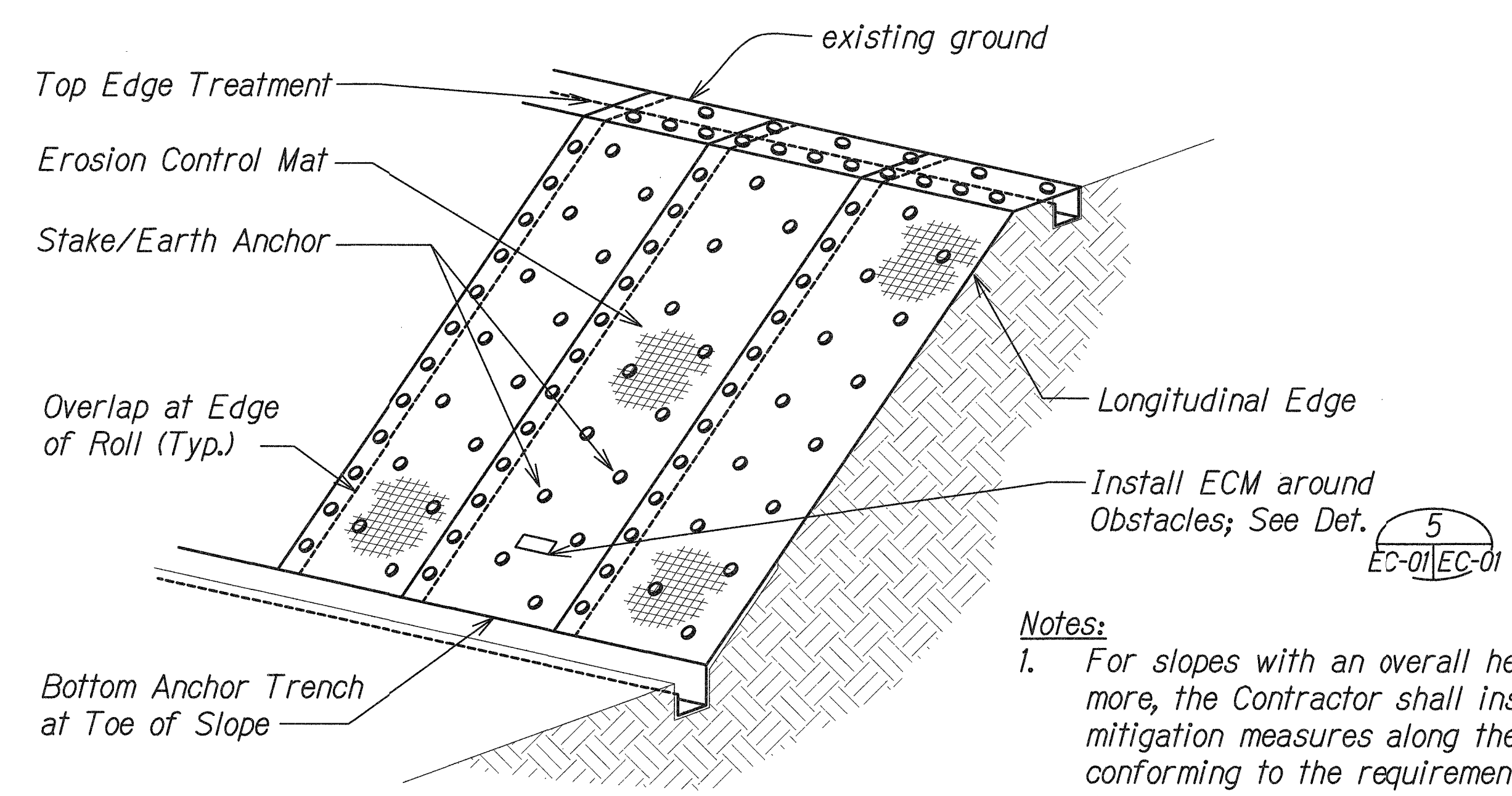
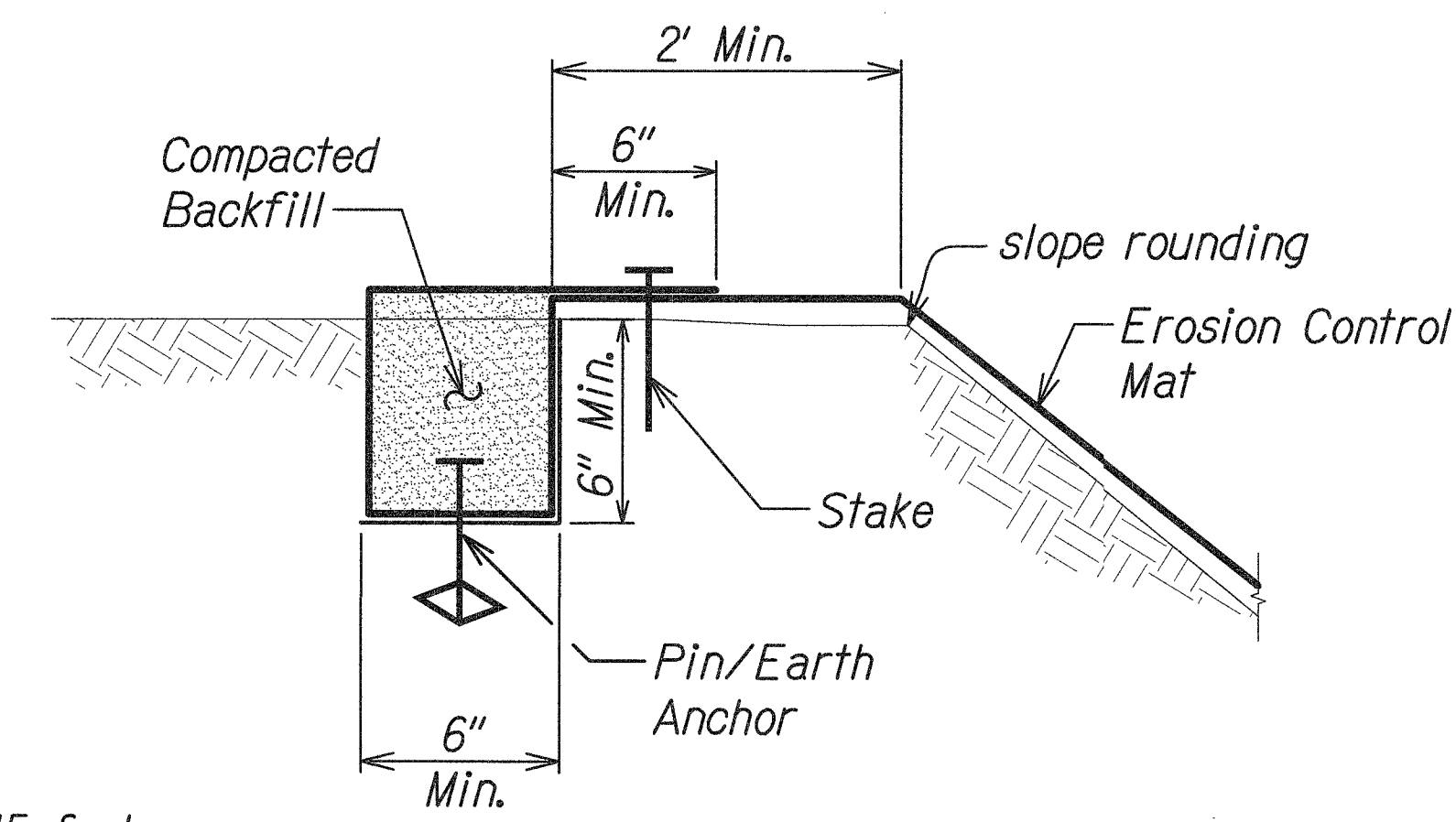


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	15	65

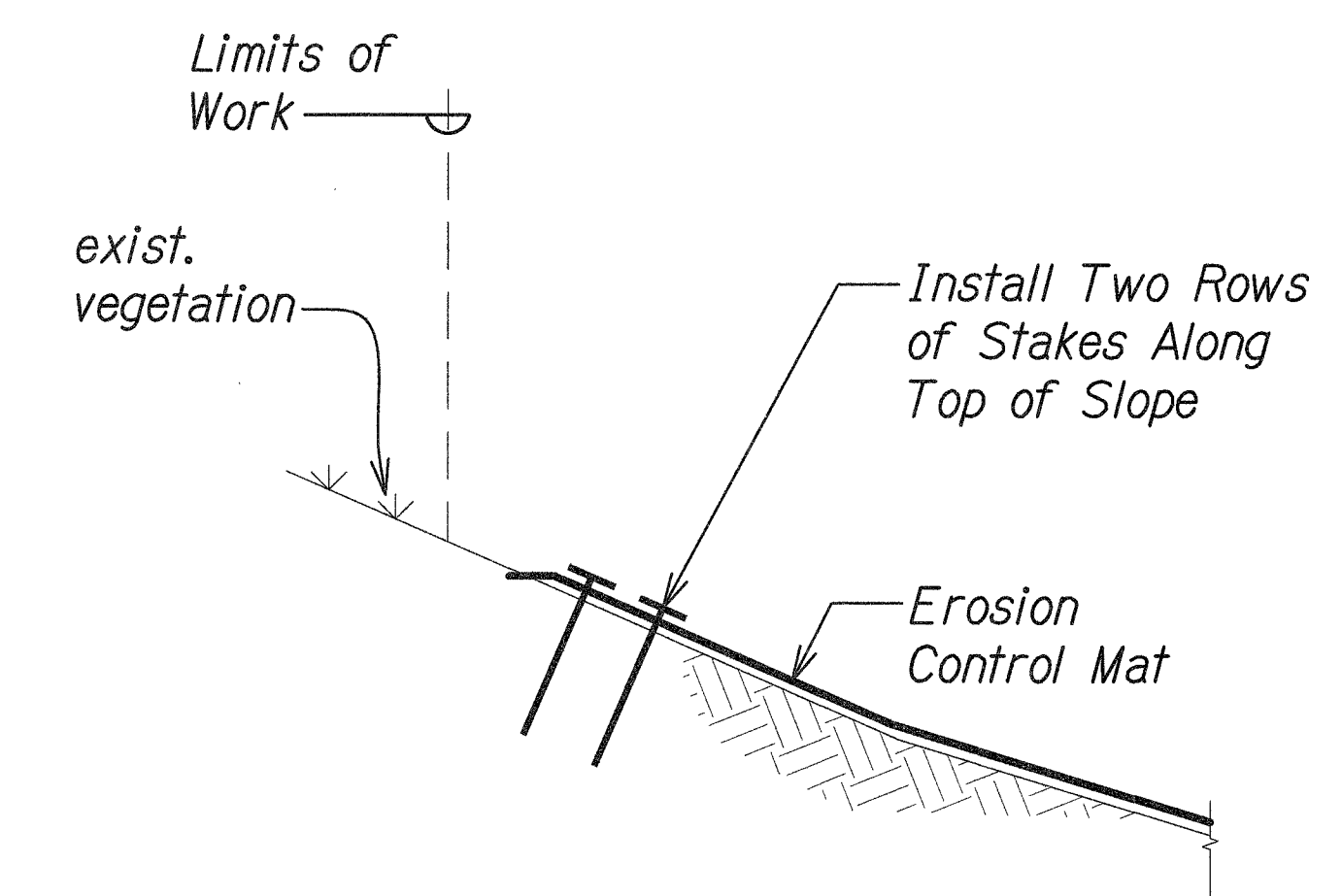


OVERVIEW OF PERMANENT EROSION CONTROL MATTING SYSTEM
Scale: Not to Scale 1
EC-01/EC-01

Notes:
1. For slopes with an overall height of 15 feet or more, the Contractor shall install velocity mitigation measures along the slope face conforming to the requirements of the State Construction BMP Field Manual SC-8.

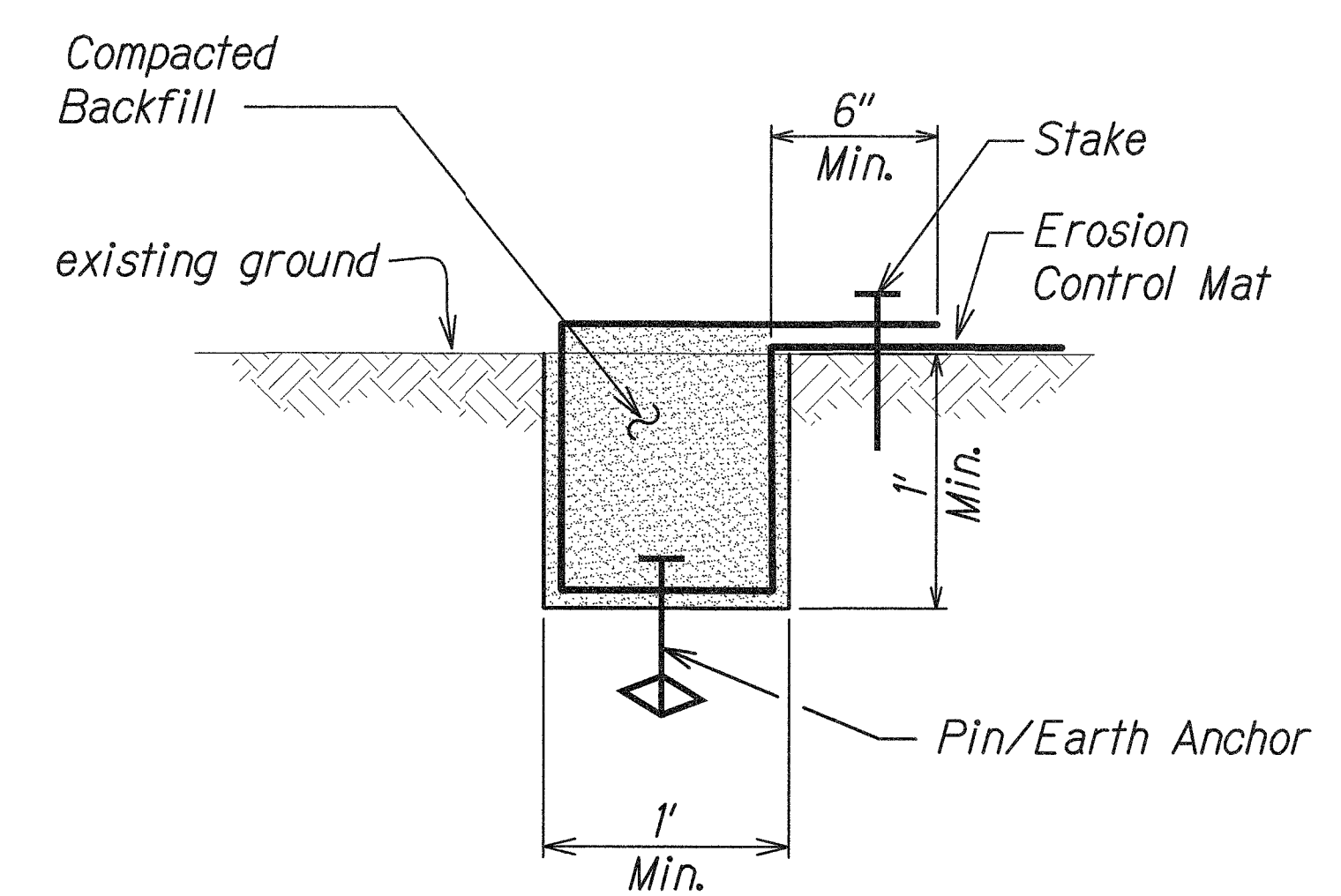


TOP ANCHOR TRENCH

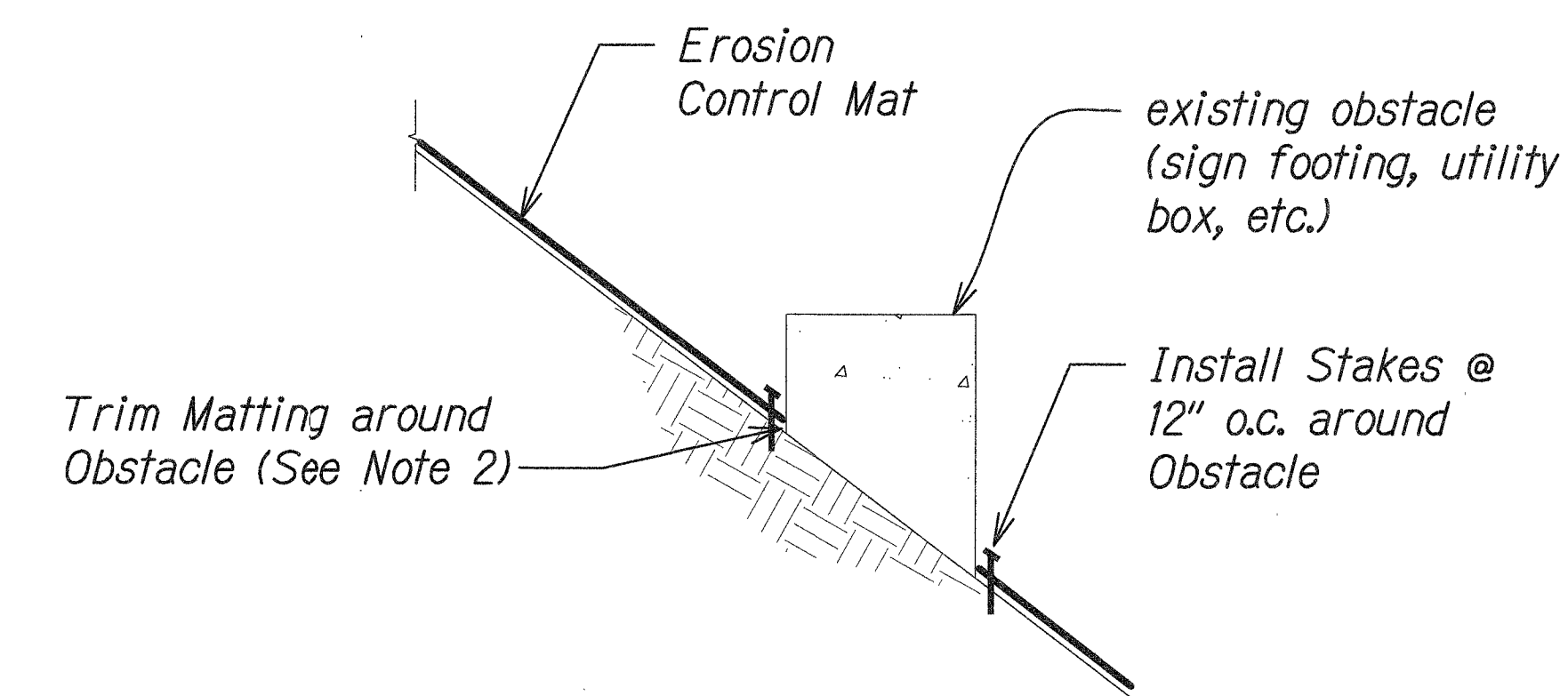


MID-SLOPE

TOP EDGE TREATMENT DETAILS
Scale: Not to Scale 2
EC-01/EC-01



LONGITUDINAL EDGE TRENCH DETAIL
Scale: Not to Scale 4
EC-01/EC-01



TYPICAL SECTION AROUND EXISTING OBSTACLES
Scale: Not to Scale 5
EC-01/EC-01

- Notes:**
1. Matting shall be placed and secured in direct contact with the finish grade.
 2. Maximum gap between edge of trimmed matting and obstacle shall be 1 inch.
 3. Contractor shall locate and expose exist. utility boxes prior to installing matting.
 4. For installation of matting around existing trees, see Landscape drawings.
 5. For temporary Type 3 ECM, anchor trenches are not required. In lieu of top anchor trench, install 2 rows of stakes along top edge, offset at 12" o.c.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

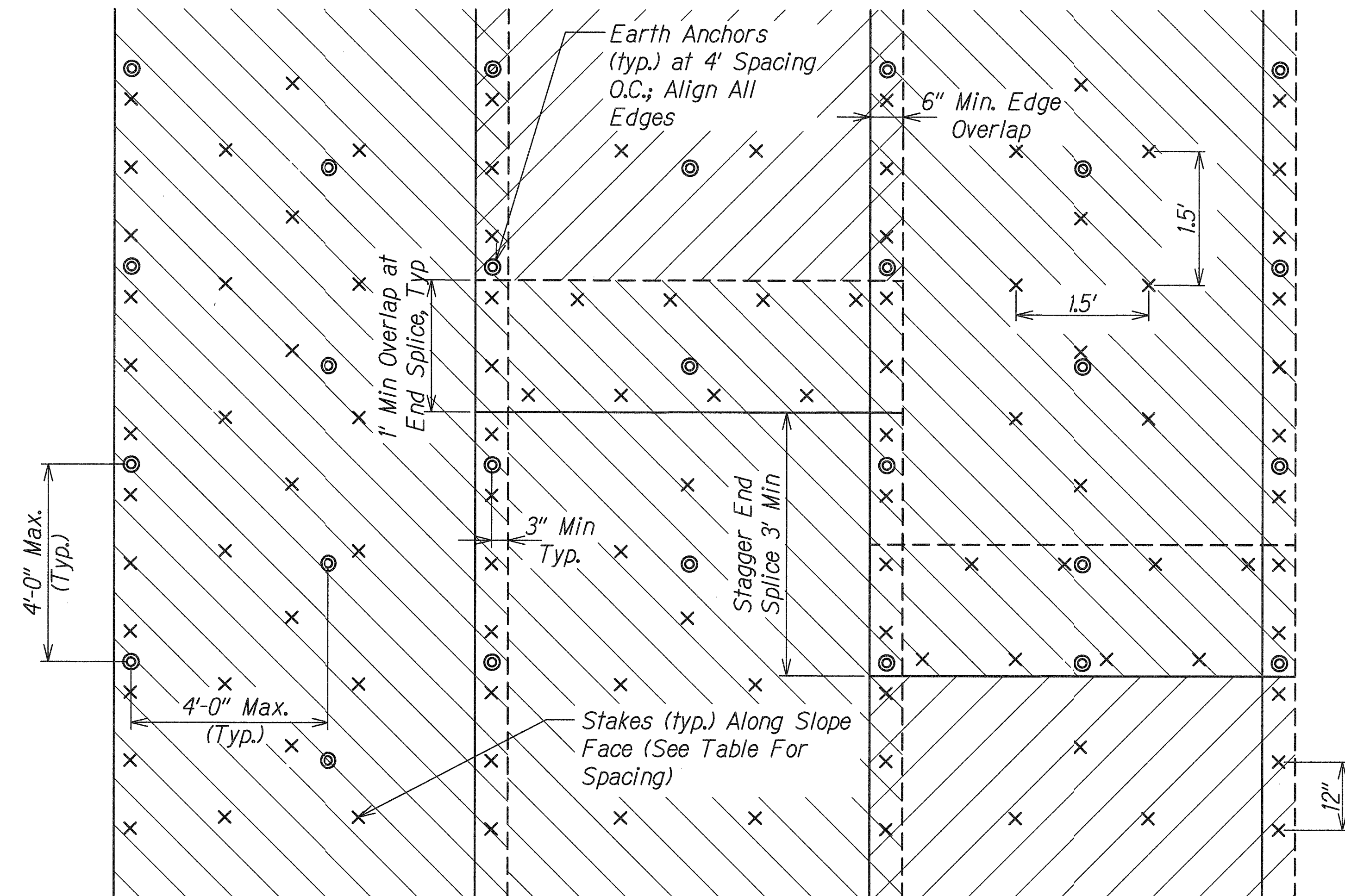
TYPICAL DETAILS
EROSION CONTROL MATTING
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: Not to Scale Date: April 2018

