

Scale: NTS





Minimum Splice ♥ Embedment Lengths For Concrete

Top Bar

56"

Straight

Bot Bar Or

Wall Bar

Lap Splice

Bot Bar

Or Wall Bar

#3, #4

#5

Scale: NTS

Embedment

Top Bar

29"

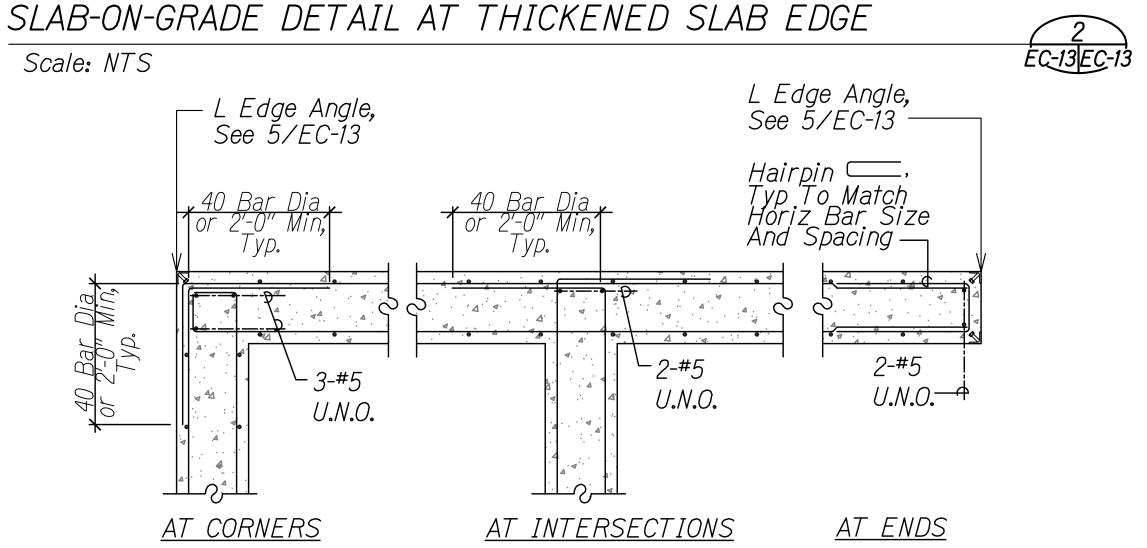
36"

43"

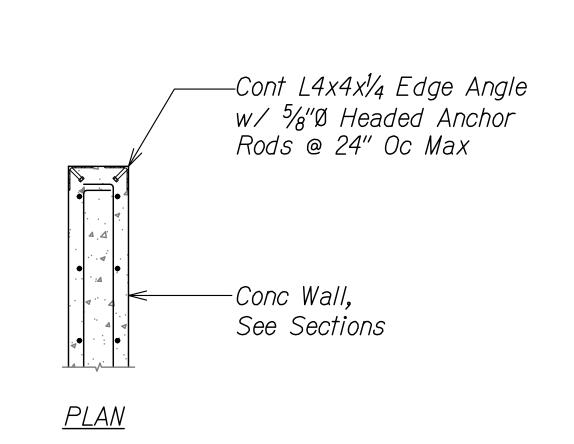
TYPICAL REBAR \$ SPLICE EMBEDMENT LENGTH SCHEDULE

w/ Std

Hook



TYPICAL CONCRETE WALL REINFORCING



EC-13EC-13

New Opening Edge Where Indicated on Plans, Surface Shall Be Primed With a Coat of Sika Armatec 110 Epocem, or Approved Equal, And Finished With a Coat of Sikatop 122 Plus, or Approved Equal. Concrete or Masonry Surface Shall Be Prepared According to Manufacturer's Specifications Prior to -Core 4"Ø Hole Before Application of Each Coating .-Sawcutting Openings. Typ Each Corner Hand Chip To Form Neat Corner --Limit of Sawcut Over Cutting Not Permitted, New Opening See Section "A"

Section to -Cutting Be Hand Blade Chipped to Form -Limit of Corner_ Sawcut -Limit of New Opening exist conc trench wall

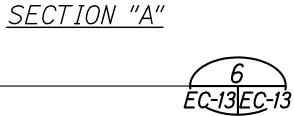
ELEVATION @ CORNER

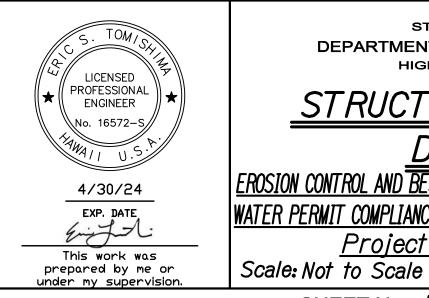
TYPICAL SAWCUT DETAIL

Scale: NTS

Limit of Sawcut OverCutting

Not Permitted





STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

STRUCTURAL TYPICAL **DETAILS**

EROSION CONTROL AND BEST MANAGEMENT PRACTICES FOR STORM WATER PERMIT COMPLIANCE, VARIOUS LOCATIONS ON OAHU; Phase 2 Project No. HWY-0-02-21 Date: April 2022

SHEET No. *EC-13* OF 14 SHEETS



Scale: NTS

EC-13 EC-13

CONCRETE WALL EDGE ANGLE Scale: NTS

5 EC-13|EC-13