SHEET No. EC-01 OF 25 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
CHECKED BY	DESIGNED BY	
	QUANTITIES BY	

12. EROSION CONTROL MATTING DETAILS (DWG. 3/27/2018 2:05:59 PM)

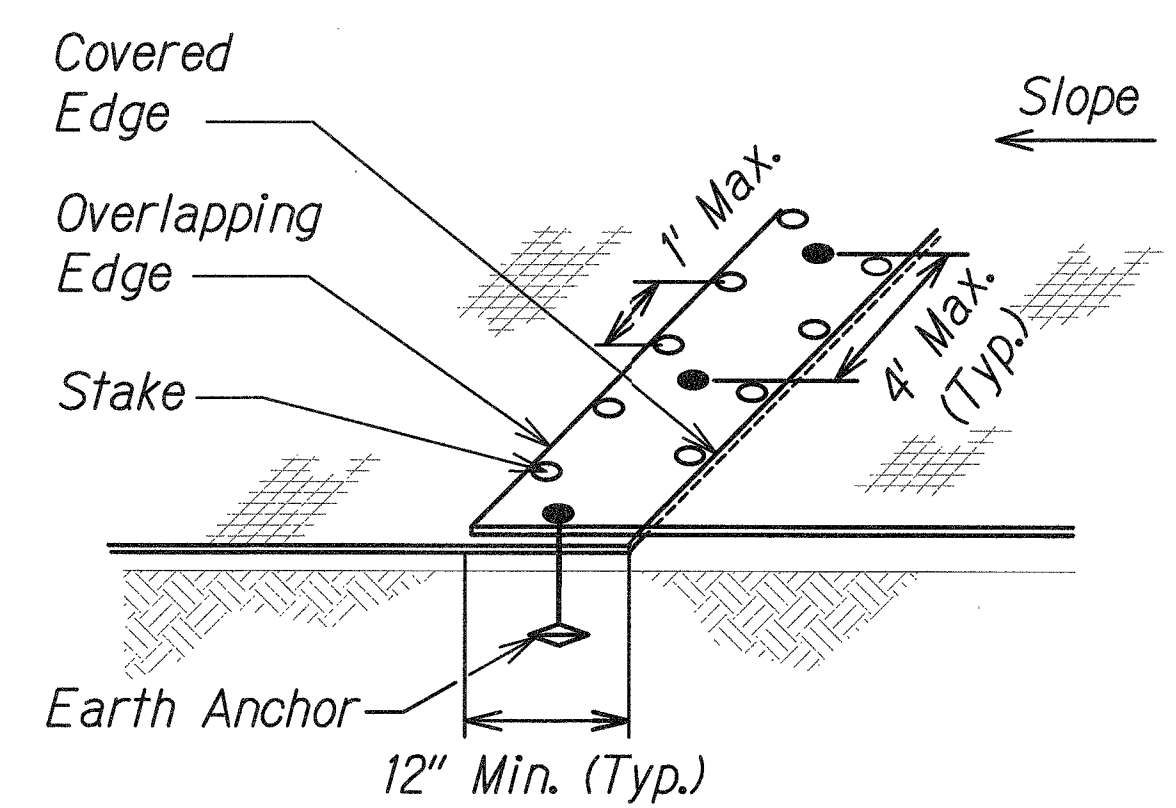
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	16	65



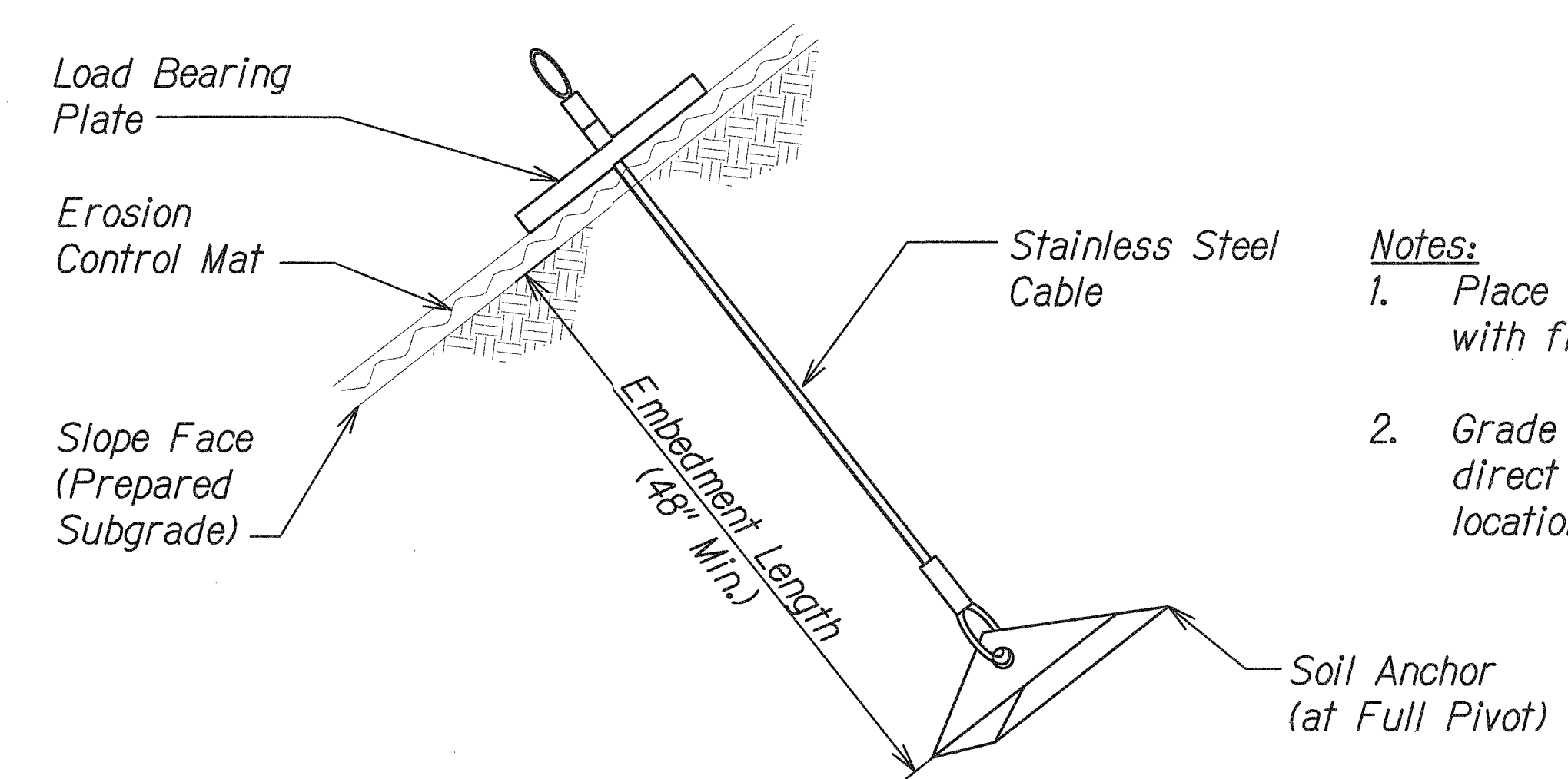
Max. Stake/Earth Anchor Spacing (See Note 1)		
Fastener Type	Along Slope Face	Top, Bottom & Edge Trenches
Stakes	1.5'	-
Earth Anchor	4'	4'

- Notes:**
- Secure all erosion control mat edges with stakes and earth anchors at the spacing indicated or the manufacturer's recommended spacing, whichever is more stringent.
 - Stakes shall be a minimum of 12" in length.
 - Stake shall be made of a biodegradable polypropylene-based resin as indicated in Section 659.
 - For PID 521, install Type 1 ECM using stakes to secure the matting to the slope face.
 - For PID 149, install Type 2 ECM using stakes and percussion driven earth anchors to secure the matting to the slope face.
 - Earth anchors in trenches shall extend a minimum depth of 3' from the slope face.
 - Earth anchors along the slope face shall be installed per row to alternating depths of 4' and 6' from the slope face.

TYPICAL PERMANENT EROSION CONTROL MAT AND EARTH ANCHOR/STAKE LAYOUT
Scale: Not to Scale



OVERLAP END DETAIL
Scale: Not to Scale



EARTH ANCHOR DETAIL
Scale: Not to Scale

- Notes:**
- Place erosion control mat in direct contact with finish grade.
 - Grade and shave existing ground to allow direct contact of erosion control mat at all locations.

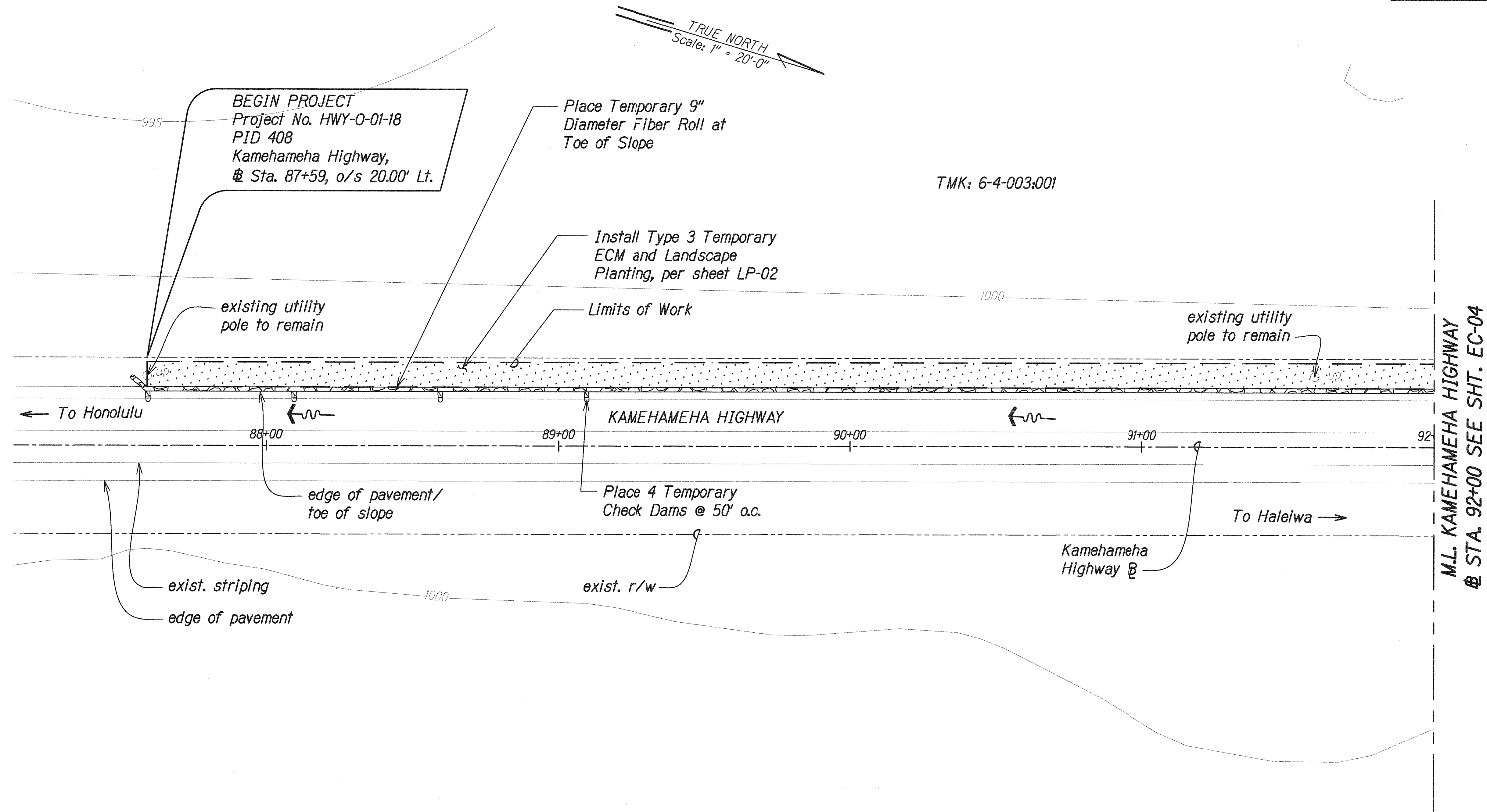
4/30/18

This work was prepared by me or under my supervision.

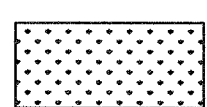
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
EROSION CONTROL MATTING
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: Not to Scale Date: April 2018

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	17	65



Legend



Type 3 Temporary ECM
and Landscape Planting

TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN PID 408

Scale: 1" = 20'-0"

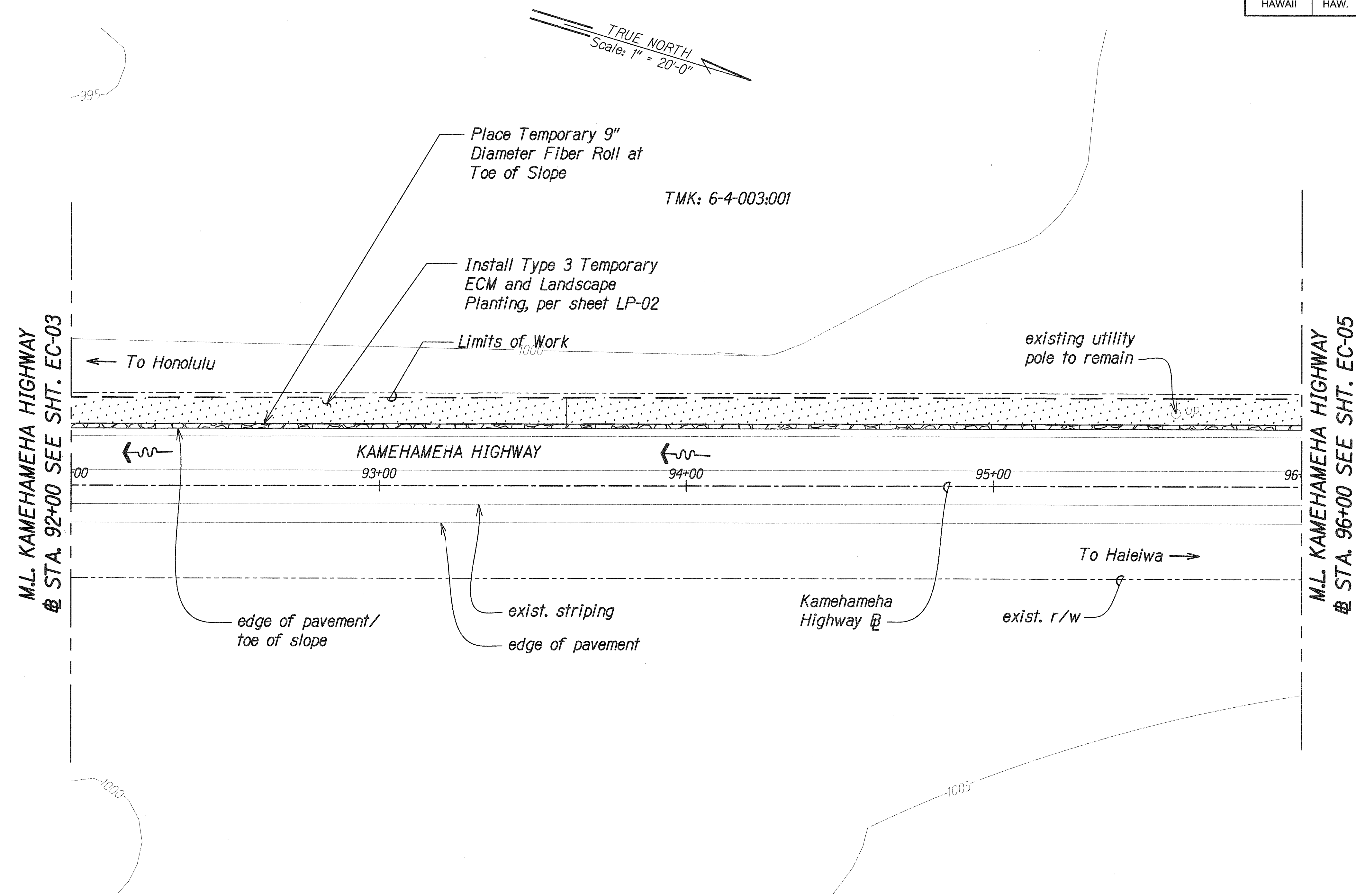
Notes:

- Contractor shall field verify site conditions and ECM limits.
- For ECM details, see Sheets EC-01 & EC-02.
- For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.

	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	TEMP. EC AND PERMANENT BMP PLAN
	PID 408
	SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 8 Project No. HWY-O-01-18 Scale: 1" = 20'-0" Date: April 2018

SHEET No. EC-03 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	18	65



Legend

Type 3 Temporary ECM and Landscape Planting

TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN
PID 408
 Scale: 1" = 20'-0"

- Notes:**
- Contractor shall field verify site conditions and ECM limits.
 - For ECM details, see Sheets EC-01 & EC-02.
 - For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
TRACED BY		
DESIGNED BY		
CHECKED BY		
NO. _____		

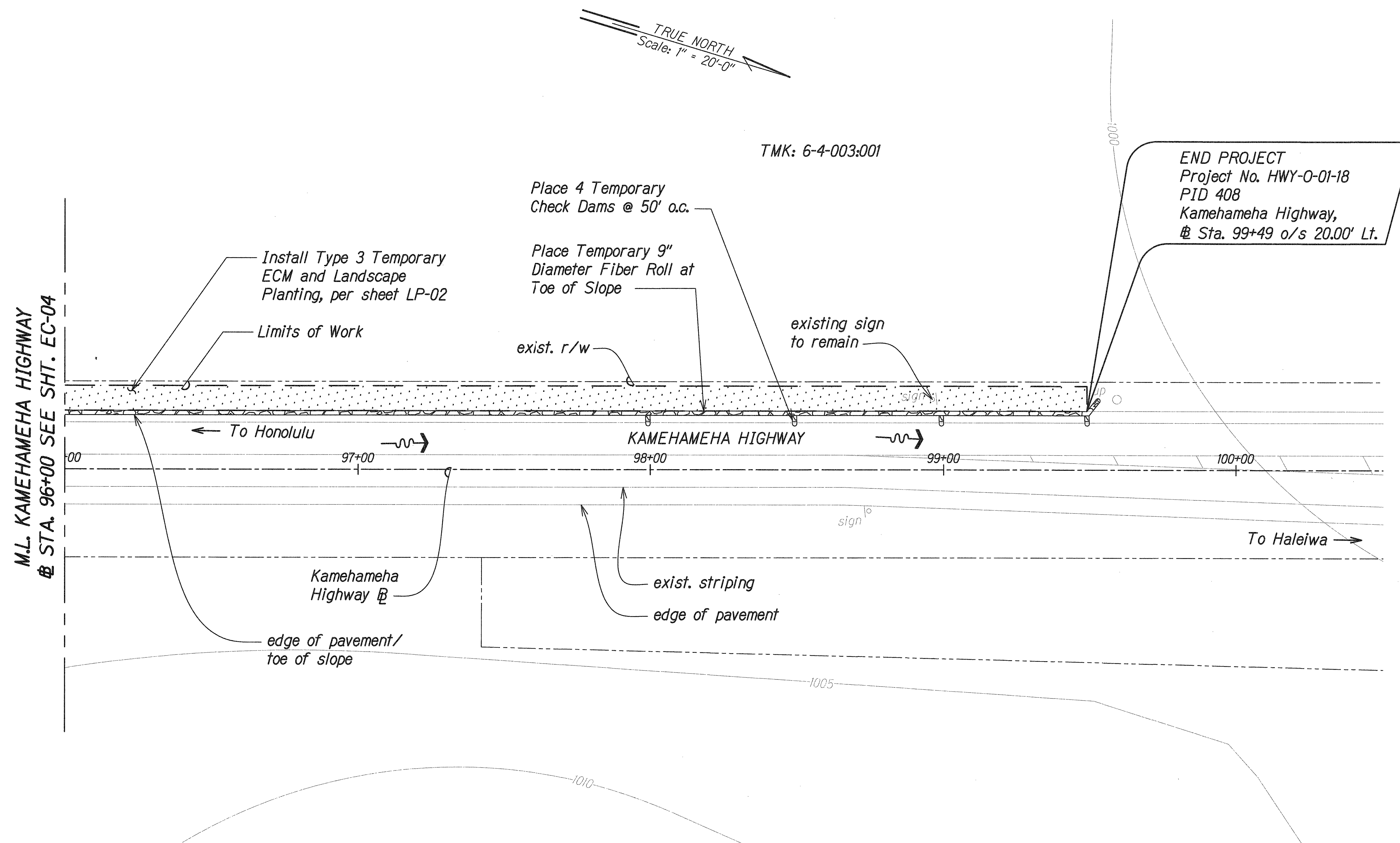
4/30/18

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMP. EC AND PERMANENT BMP PLAN
PID 408
 SLOPE IMPROVEMENTS FOR EROSION CONTROL
 AT VARIOUS SITES ON OAHU, PHASE 8
 Project No. HWY-O-01-18
 Scale: 1" = 20'-0" Date: April 2018

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	19	65



Legend



Type 3 Temporary ECM
and Landscape Planting

TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN

PID 408

Scale: 1" = 20'-0"

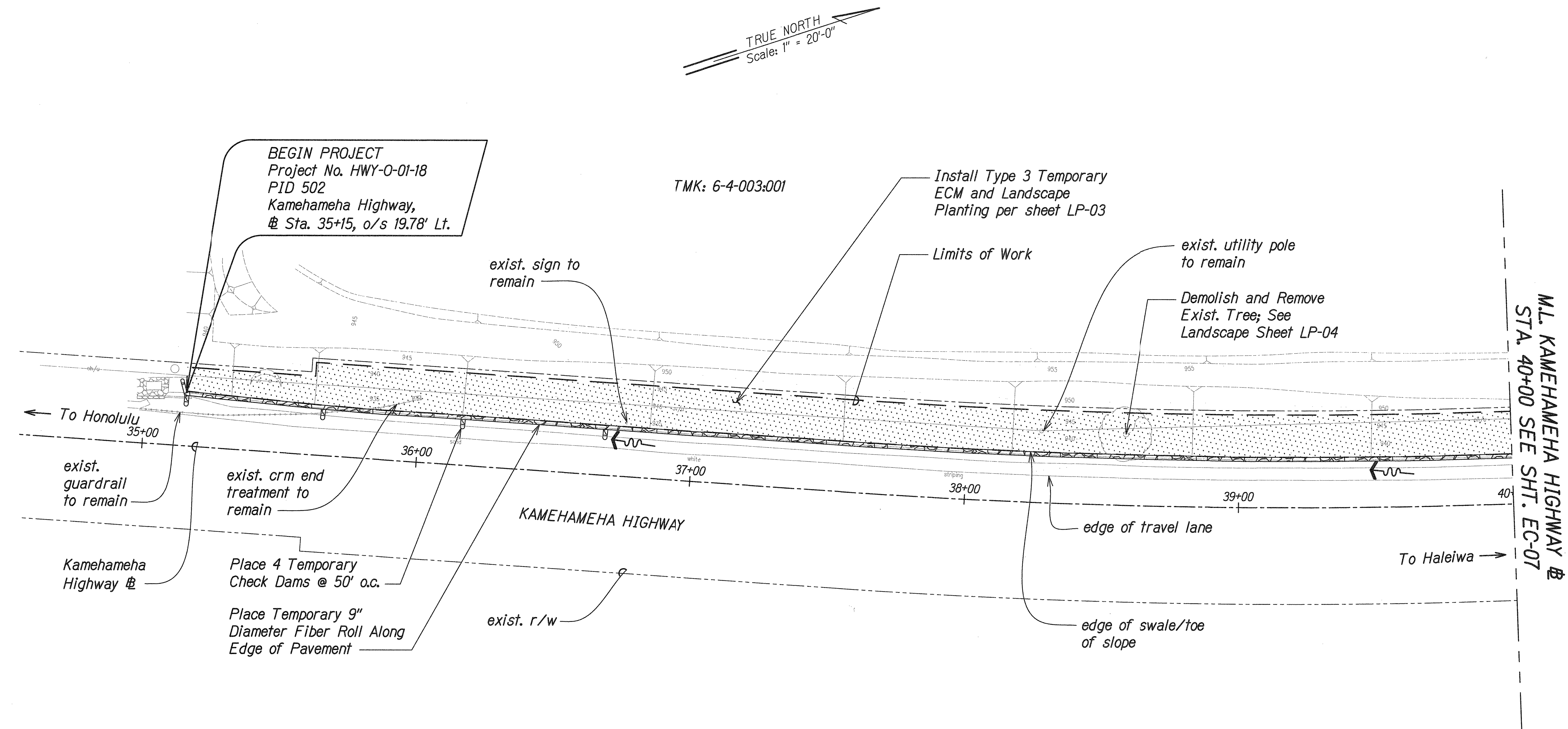
Notes:

- Contractor shall field verify site conditions and ECM limits.
- For ECM details, see Sheets EC-01 & EC-02.
- For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.


ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
22 ECP PID 408/18 3/29/2018 12:20:41 AM	

<p>4/30/18</p> <p>This work was prepared by me or under my supervision.</p>	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TEMP. EC AND PERMANENT BMP PLAN PID 408 SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 8 Project No. HWY-O-01-18 Scale: 1" = 20'-0" Date: April 2018
	SHEET No. EC-05 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	20	65



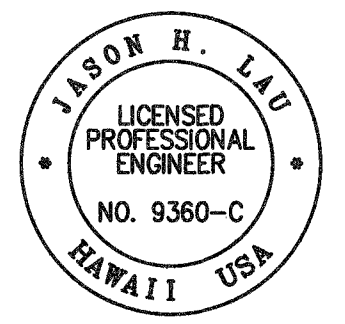
Legend

 Type 3 Temporary ECM and Landscape Planting

TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN
PID 502
 Scale: 1" = 20'-0"

- Notes:**
- Contractor shall field verify site conditions and ECM limits.
 - For ECM details, see Sheets EC-01 & EC-02.
 - For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	



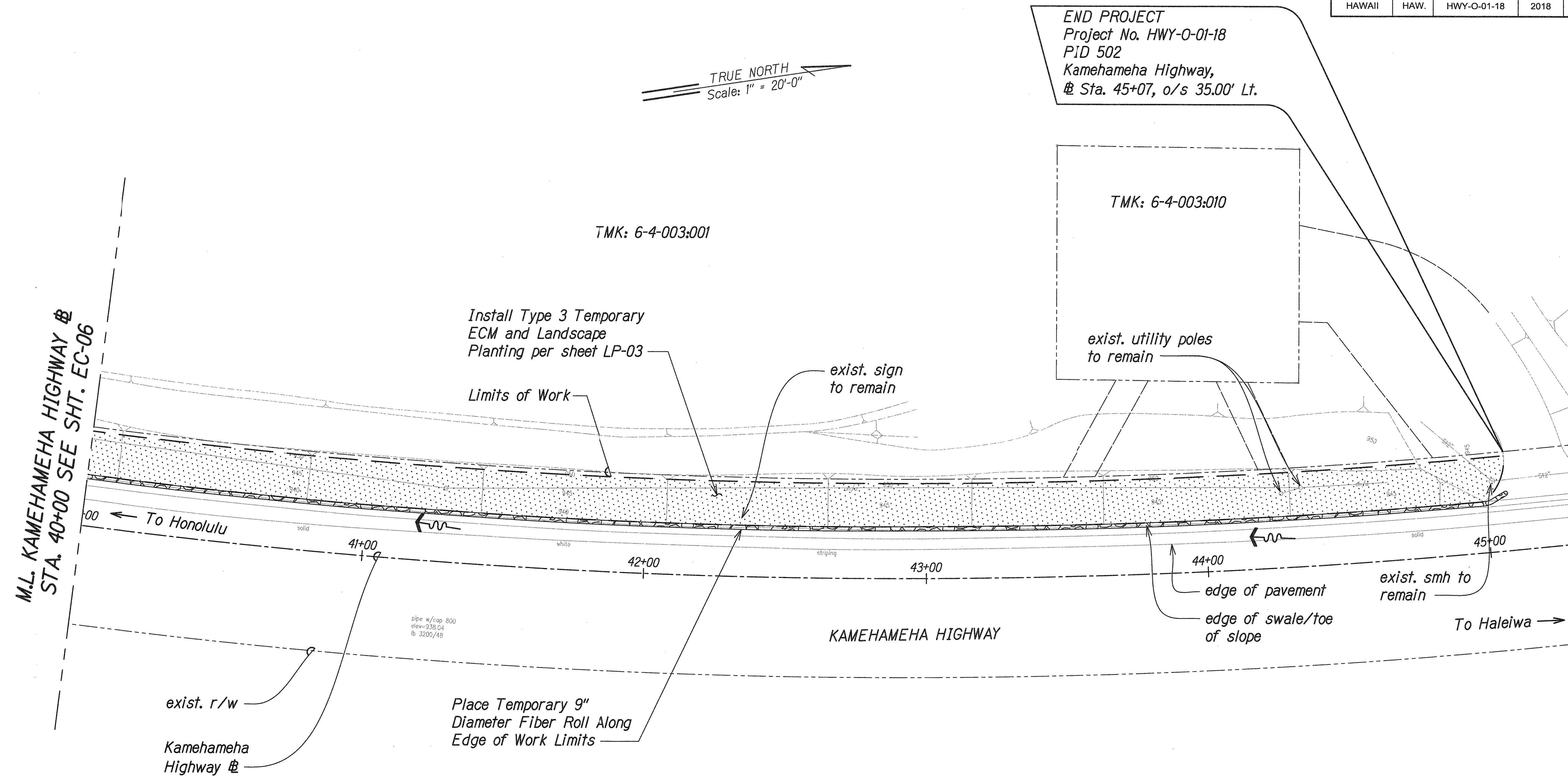
4/30/18
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

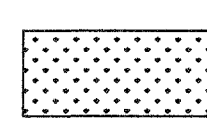
TEMP. EC AND PERMANENT BMP PLAN
PID 502
 SLOPE IMPROVEMENTS FOR EROSION CONTROL
 AT VARIOUS SITES ON OAHU, PHASE 8
 Project No. HWY-O-01-18
 Scale: 1" = 20'-0" Date: April 2018

SHEET No. EC-06 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	21	65



Legend

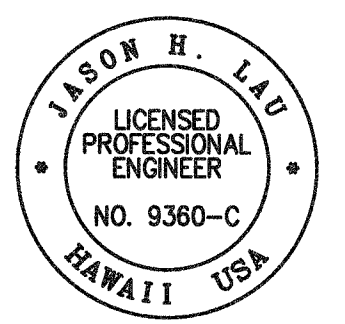
 Type 3 Temporary ECM and Landscape Planting

TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN PID 502

Scale: 1" = 20'-0"

Notes:

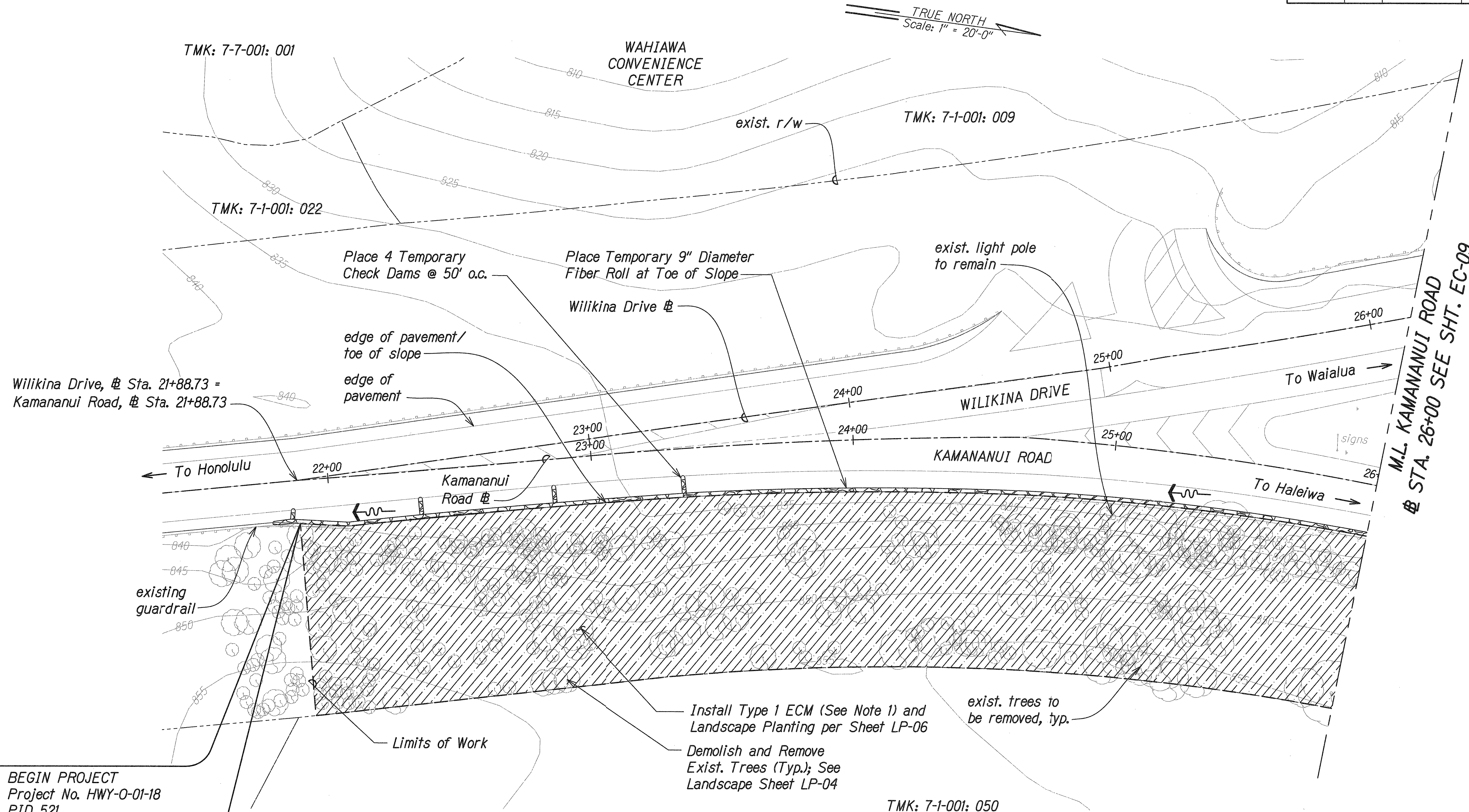
- Contractor shall field verify site conditions and ECM limits.
- For ECM details, see Sheets EC-01 & EC-02.
- For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.

 4/30/18 This work was prepared by me or under my supervision.	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION TEMP. EC AND PERMANENT BMP PLAN PID 502 SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 8 Project No. HWY-O-01-18 Scale: 1" = 20'-0" Date: April 2018
	SHEET No. EC-07 OF 25 SHEETS
	21
	21

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
DATE	

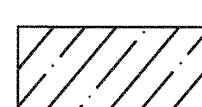
21LECP PID 502 18/04/2018 10:52 AM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	22	65



BEGIN PROJECT
Project No. HWY-O-01-18
PID 521
Kamananui Road,
Sta. 21+88 o/s 16.40' Rt.

Legend



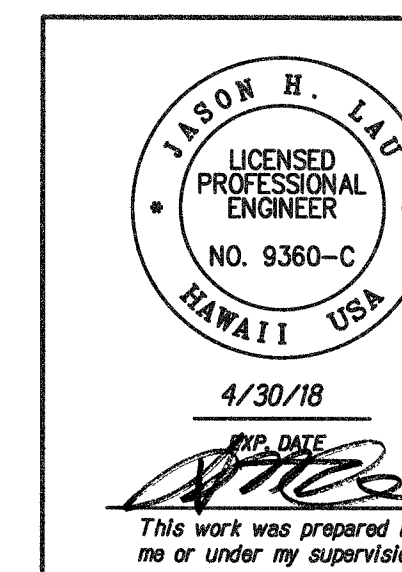
Type 1 ECM and
Landscape Planting

Notes:

- Contractor shall field verify site conditions and ECM limits.
- For ECM details, see Sheets EC-01 & EC-02.
- For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.

**TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN
PID 521**

Scale: 1" = 20'-0"

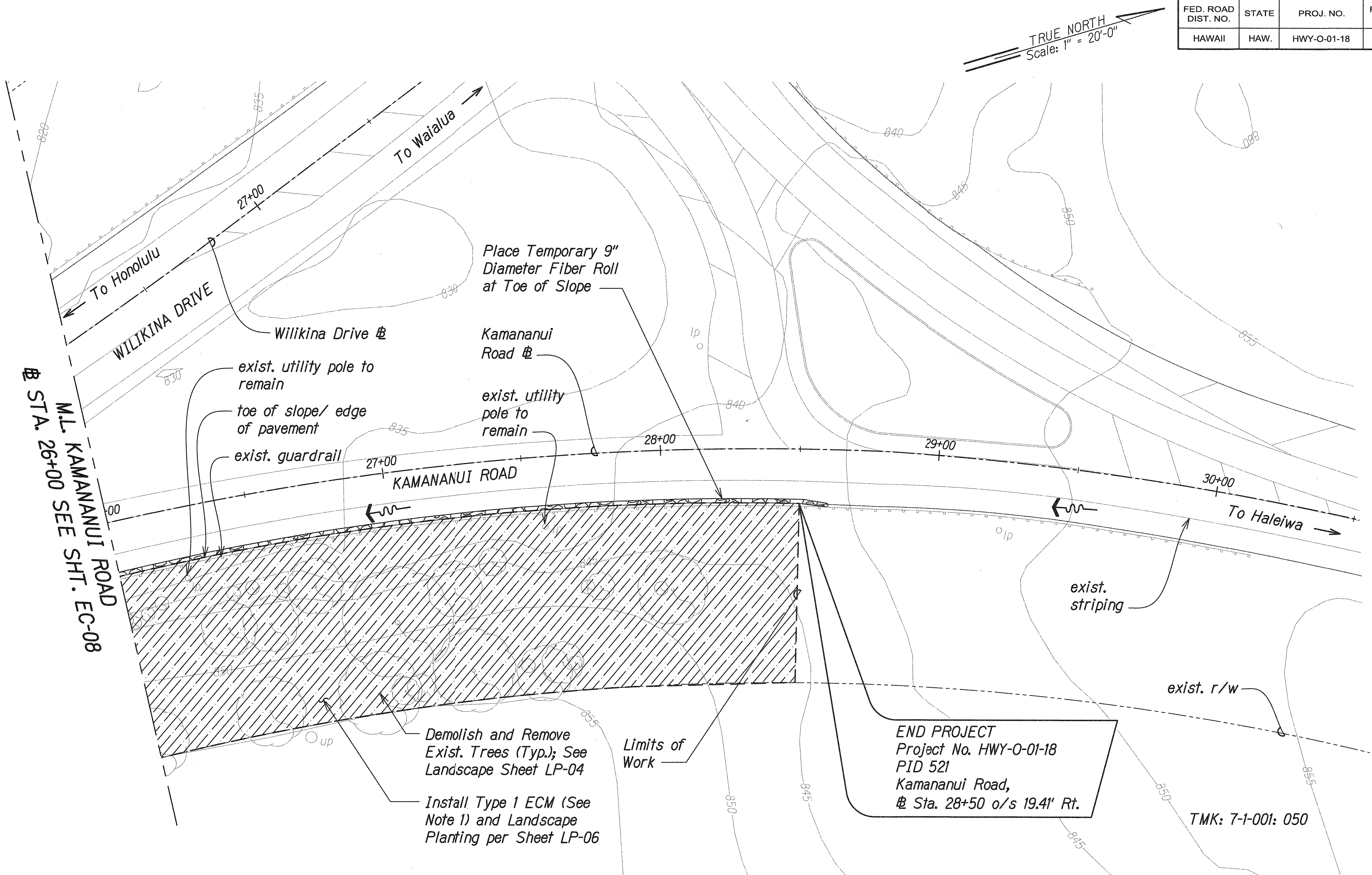


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TEMP. EC AND PERMANENT BMP PLAN

PID 521
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: 1" = 20'-0" Date: April 2018

SHEET No. EC-08 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	23	65



TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN
PID 521
 Scale: 1" = 20'-0"

- Notes:**
- Contractor shall field verify site conditions and ECM limits.
 - For ECM details, see Sheets EC-01 & EC-02.
 - For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.

Legend

Type 1 ECM and Landscape Planting

SURVEY PLOTTED BY	DATE
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DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
DATE	

4/30/18

[Signature]

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMP. EC AND PERMANENT BMP PLAN

PID 521

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8

Project No. HWY-O-01-18
Date: April 2018

Scale: 1" = 20'-0"

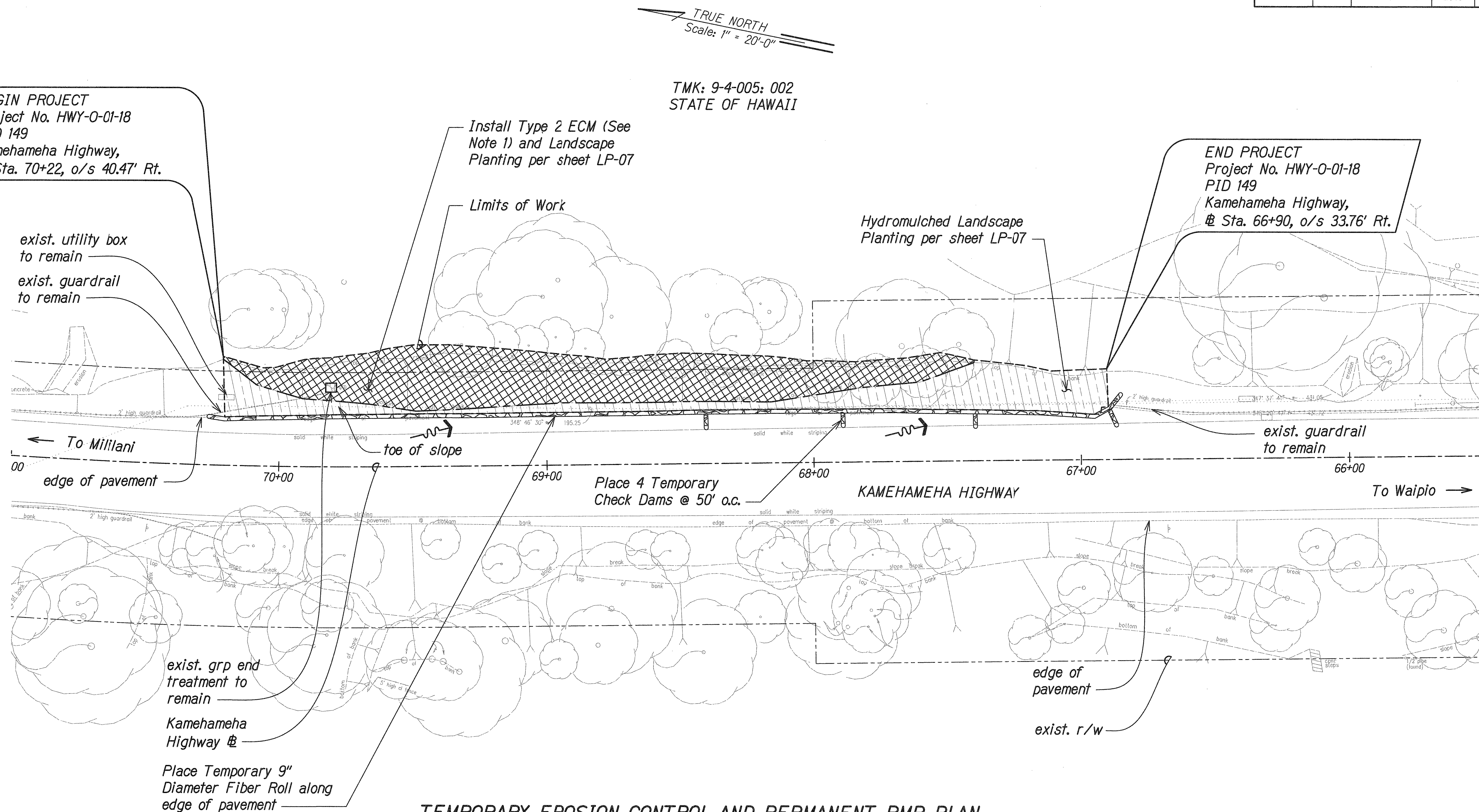
SHEET No. EC-09 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	24	65

BEGIN PROJECT
Project No. HWY-O-01-18
PID 149
Kamehameha Highway,
@ Sta. 70+22, o/s 40.47' Rt.

TMK: 9-4-005: 002
STATE OF HAWAII

END PROJECT
Project No. HWY-O-01-18
PID 149
Kamehameha Highway,
@ Sta. 66+90, o/s 33.76' Rt.



TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN
PID 149

Scale: 1" = 20'-0"

Legend

- Hydromulch Landscape Planting
- Type 2 ECM and Landscape Planting

Notes:

- Contractor shall field verify site conditions and ECM limits.
- For ECM details, see Sheets EC-01 & EC-02.
- For installation of ECM around obstacles, see Detail 5 on Sheet EC-01.

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
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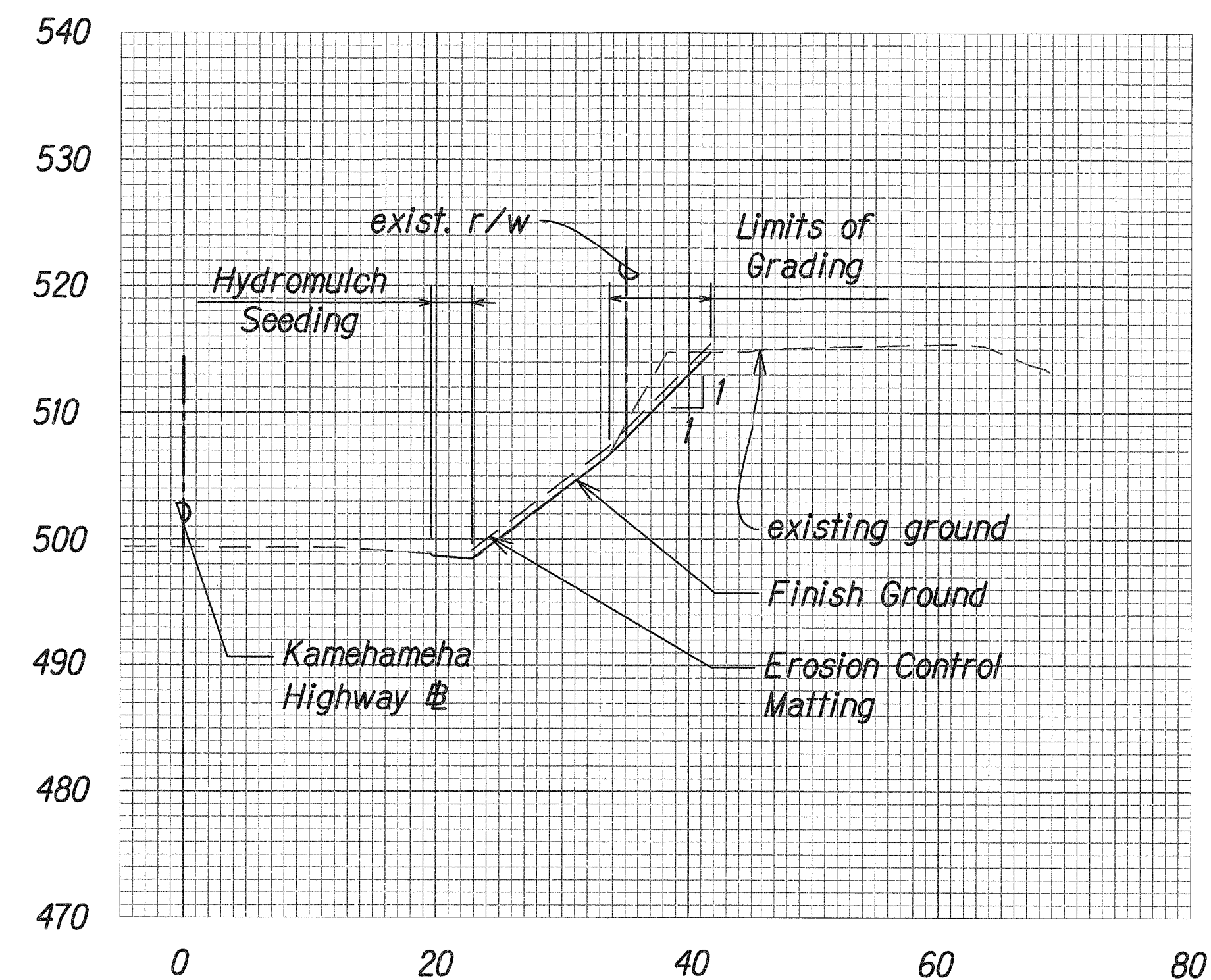
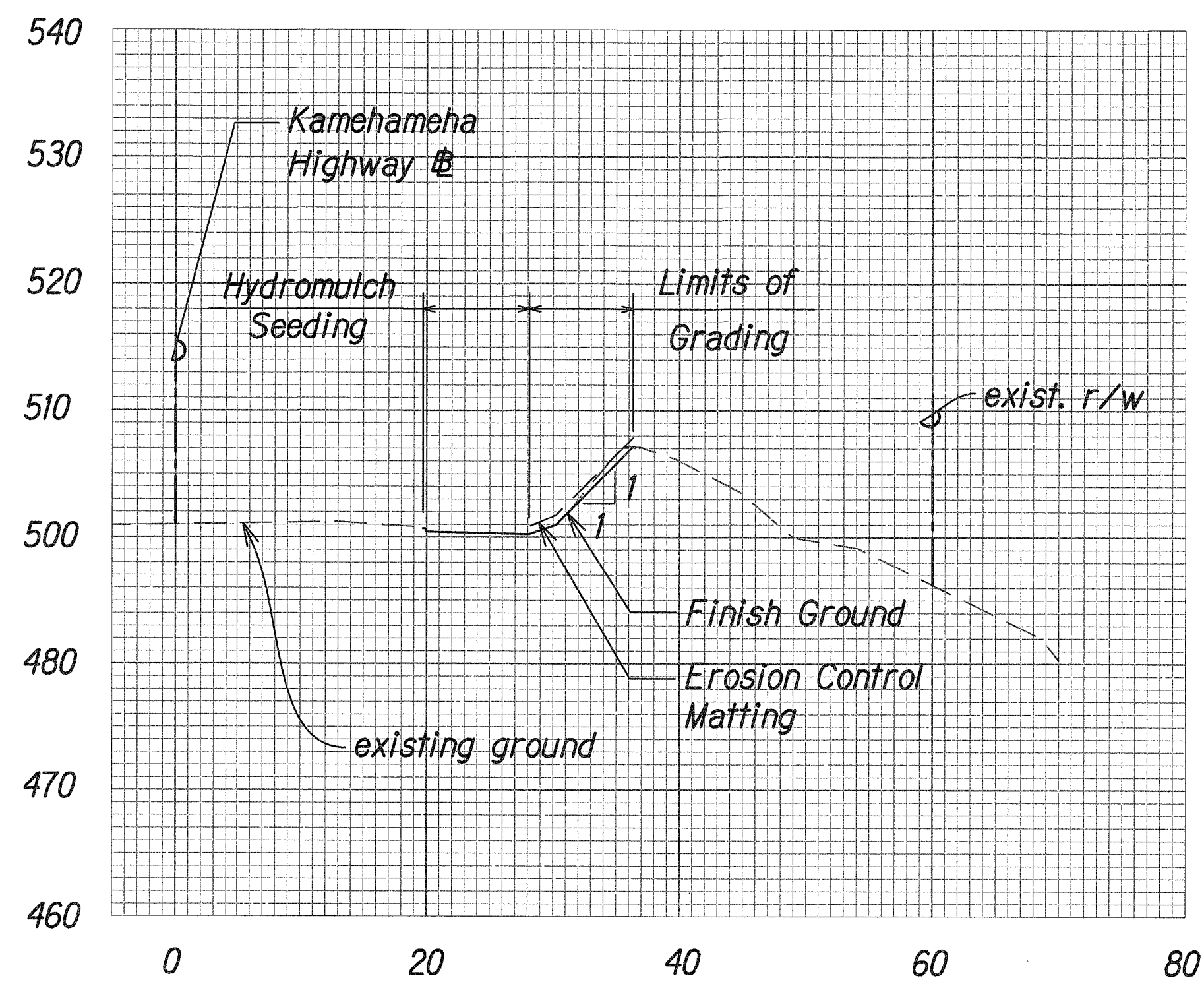
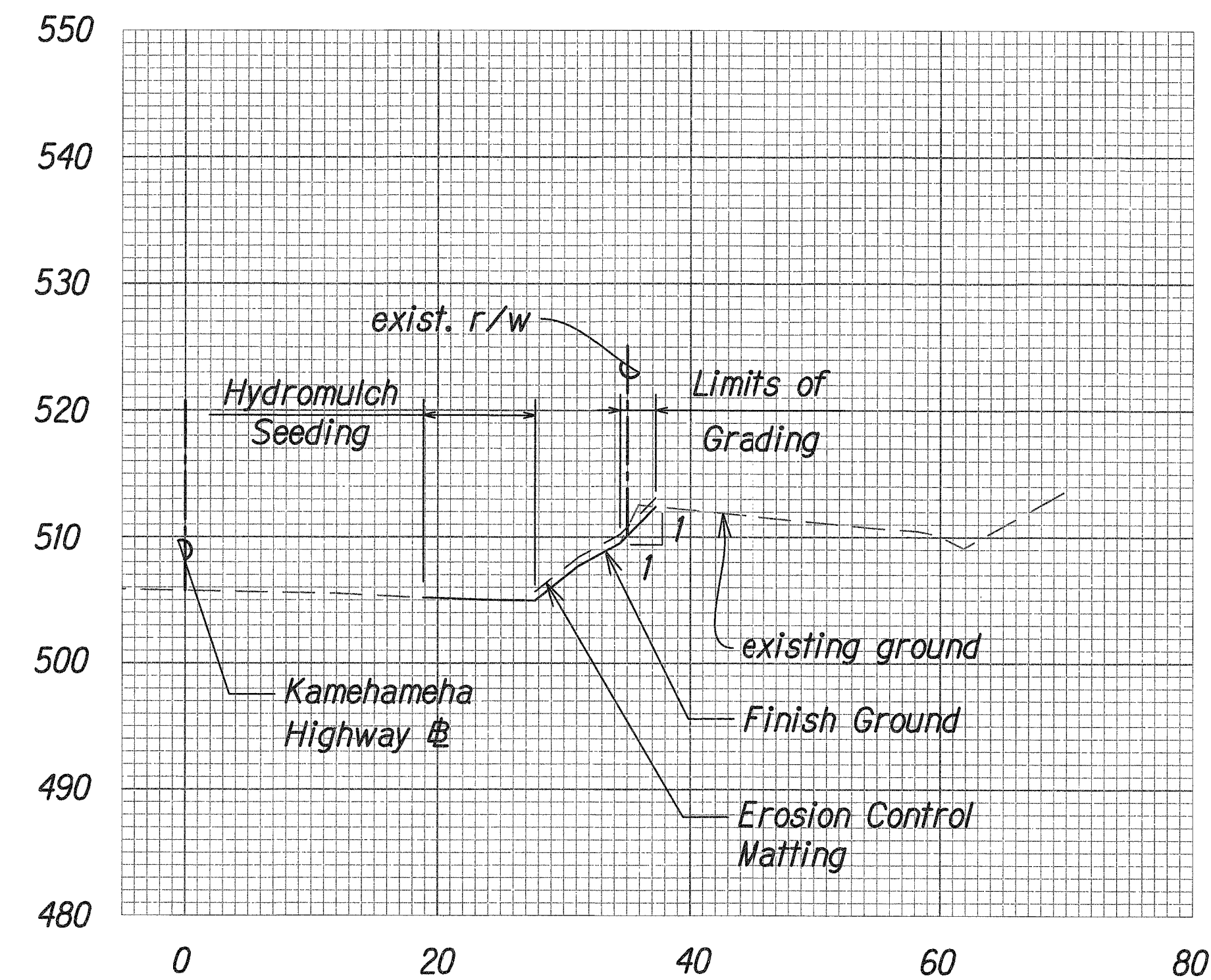
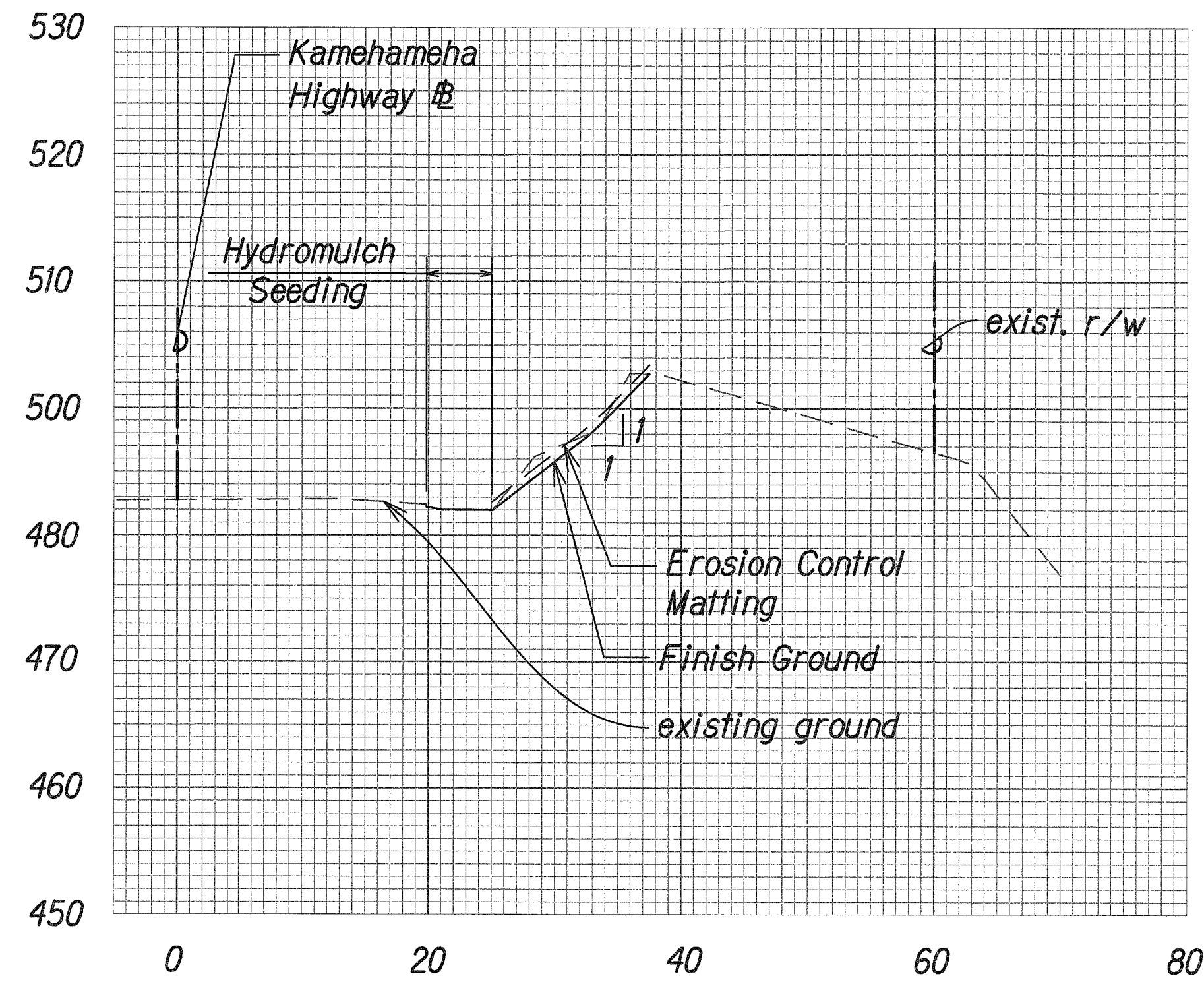
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMP. EC AND PERMANENT BMP PLAN
PID 149

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: 1" = 20'-0" Date: April 2018

SHEET No. EC-10 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	26	65



**CROSS SECTIONS
PID 149**

Scale: Horiz. 1" = 10'-0"
Vert. 1" = 10'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

27 GRADING PID 149 JWS 3/27/2018 12:43 PM

4/30/18
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**CROSS SECTIONS
PID 149**

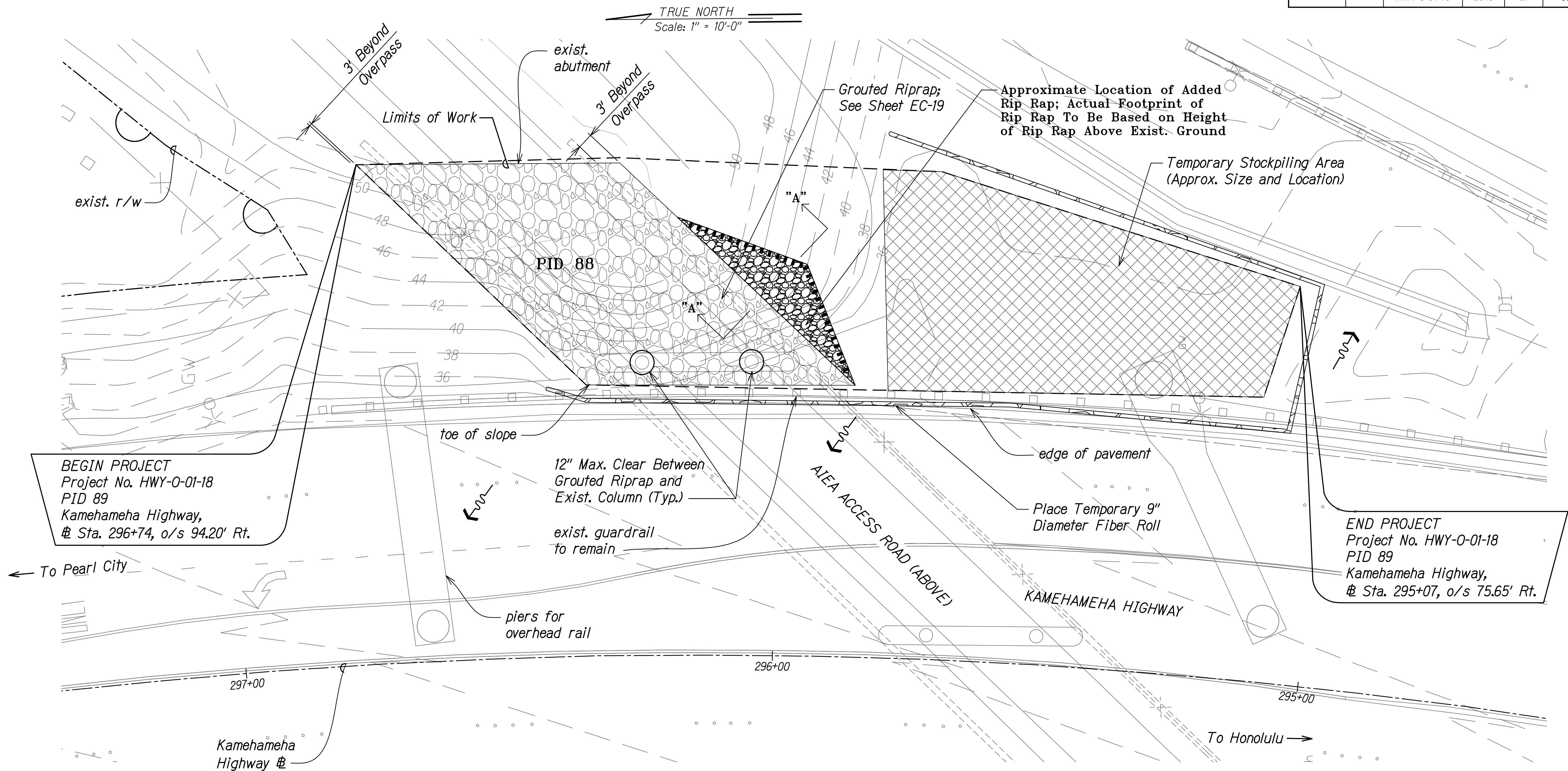
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8

Project No. HWY-O-01-18
Date: April 2018

Scale: 1" = 20'-0"

SHEET No. EC-12 OF 25 SHEETS

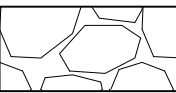

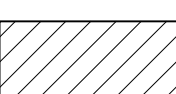

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	27	65





Note:
 1. The Contractor shall adjust staging/stockpiling area as required for construction.

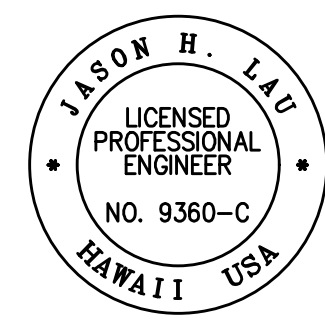
TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN
PID 89
 Scale: 1" = 10'-0"

Legend

- | | | | |
|---|--------------------------|---|-----------------------------------|
|  | Grouted Riprap |  | Rip Rap Edge Embedment (12" min.) |
|  | Staging/Stockpiling Area |  | Proposed Rip Rap Addition |

LEGEND FOR AS-BUILT POSTINGS

- | | |
|---|-------------------------------------|
|  | Squiggly line for as-built deletion |
|  | Double line for as-built deletion |
| Roadway | Text for as-built posting |



4/30/18
 EXP. DATE
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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

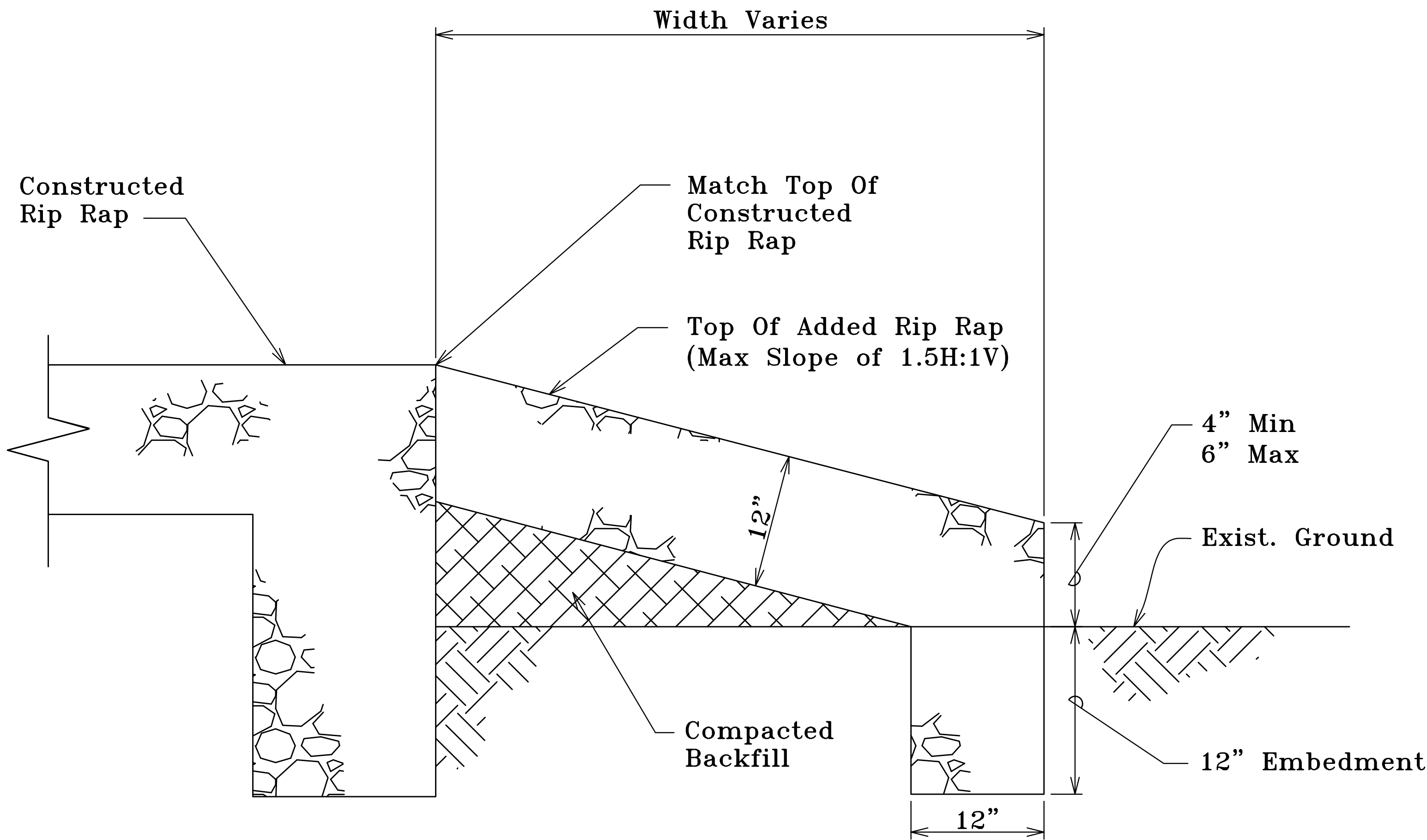
TEMP. EC AND PERMANENT BMP PLAN
PID 89
 SLOPE IMPROVEMENTS FOR EROSION CONTROL
 AT VARIOUS SITES ON OAHU, PHASE 8
 Project No. HWY-O-01-18
 Scale: 1" = 10'-0" Date: April 2018

SHEET No. EC-13 OF 25 SHEETS

DATE	____
DESIGNED BY	____
TRACED BY	____
NOTE BOOK	____
QUANTITIES BY	____
CHECKED BY	____
NO.	____

3/LECP PID 89/18 4/13/2018 2:04:06 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	27S-1	65

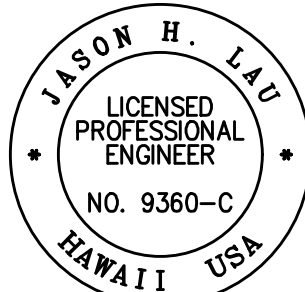


PID 89 SECTION "A-A"

Scale: Not to Scale

LEGEND FOR AS-BUILT POSTINGS

- ~~~~~ Squiggly line for as-built deletion
- ~~±00.00~~ Double line for as-built deletion
- Roadway Text for as-built posting



EXP. DATE
4/30/18
[Signature]
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me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SECTION VIEW "A-A"

PID 89

SLOPE IMPROVEMENTS FOR EROSION CONTROL

AT VARIOUS SITES ON OAHU, PHASE 8

Project No. HWY-O-01-18

Scale: Not to Scale

Date: April 2018

SHEET No. EC-13 OF 25 SHEETS

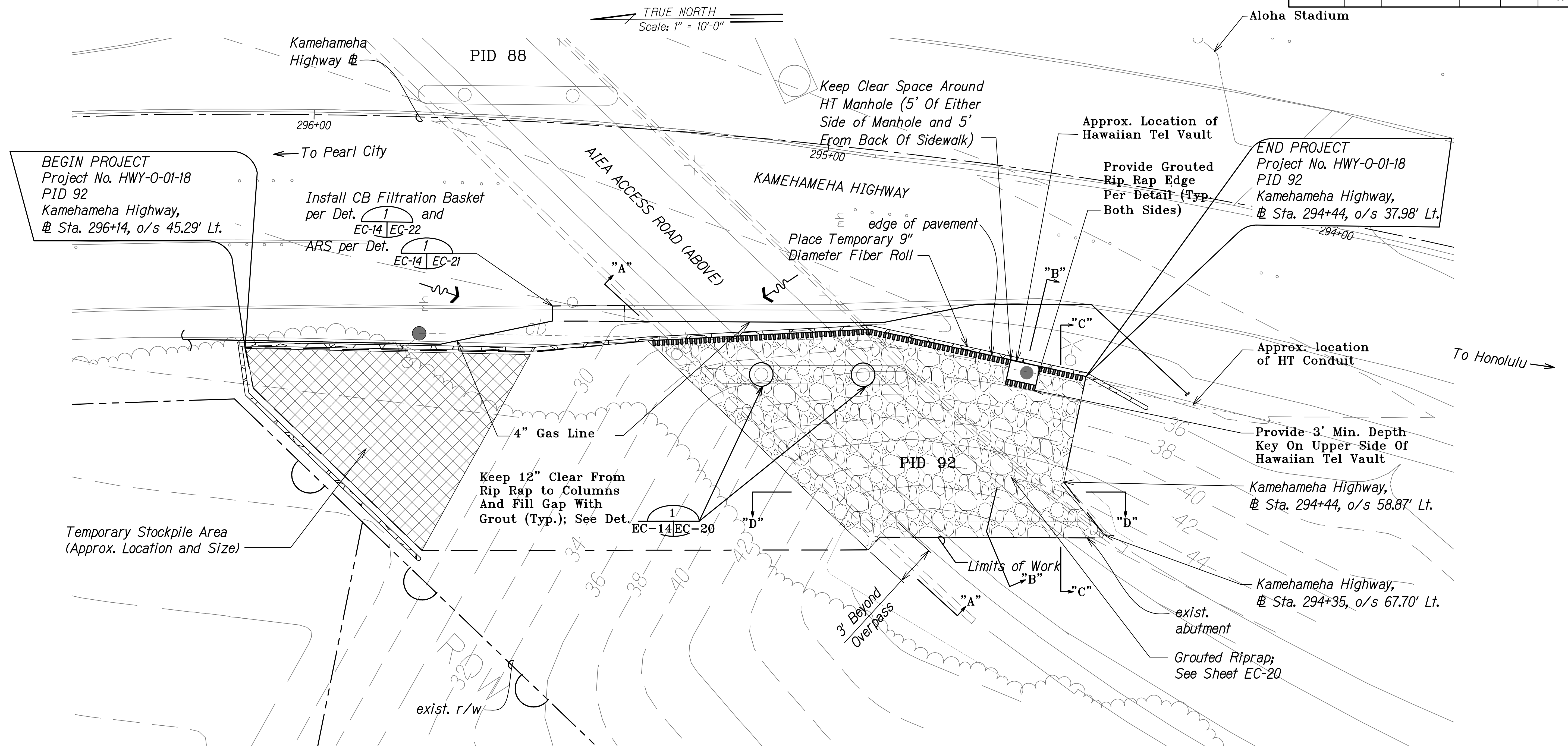
"AS-BUILT"

27S-1

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

03.PID 89 SECTION A-A.LWG 5/2/2022 11:59:58 AM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	28	65

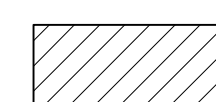


Note:
1. The Contractor shall adjust staging/stockpiling area as required for construction.

Legend



Grouted Riprap



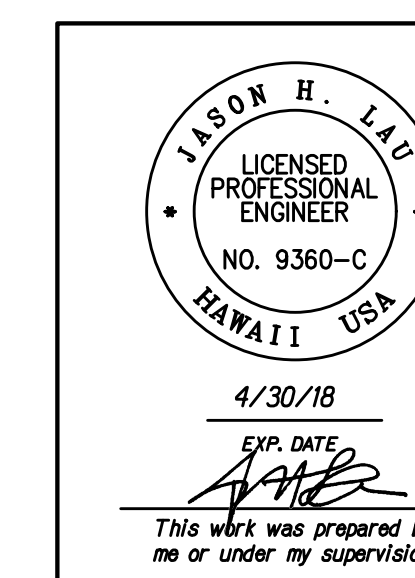
Staging/Stockpiling Area



Rip Rap Key
(3' Min. Depth)

LEGEND FOR AS-BUILT POSTINGS

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Double line for as-built deletion
Roadway Text for as-built posting

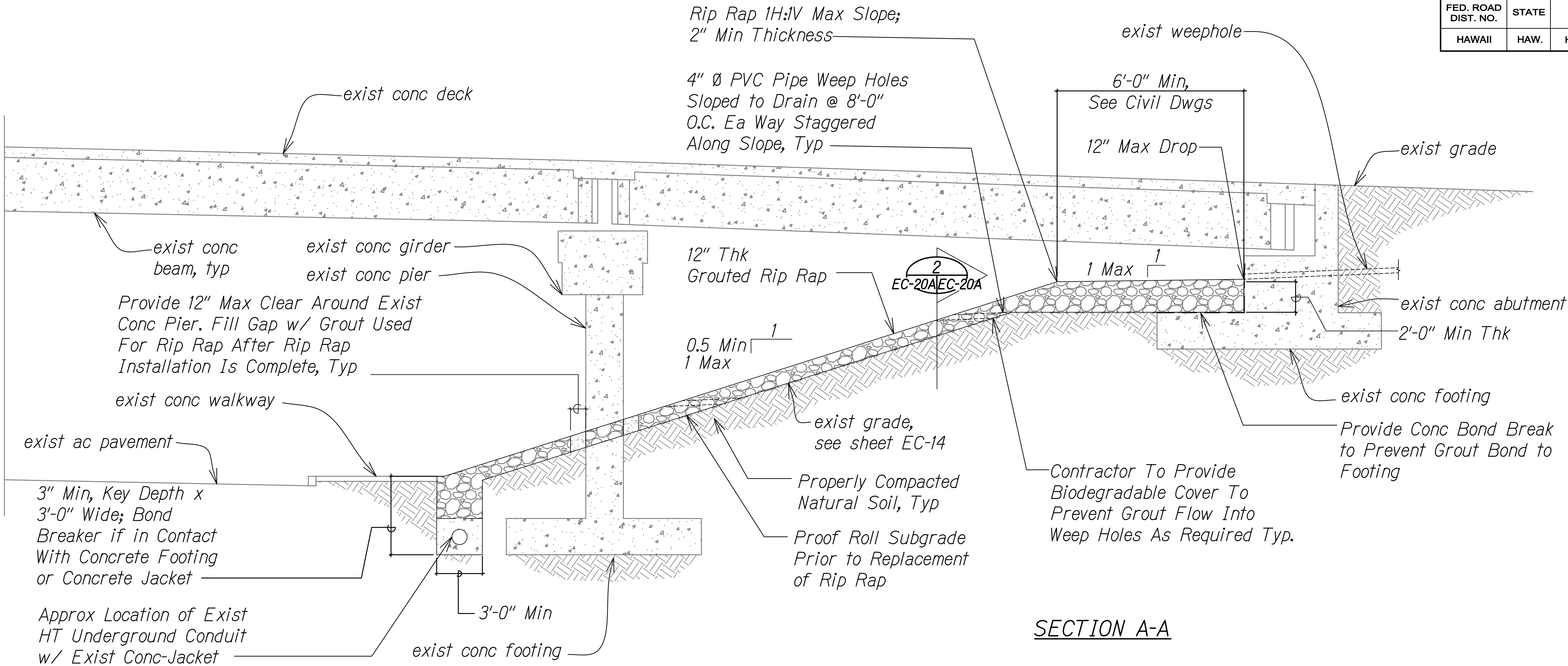


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMP. EC AND PERMANENT BMP PLAN
PID 92
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: 1" = 10'-0" Date: April 2018

SHEET No. EC-14 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	28S-1	65

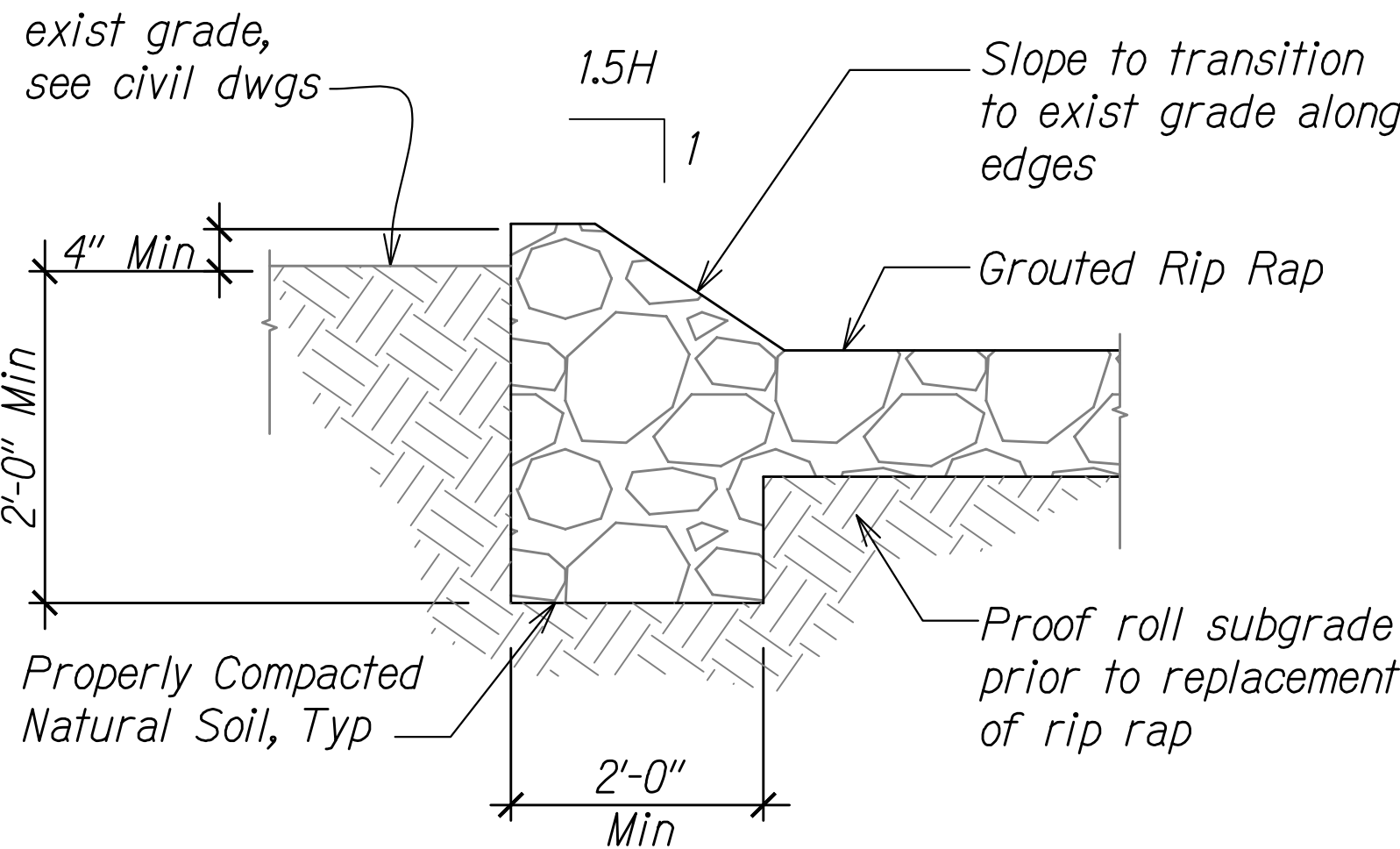


SECTION A-A
ERODED SLOPE REPAIR DETAIL - PID 92
Scale: 1/4" = 1'-0"

1
EC-20A/EC-20A

Notes:

1. For Grading Plan & Elevations, See Sheet EC-14.
2. Contractor Shall Not Damage Existing Conc Footing & Conc Abutment During Excavation For Grouted Rip Rap & 3B Fine.
3. The Back Filled Subgrade Adjacent to the Head of the Grouted Rip Rap Shall Be Compacted Between 90 & 95 Percent As Determined By ASTM D1557 and Consist of Low Permeable Soil, Such As the Onsite Clayey Silt.
4. Grout For Rip Rap Construction Shall Have A Minimum 28 Day Compressive Strength of 3,000 Psi U.N.O



SECTION @ GROUTED RIP RAP EDGE
Scale: 3/4" = 1'-0"

2
EC-20A/EC-20A

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

PROGRESS SET
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CONSTRUCTION

4/30/20
EXP. DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**ERODED SLOPE REPAIR DETAIL
PID 92**
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: As Shown Date: April 2018

SHEET No. EC-14 OF 25 SHEETS

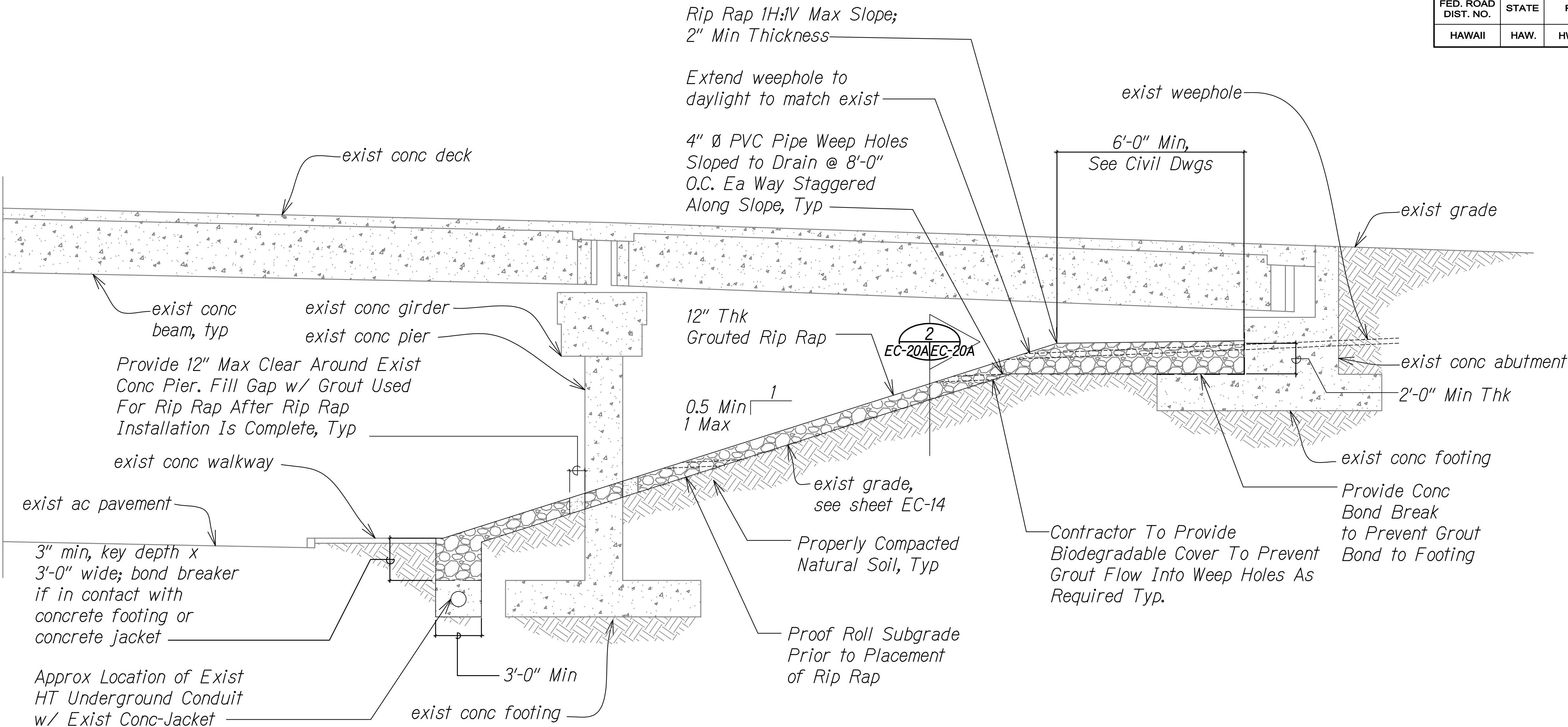
"AS-BUILT"

28S-1

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

PID 89 & 92, STATIONING: 4+29.2022 TO 5+56.44

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	28S-3	65



SECTION C-C

Notes:

- For Grading Plan & Elevations, See Sheet EC-14.
- Contractor Shall Not Damage Existing Conc Footing & Conc Abutment During Excavation For Grouted Rip Rap & 3B Fine.
- The Back Filled Subgrade Adjacent to the Head of the Grouted Rip Rap Shall Be Compacted Between 90 & 95 Percent As Determined By ASTM D1557 and Consist of Low Permeable Soil, Such As the Onsite Clayey Silt.
- Grout For Rip Rap Construction Shall Have A Minimum 28 Day Compressive Strength of 3,000 Psi U.N.O

ERODED SLOPE REPAIR DETAIL - PID 92

Scale: 1/4" = 1'-0"

1
EC-20C/EC-20C

LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

PROGRESS SET
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CONSTRUCTION

4/30/20
EXP. DATE

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supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ERODED SLOPE REPAIR DETAIL
PID 92

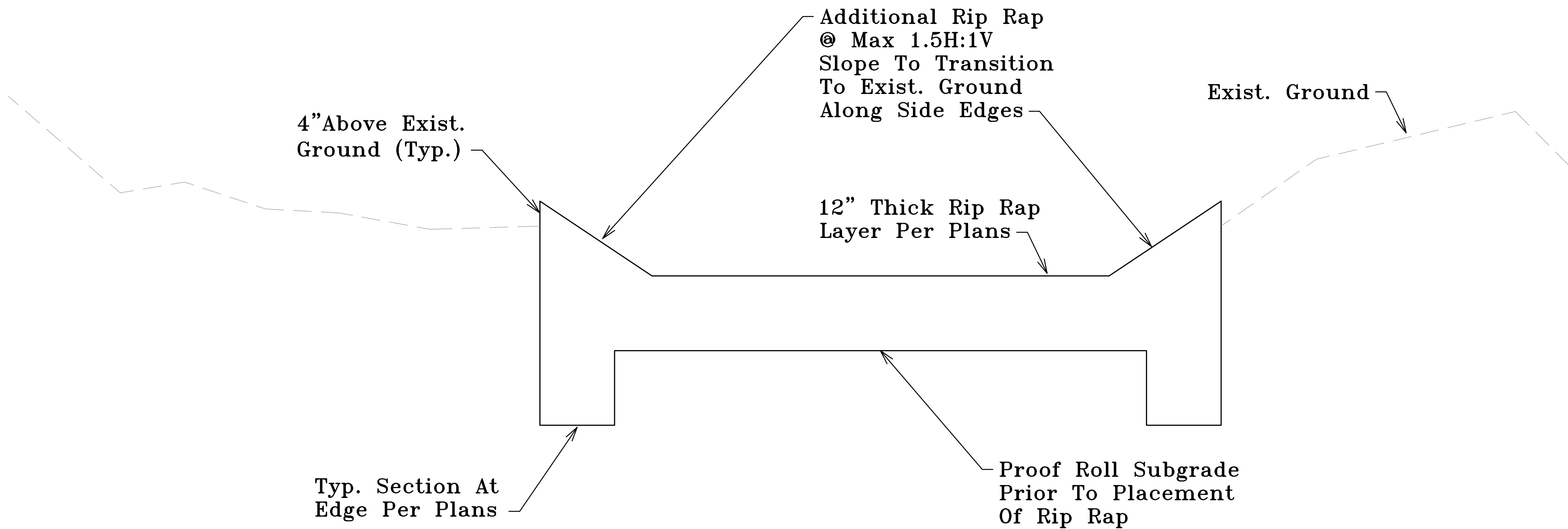
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: As Shown Date: April 2018

SHEET No. EC-14 OF 25 SHEETS

"AS-BUILT"

28S-3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	28S-4	65



PID 92 SECTION "D-D"
Scale: Not to Scale

DESIGNER	DATE
PLANNED BY	
TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

06-PID 92 SECTION D-D.DWG 5/12/2022 10:02:27 AM

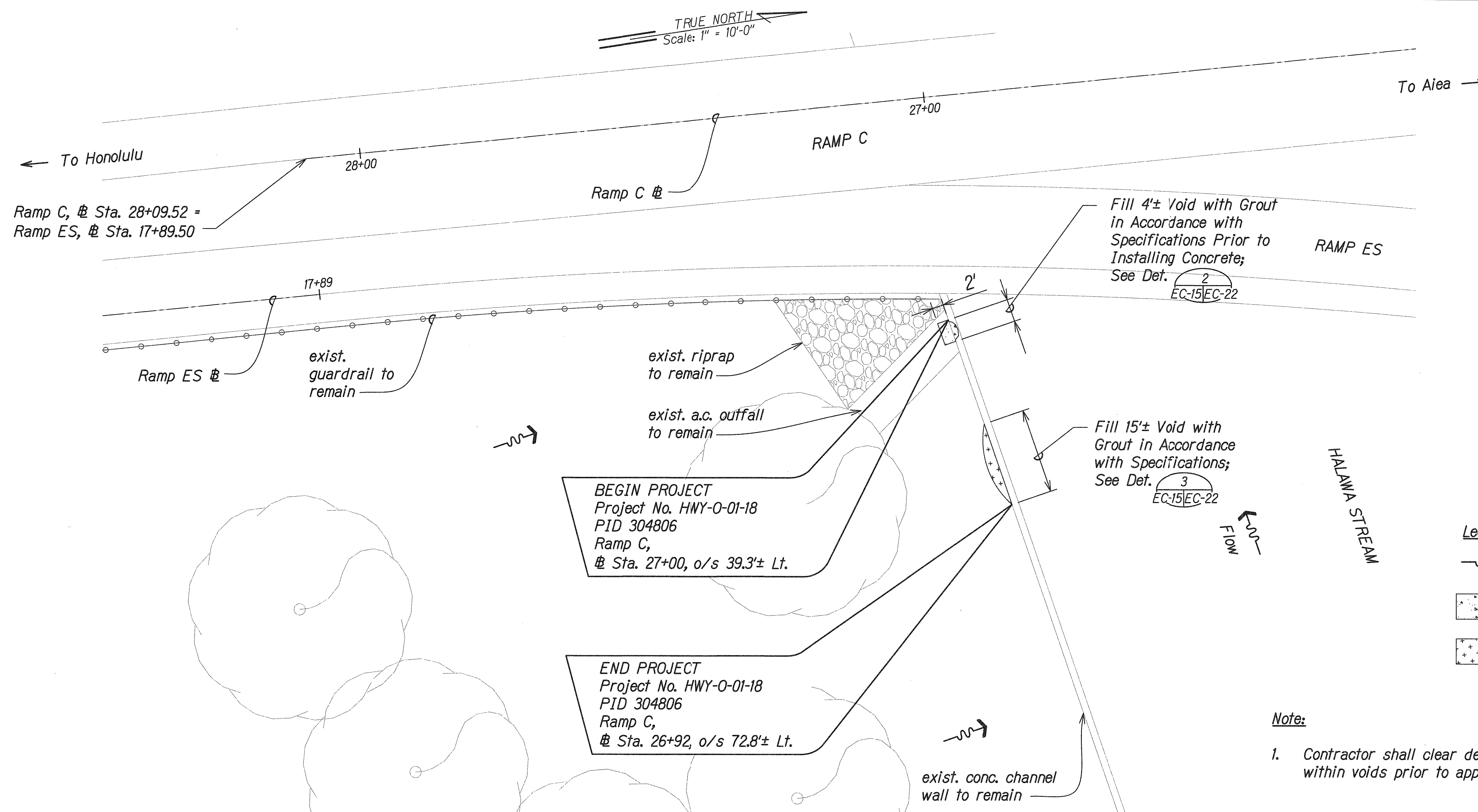
LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SECTION VIEW "D-D"
PID 92
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: Not to Scale Date: April 2018

SHEET No. EC-14 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	29	65



TEMPORARY EROSION CONTROL AND PERMANENT BMP PLAN
PID 304806

Scale: 1" = 10'-0"

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
N.	

3/27/2018 12:05 PM

4/30/18

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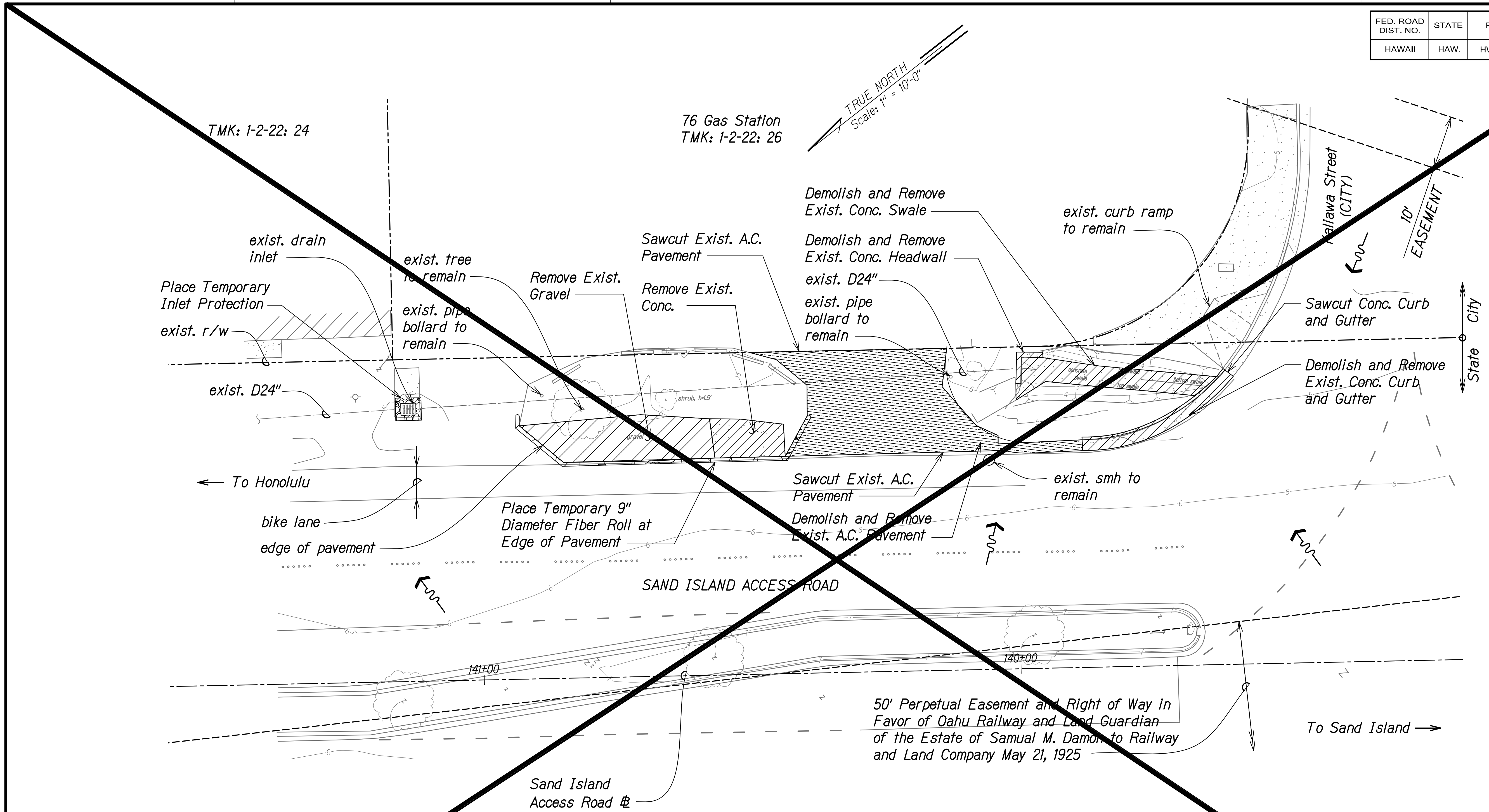
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMP. EC AND PERMANENT BMP PLAN
PID 304806

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE B
Project No. HWY-O-01-18
Scale: 1" = 10'-0" Date: April 2018

SHEET No. EC-15 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 30	65



LEGEND

- Direction of Flow
- Demolish and Remove Existing Concrete
- Demolish and Remove Existing A.C. Pavement
- Remove Existing Gravel

DEMOLITION AND TEMPORARY EROSION CONTROL PLAN

PID 467

Scale: 1" = 10'-0"

SUPERSEDED

SURVEY PLOTTED BY: _____	DATE: _____
DESIGNED BY: _____	CHECKED BY: _____
NOTED BY: _____	DATE: _____
QUANTITIES BY: _____	
NO. _____	

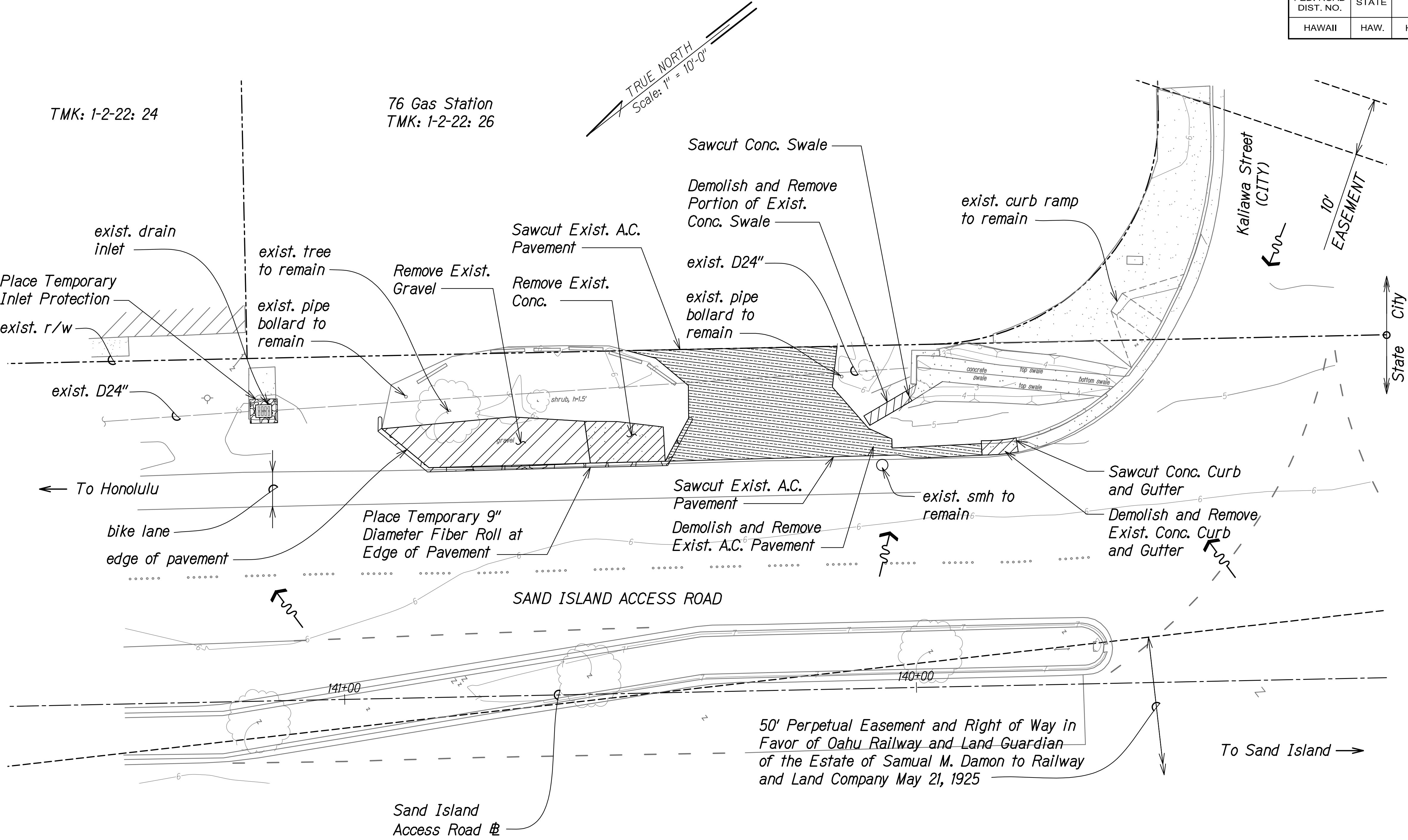
34-LEOP PID 467 (PCD SUPERSEDED SHEETS) 2/11/2019 4:46:55 PM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DEMOLITION AND TEMP. EC PLAN
PID 467

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: 1" = 10'-0" Date: April 2018

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 30S-1	65



LEGEND

	Direction of Flow
	Demolish and Remove Existing Concrete
	Demolish and Remove Existing A.C. Pavement
	Remove Existing Gravel

DEMOLITION AND TEMPORARY EROSION CONTROL PLAN
PID 467
 Scale: 1" = 10'-0"

01/31/19	Revised Improvements for PID 467
DATE	REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

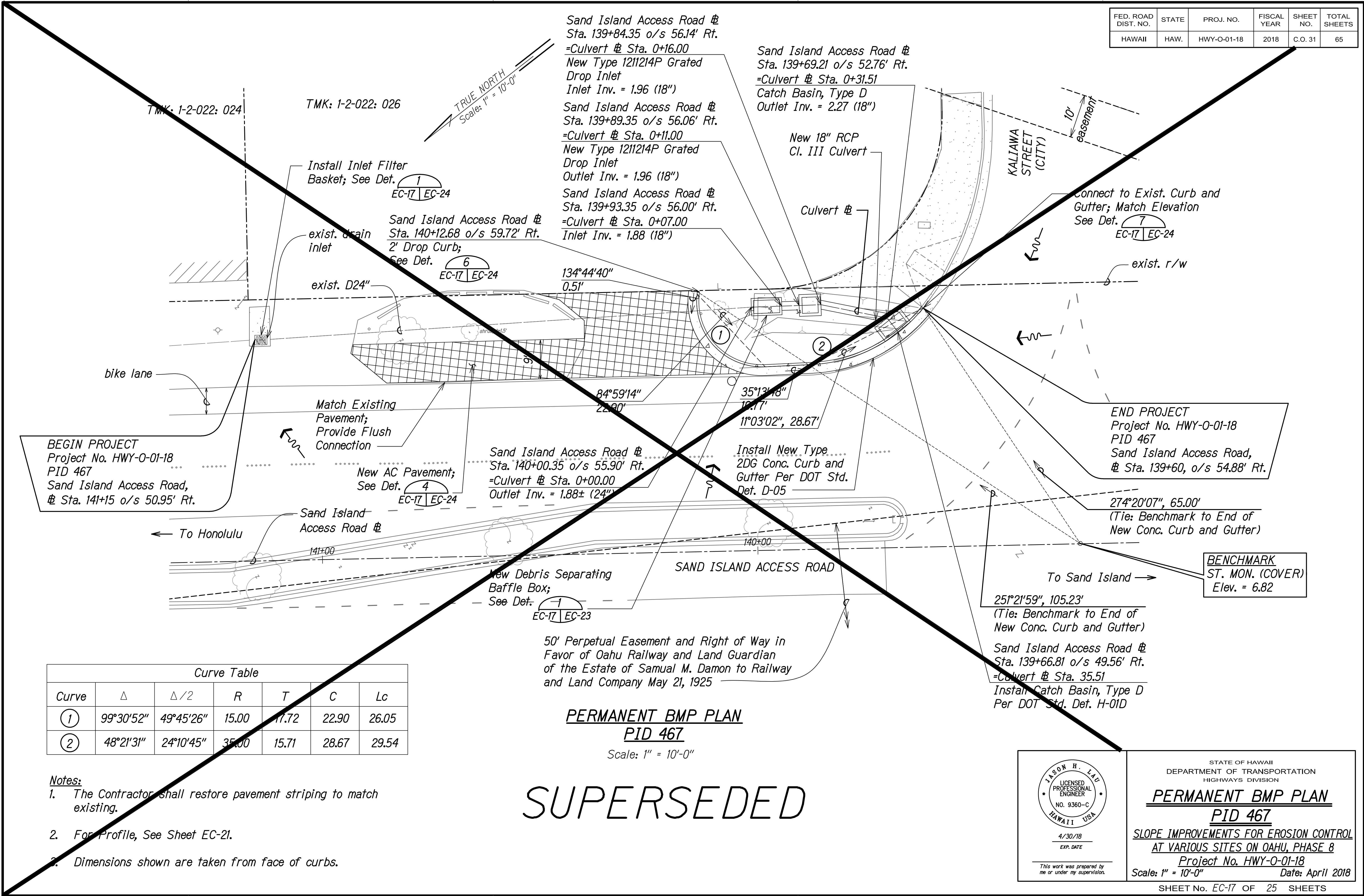
DEMOLITION AND TEMP. EC PLAN
PID 467
 SLOPE IMPROVEMENTS FOR EROSION CONTROL
 AT VARIOUS SITES ON OAHU, PHASE 8
 Project No. HWY-O-01-18
 Scale: 1" = 10'-0" Date: April 2018

SHEET No. EC-16A OF 25 SHEETS

SURVEY PLOTTED BY: _____	DATE: _____
DESIGNED BY: _____	CHECKED BY: _____
NOTE BOOK: _____	
QUANTITIES BY: _____	
CHECKED BY: _____	

34-EC-PID 467 (REVISED) 2/11/2019 12:36:20 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 31	65



Curve Table						
Curve	Δ	Δ/2	R	T	C	Lc
①	99°30'52"	49°45'26"	15.00	17.72	22.90	26.05
②	48°21'31"	24°10'45"	35.00	15.71	28.67	29.54

- Notes:**
- The Contractor shall restore pavement striping to match existing.
 - For Profile, See Sheet EC-21.
 - Dimensions shown are taken from face of curbs.

SURVEY PLOTTED BY: _____	DATE: _____
DESIGNED BY: _____	CHECKED BY: _____
NOTE BOOK: _____	NO. _____

34-EC-PID 467 (P) SUPERSEDED SHEETS LONG 2/11/2019 4:46:55 PM

4/30/18
EXP. DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

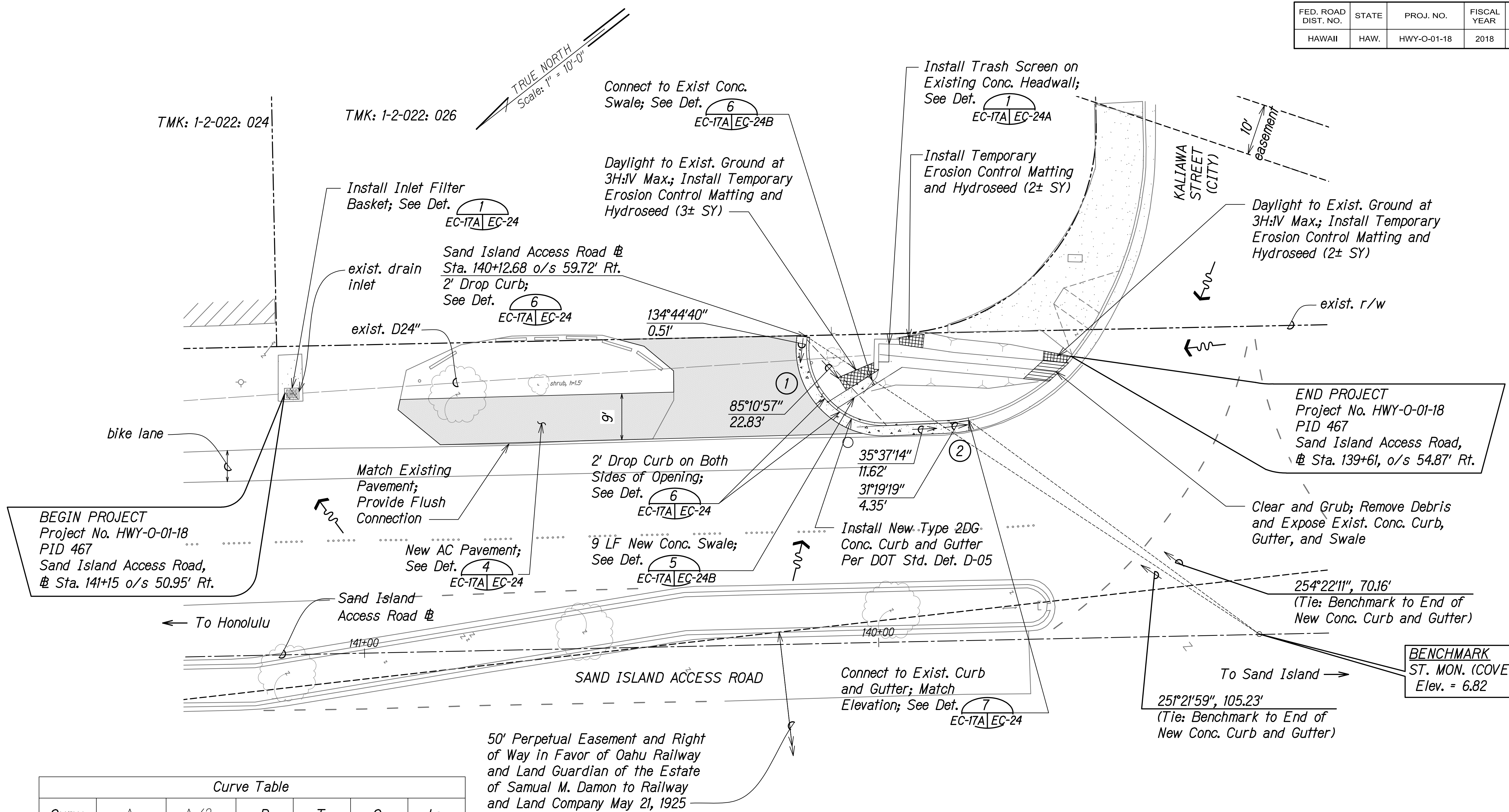
**PERMANENT BMP PLAN
PID 467**

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8

Project No. HWY-O-01-18
Scale: 1" = 10'-0" Date: April 2018

SHEET No. EC-17 OF 25 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 31S-1	65



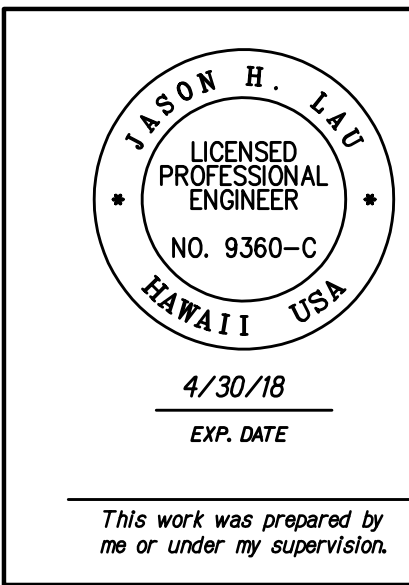
Curve Table						
Curve	Δ	$\Delta/2$	R	T	C	Lc
①	99°07'26"	49°33'43"	15.00'	17.60'	22.83'	25.95'
②	8°36'17"	4°18'08"	29.00'	2.18'	4.35'	4.36'

- Notes:**
- The Contractor shall restore pavement striping to match existing.
 - For Profile, See Sheet EC-21.
 - Dimensions shown are taken from face of curbs.

**PERMANENT BMP PLAN
PID 467**

Scale: 1" = 10'-0"

01/31/19	Revised Improvements for PID 467
DATE	REVISION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**PERMANENT BMP PLAN
PID 467**

**SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8**

Project No. HWY-O-01-18
Scale: 1" = 10'-0" Date: April 2018

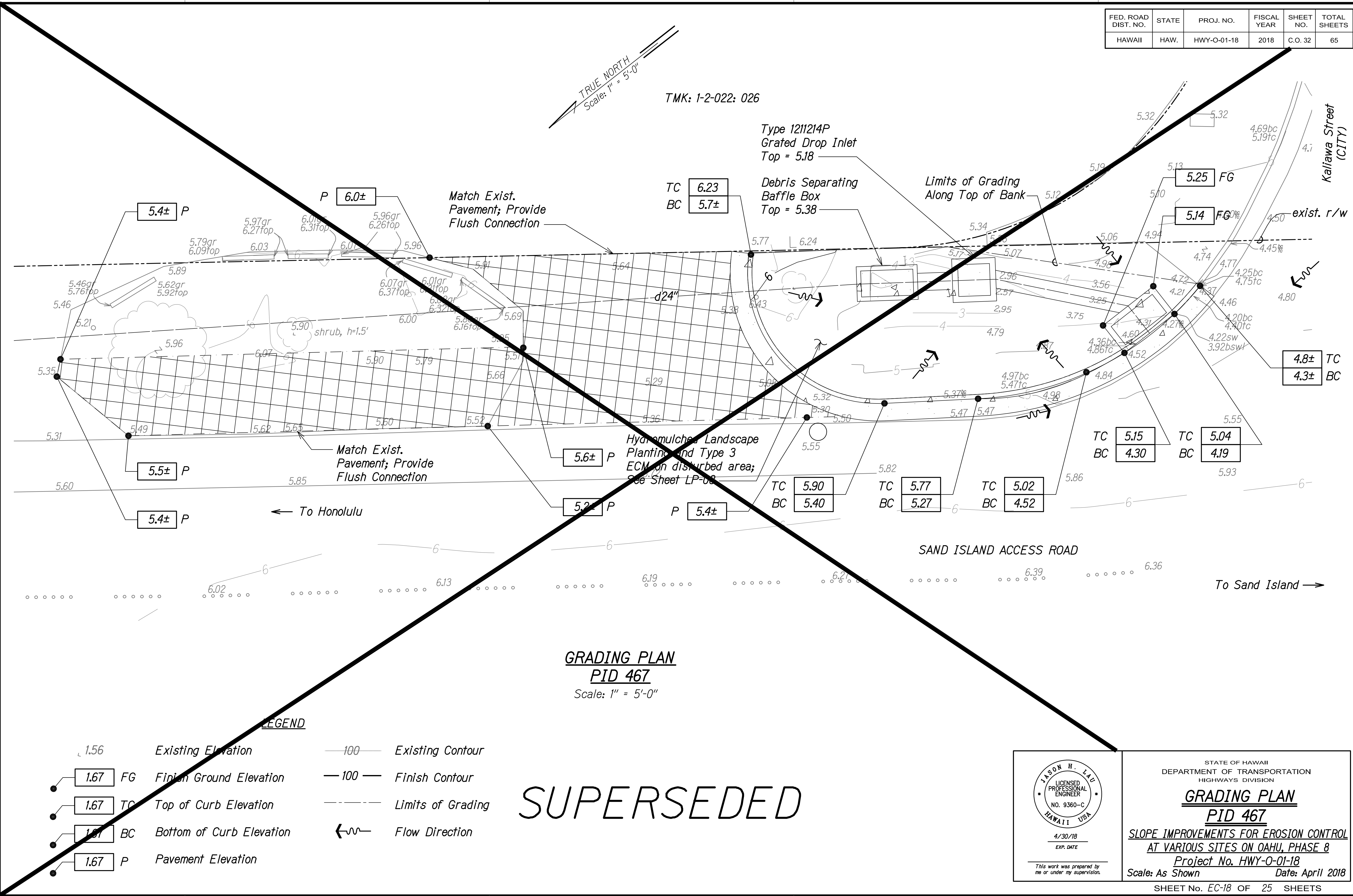
SHEET No. EC-17A OF 25 SHEETS

C.O. 31S-1

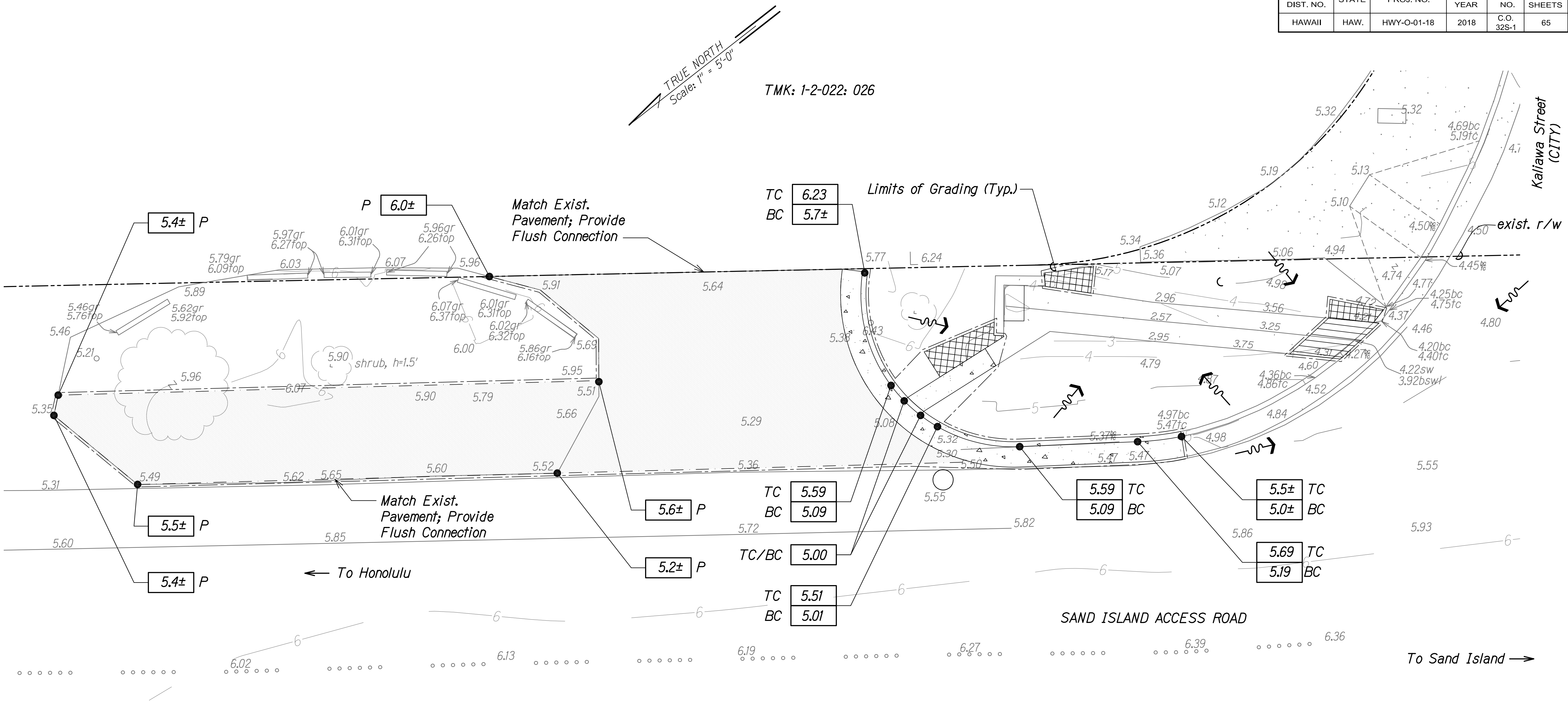
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DESIGNED BY: _____	CHECKED BY: _____
NOTE BOOK: _____	QUANTITIES BY: _____
PLAN: _____	DATE: _____

34-EC-PID 467 (REVISED) 2/11/2019 12:36:20 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 32	65



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 32S-1	65

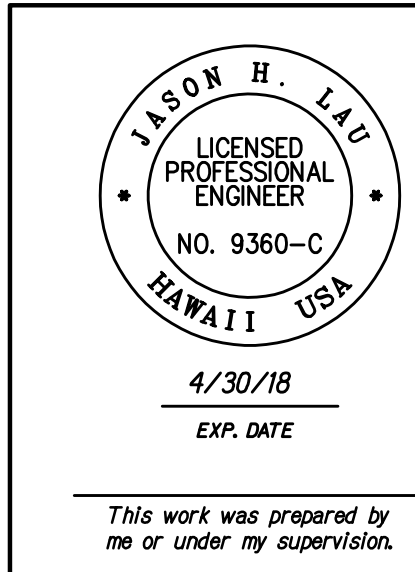


GRADING PLAN
PID 467
Scale: 1" = 5'-0"

LEGEND

- | | | | |
|---------|--------------------------|-----|-------------------|
| 1.56 | Existing Elevation | 100 | Existing Contour |
| 1.67 FG | Finish Ground Elevation | 100 | Finish Contour |
| 1.67 TC | Top of Curb Elevation | --- | Limits of Grading |
| 1.67 BC | Bottom of Curb Elevation | --- | Flow Direction |
| 1.67 P | Pavement Elevation | | |

01/31/19	Revised Improvements for PID 467
DATE	REVISION

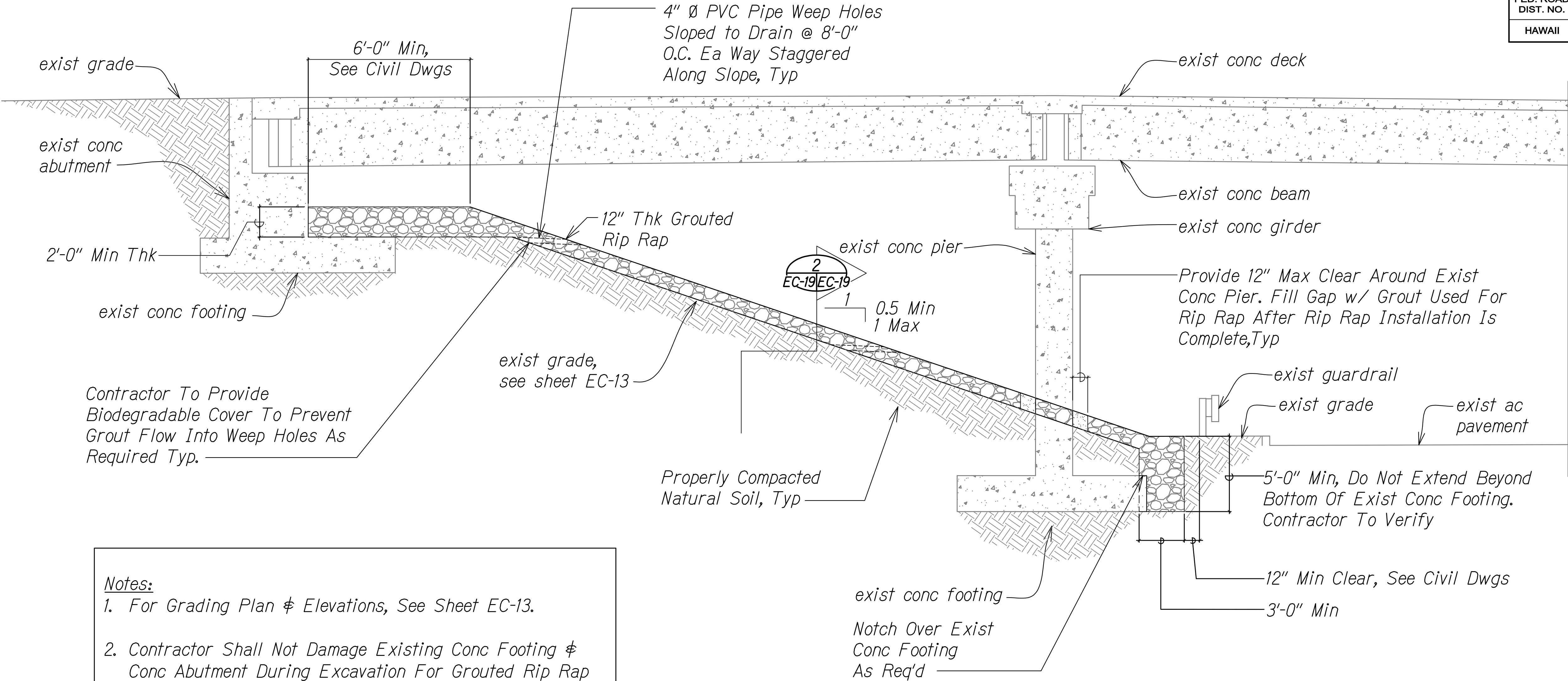


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GRADING PLAN
PID 467
SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: As Shown Date: April 2018

SHEET No. EC-18A OF 25 SHEETS

C.O. 32S-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	33	65

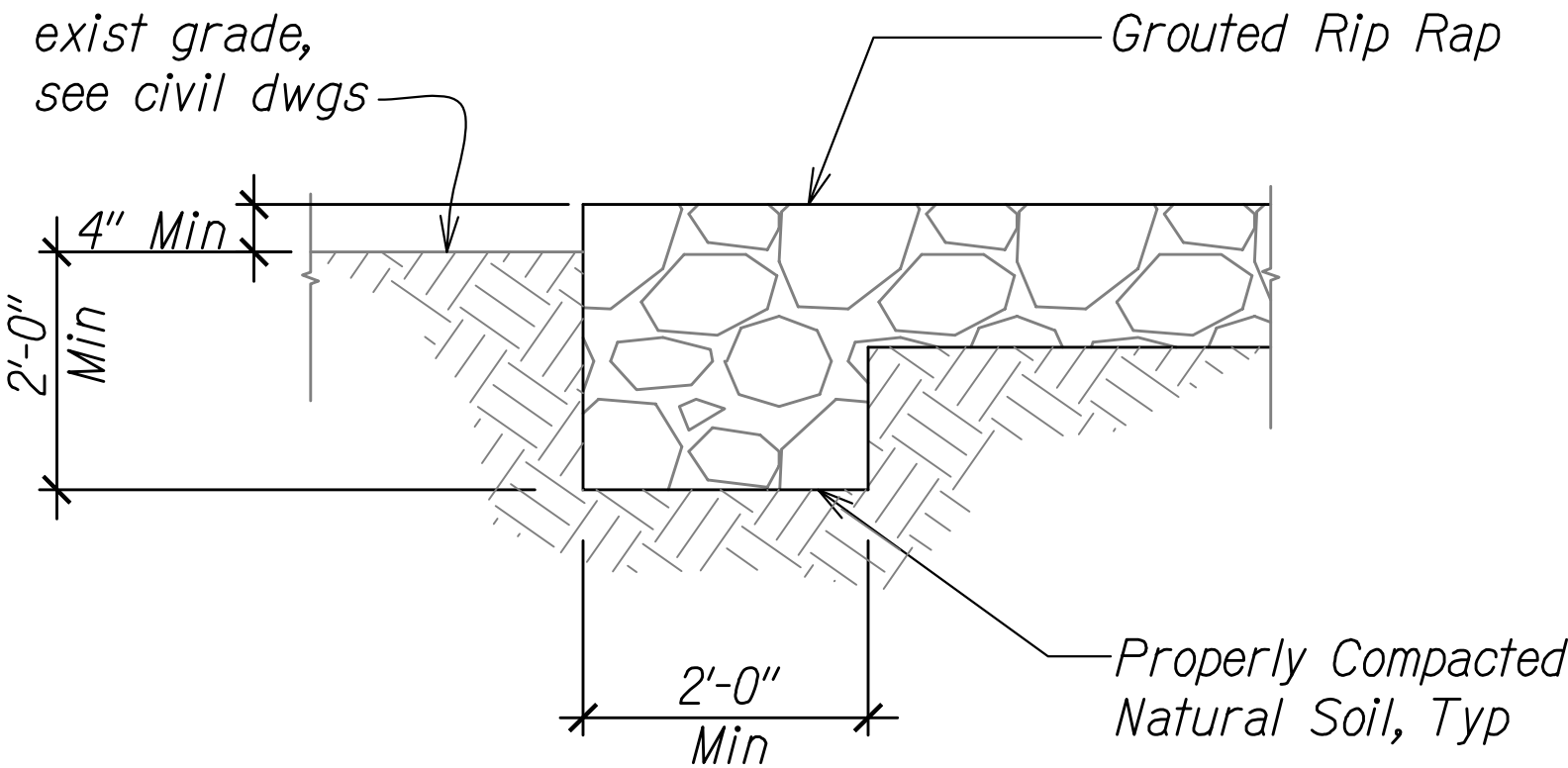
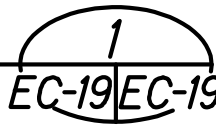


Notes:

1. For Grading Plan & Elevations, See Sheet EC-13.
2. Contractor Shall Not Damage Existing Conc Footing & Conc Abutment During Excavation For Grouted Rip Rap & 3B Fine.
3. The Back Filled Subgrade Adjacent to the Head of the Grouted Rip Rap Shall Be Compacted Between 90 & 95 Percent As Determined By ASTM D1557 and Consist of Low Permeable Soil, Such As the Onsite Clayey Silt.
4. Grout For Rip Rap Construction Shall Have A Minimum 28 Day Compressive Strength of 3,000 Psi U.N.O

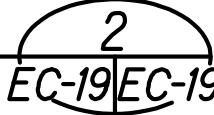
ERODED SLOPE REPAIR DETAIL - PID 89

Scale: 1/4" = 1'-0"



SECTION @ GROUTED RIP RAP EDGE

Scale: 3/4" = 1'-0"



LEGEND FOR AS-BUILT POSTINGS

- Squiggly line for as-built deletion
- Double line for as-built deletion
- Roadway Text for as-built posting

**PROGRESS SET
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CONSTRUCTION**

4/30/20
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**ERODED SLOPE REPAIR DETAIL
PID 89**

*SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8*
Project No. HWY-O-01-18
Scale: As Shown Date: April 2018

SHEET No. EC-19 OF 25 SHEETS

"AS-BUILT"

exist conc deck
 4" Ø PVC Pipe Weep Holes
 Sloped to Drain @ 8'-0"
 O.C. Ea Way Staggered
 Along Slope, Typ
 6'-0" Min,
 See Civil Dwgs
 exist grade
 exist conc
 abutment
 2'-0" Min Thk
 exist conc footing
 Contractor To Provide
 Biodegradable Cover To Prevent
 Grout Flow Into Weep Holes As
 Required Typ.
 Properly Compacted
 Natural Soil, Typ
 exist grade,
 see sheet EC-14
 12" Thk
 Grouted Rip Rap
 0.5 Min
 1 Max
 2
 EC-20 EC-20
 exist conc pier
 exist conc girder
 exist conc beam, typ
 Provide 12" Max Clear Around Exist
 Conc Pier. Fill Gap w/ Grout Used
 For Rip Rap After Rip Rap
 Installation Is Complete, Typ
 exist conc walkway
 exist ac pavement
 5'-0" Min, Do Not Extend Beyond
 Bottom Of Exist Conc Footing.
 Contractor To Verify
 3'-0" Min
 exist conc footing

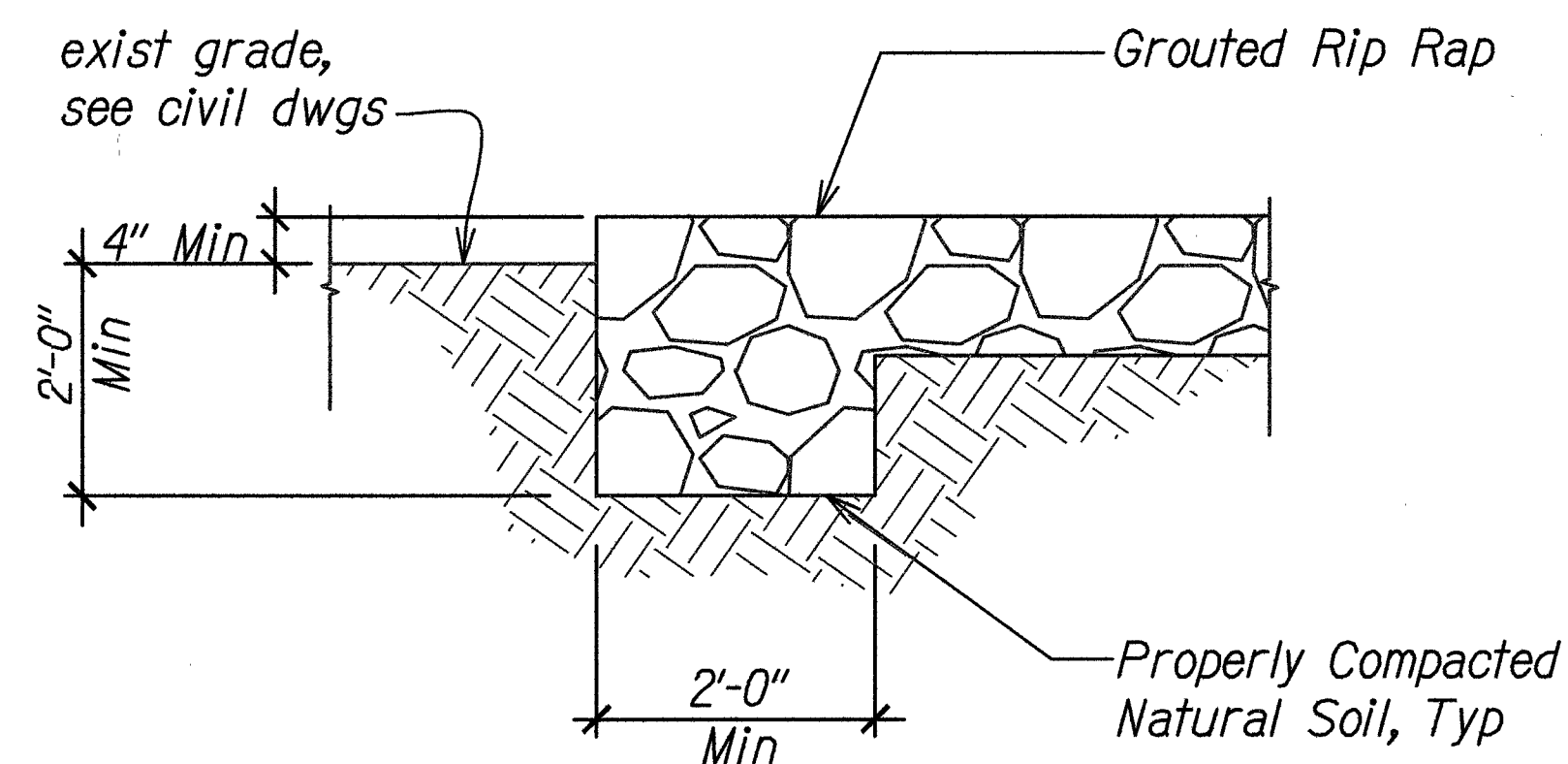
Scale: $1/4" = 1'-0"$

1. For Grading Plan & Elevations, See Sheet EC-14.

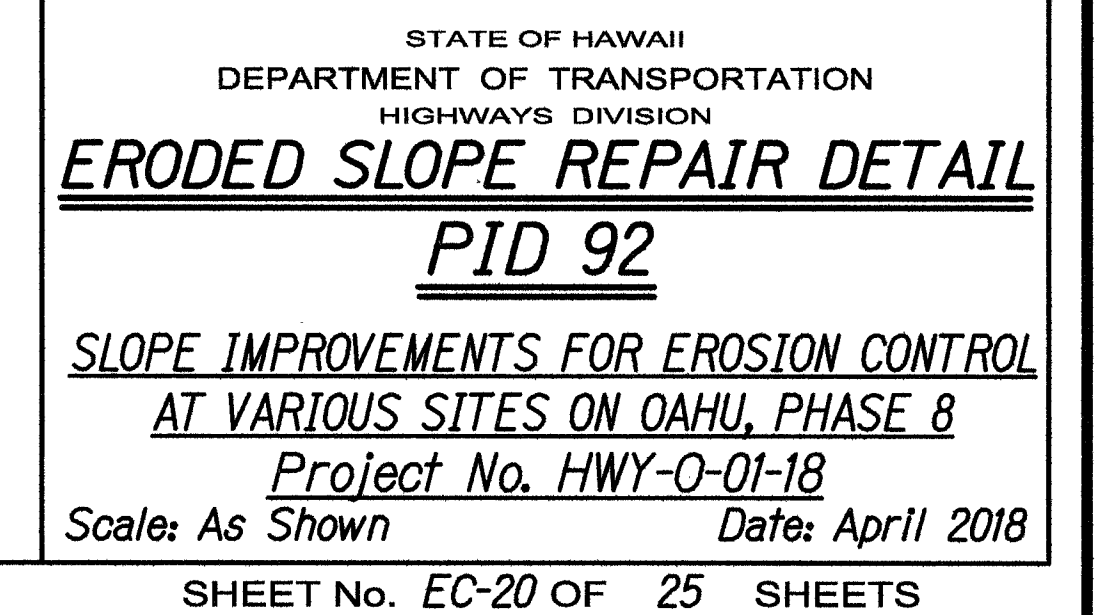
2. Contractor Shall Not Damage Existing Conc Footing & Conc Abutment During Excavation For Grouted Rip Rap & 3B Fine.

3. The Back Filled Subgrade Adjacent to the Head of the Grouted Rip Rap Shall Be Compacted Between 90 & 95 Percent As Determined By ASTM D1557 and Consist of Low Permeable Soil, Such As the Onsite Clayey Silt.

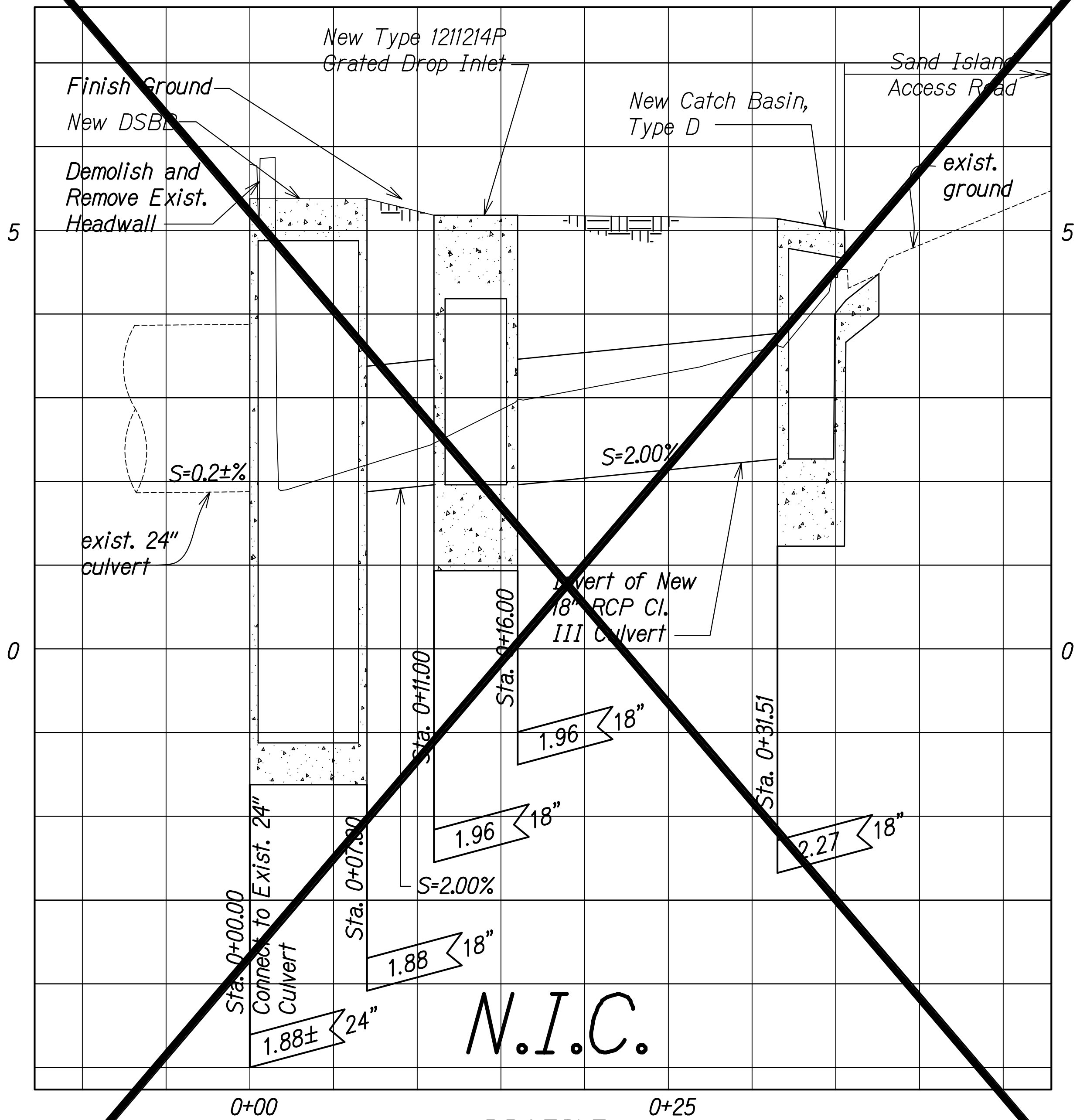
4. Grout For Rip Rap Construction Shall Have A Minimum 28 Day Compressive Strength of 3,000 Psi U.N.O



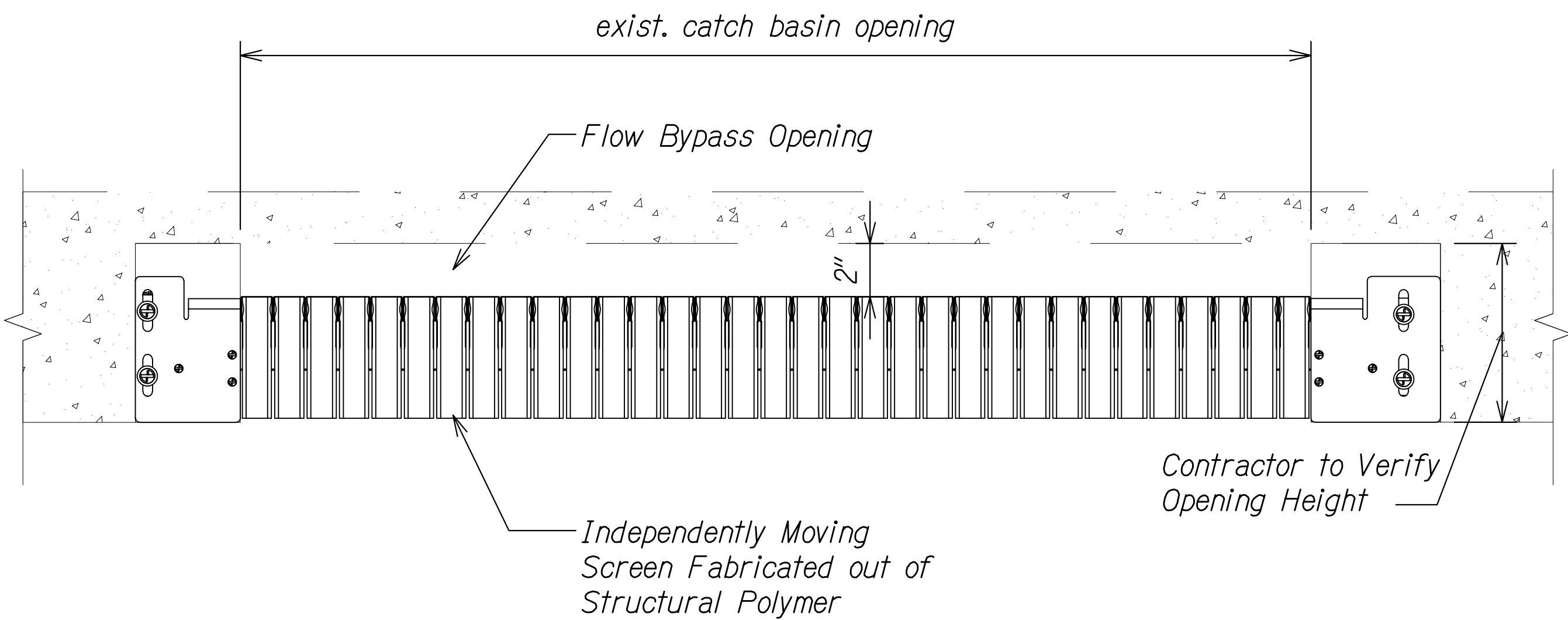
Scale: $3/4" = 1'-0"$



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 35	65



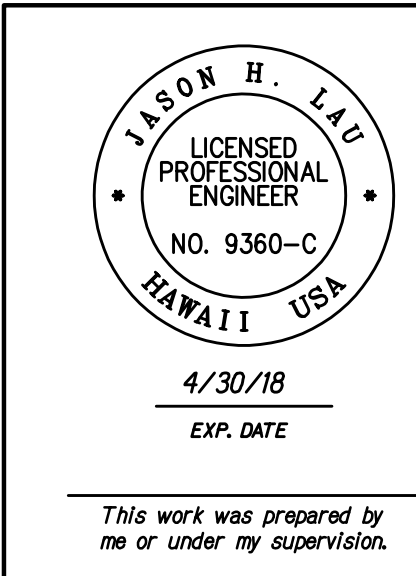
PROFILE
PID 467
Scale: Horiz. 1" = 5'-0"
Vert. 1" = 1'-0"



- Notes:**
1. The Contractor shall verify size of catch basin opening prior to fabricating catch basin screen.
 2. Catch basin screen shall be a pivot-mounted automatic retractable screen with pins that allow for tension adjustment.
 3. Install catch basin screen per manufacturer's recommendations.
 4. All mounting hardware shall be made from stainless steel and be compatible to prevent galvanic corrosion.
 4. The installed catch basin screen shall not protrude beyond the curb face into the roadway.
 5. For catch basins with manholes in gutter, Contractor shall install screen 1" from edge of manhole cover or at the edge of existing manhole frame; whichever is greater.

CATCH BASIN AUTOMATIC RETRACTABLE SCREEN (ARS) DETAIL
Scale: Not to Scale

01/31/19	Revised Improvements for PID 467
DATE	REVISION



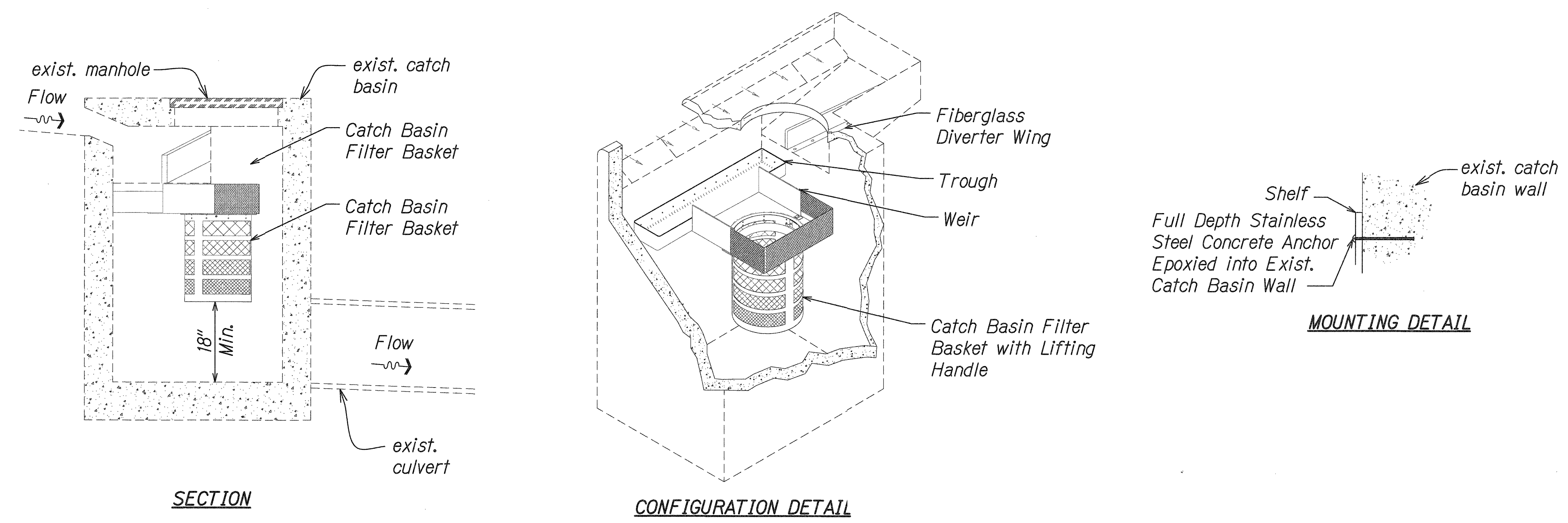
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: As Shown Date: April 2018

SHEET No. EC-21 OF 25 SHEETS

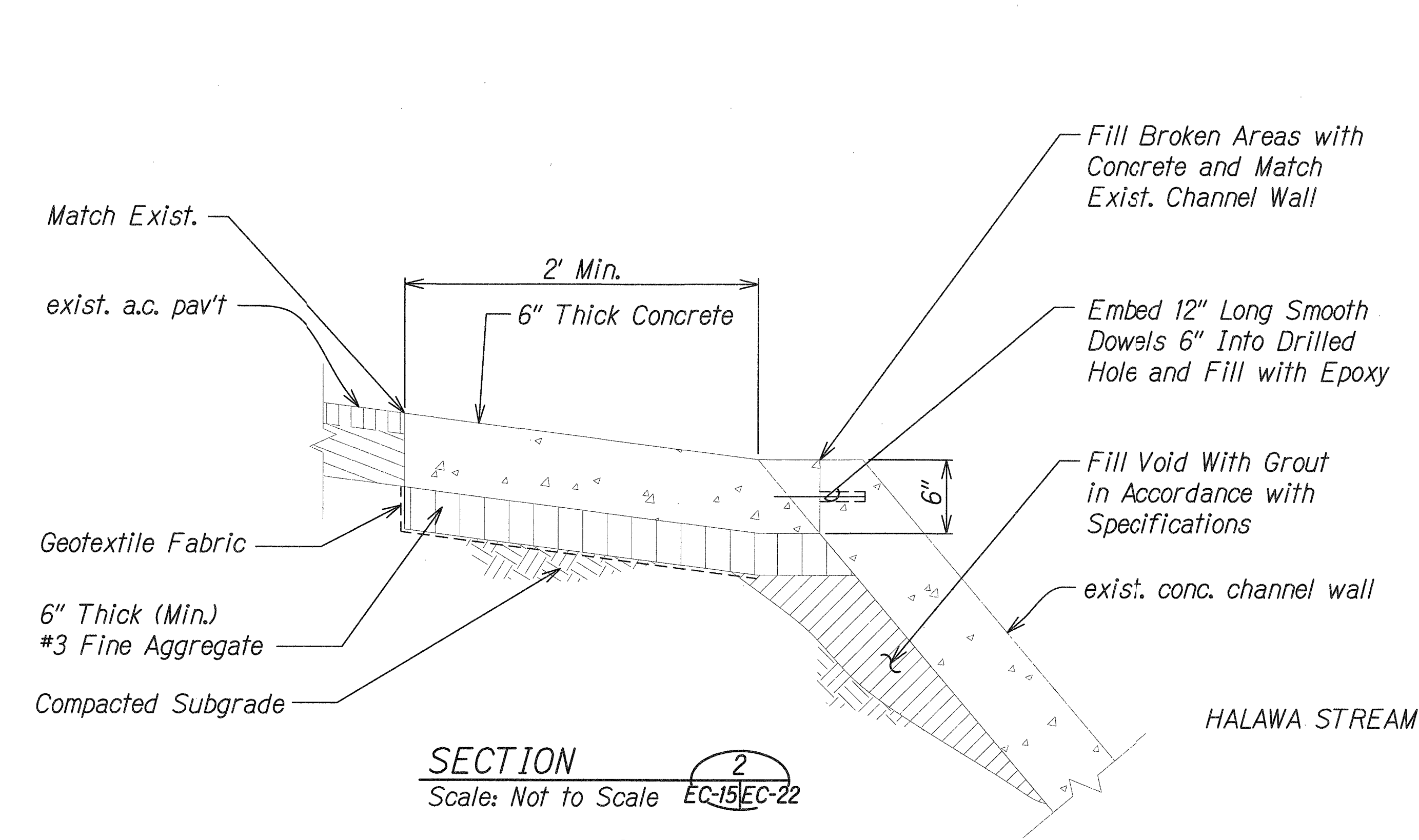
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	36	65



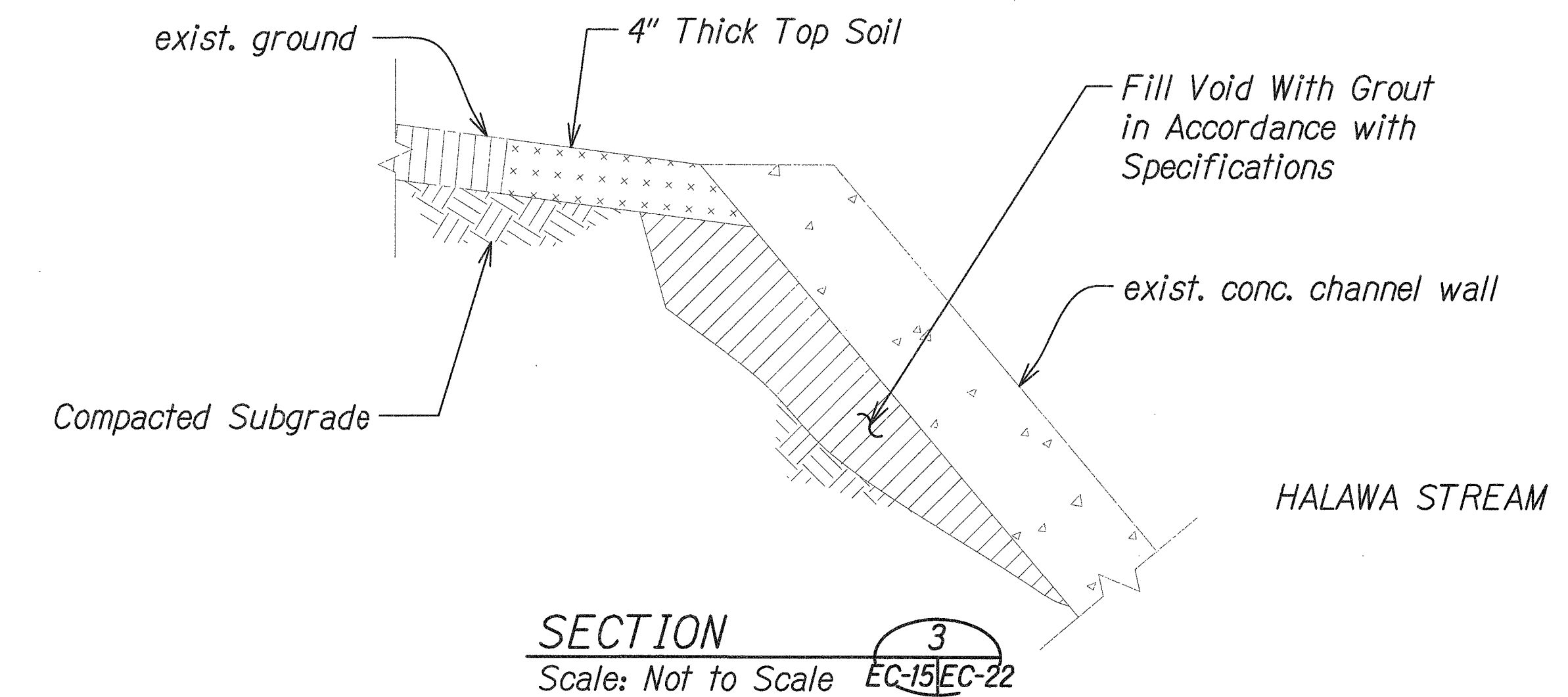
- Notes:**
1. The Contractor shall verify size and configuration of catch basin opening prior to fabricating catch basin Filtration Basket.
 2. Clean and remove trash and debris from within the catch basin prior to Filtration Basket installation. Cleaning and disposal shall be considered incidental to the work.
 3. Install catch basin filtration basket per manufacturer's recommendations.
 4. Contractor shall install Catch Basin Filtration Basket directly under existing manhole. Filtration basket shall be installed so that device may be serviced from the existing manhole.
 5. Catch Basin Filtration Basket shall have manufacturer installed Filter Basket Handle for maintenance and basket removal.

CATCH BASIN FILTRATION BASKET DETAIL
Scale: Not to Scale

1
EC-14/EC-22



SECTION 2
Scale: Not to Scale EC-15/EC-22



SECTION 3
Scale: Not to Scale EC-15/EC-22

4/30/18
BYP. DATE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

**SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8**

Project No. HWY-O-01-18
Date: April 2018

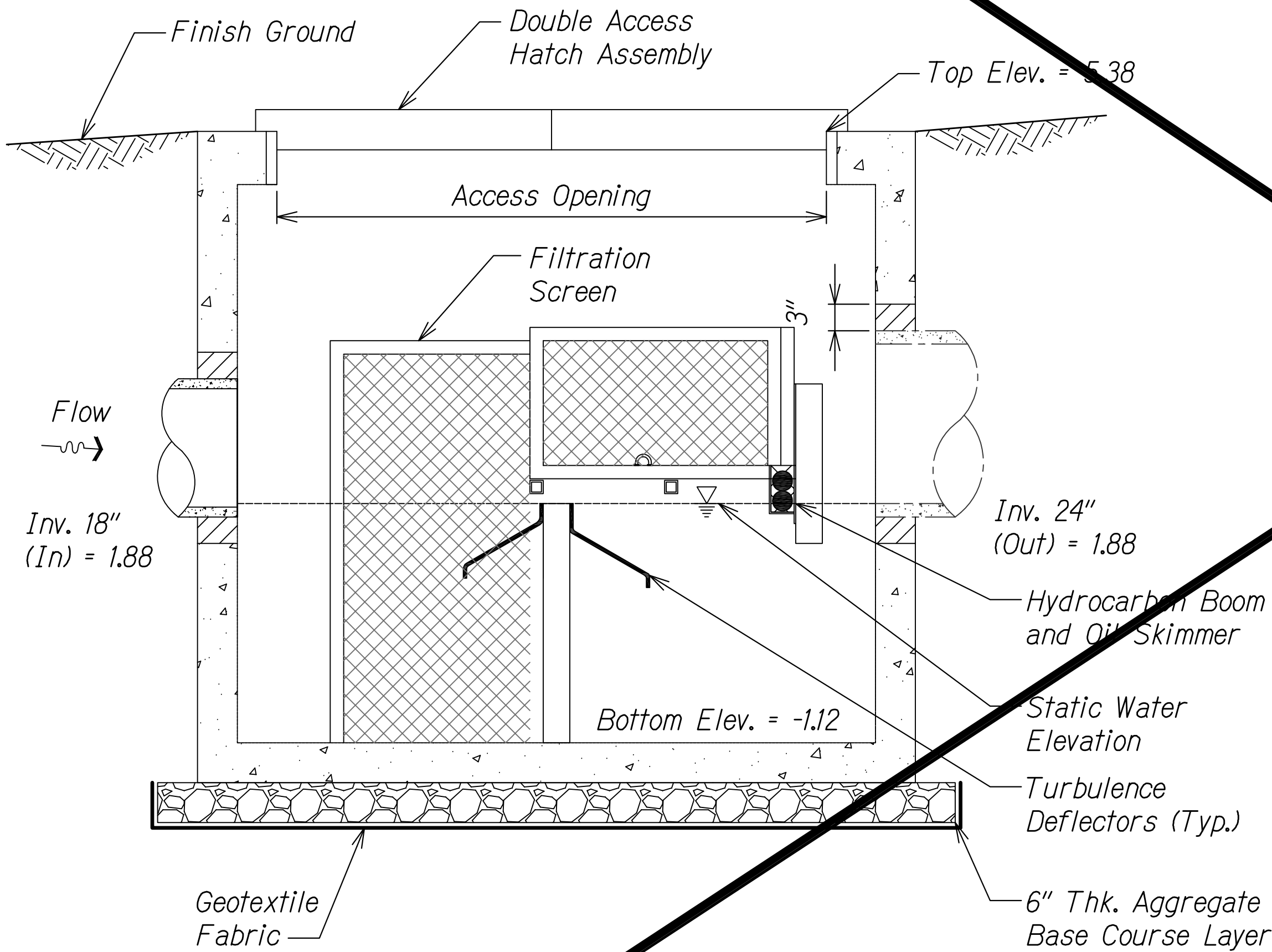
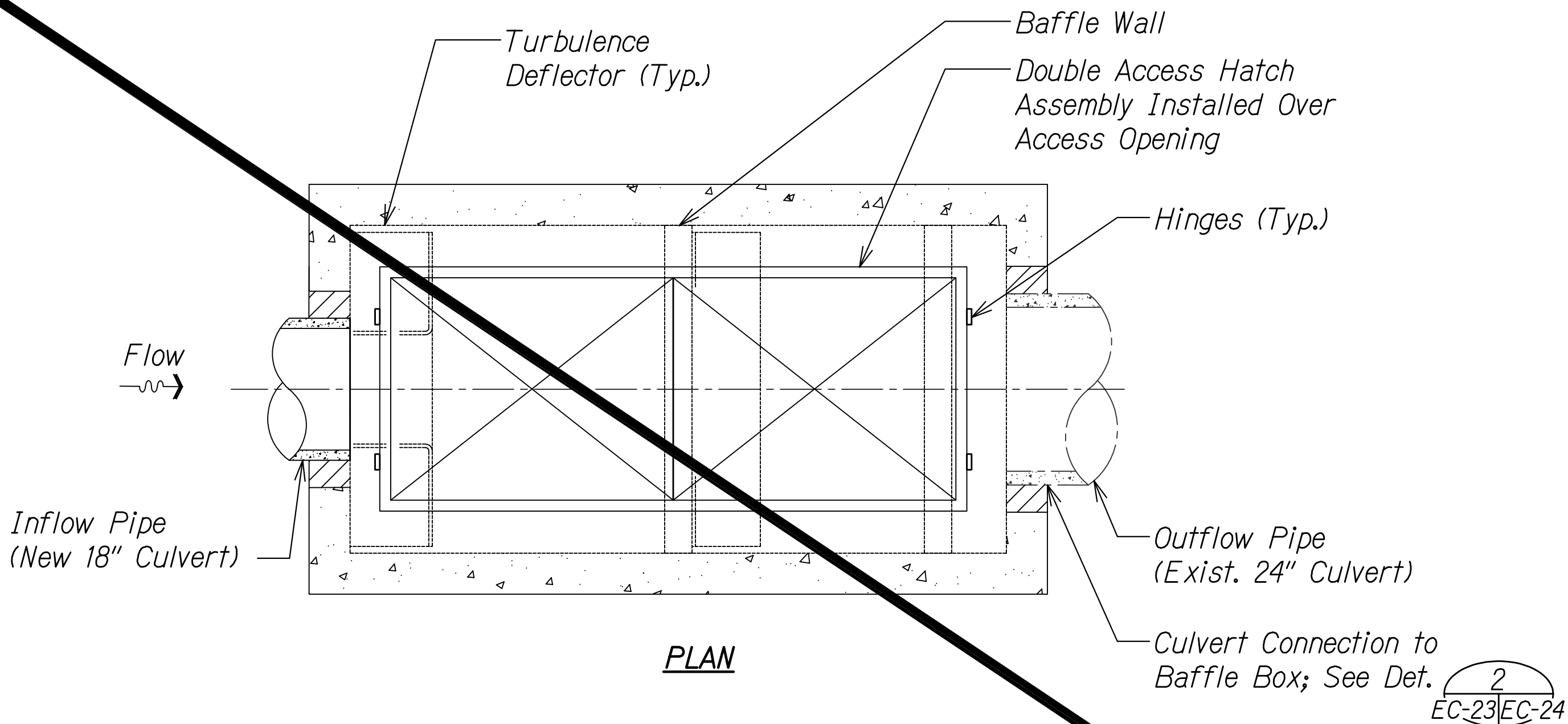
Scale: Not to Scale

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

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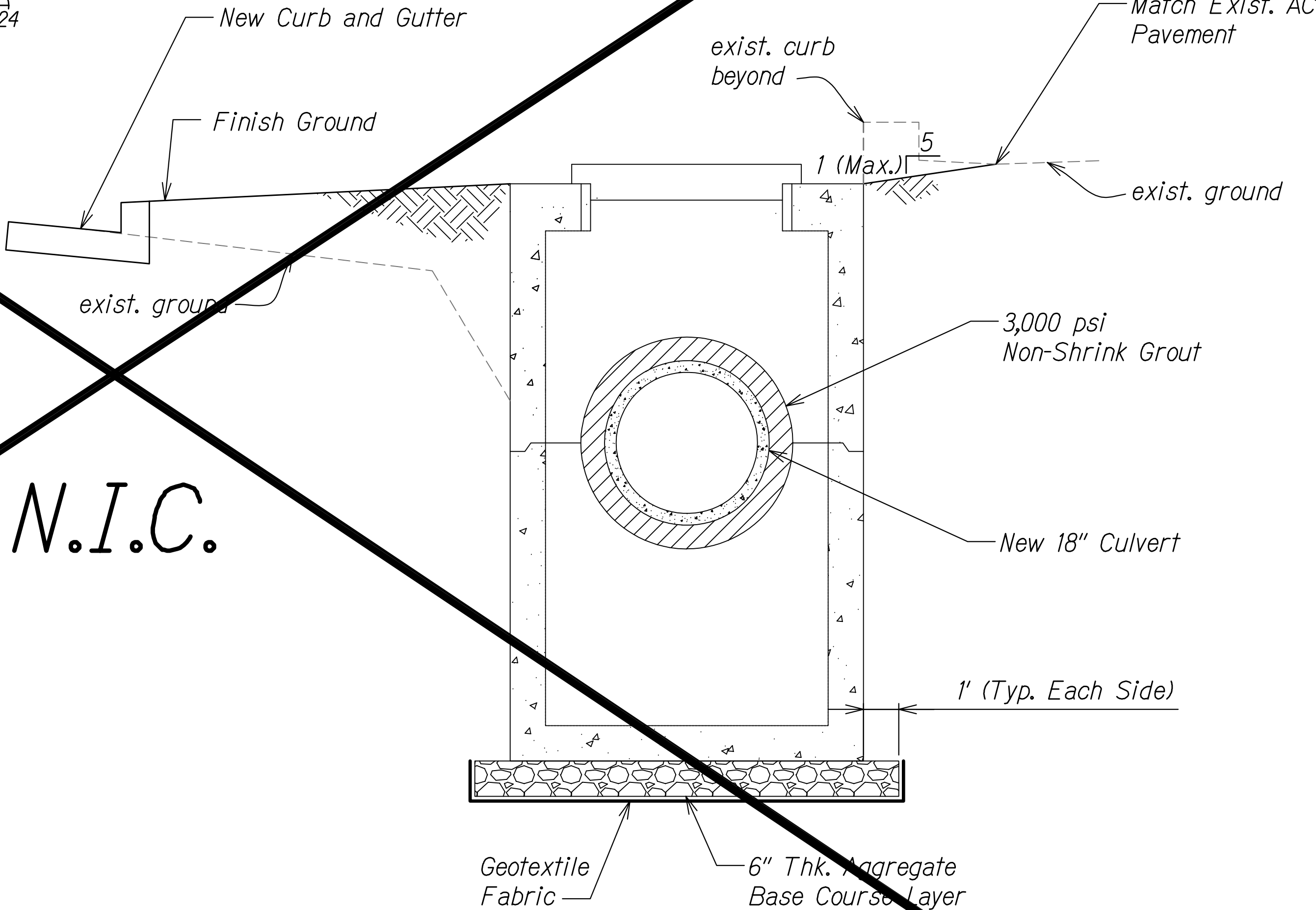
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 37	65

STORM WATER TREATMENT SYSTEM FLOW REQUIREMENTS	
Q10 (cfs)	16.31
WQFR (cfs)	0.56



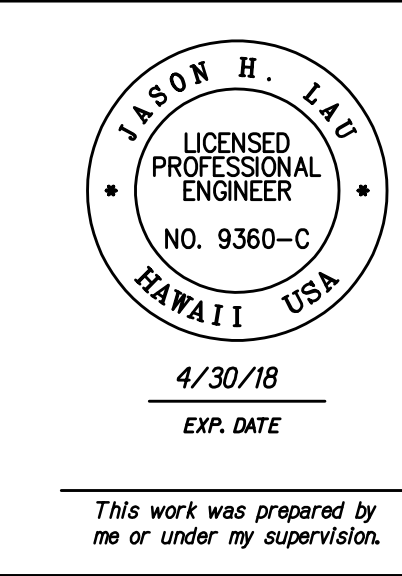
DEBRIS SEPARATING BAFFLE BOX DETAIL
Scale: Not to Scale

N.I.C.



SECTION

01/31/19	Revised Improvements for PID 467
DATE	REVISION



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8
Project No. HWY-O-01-18
Scale: Not to Scale Date: April 2018

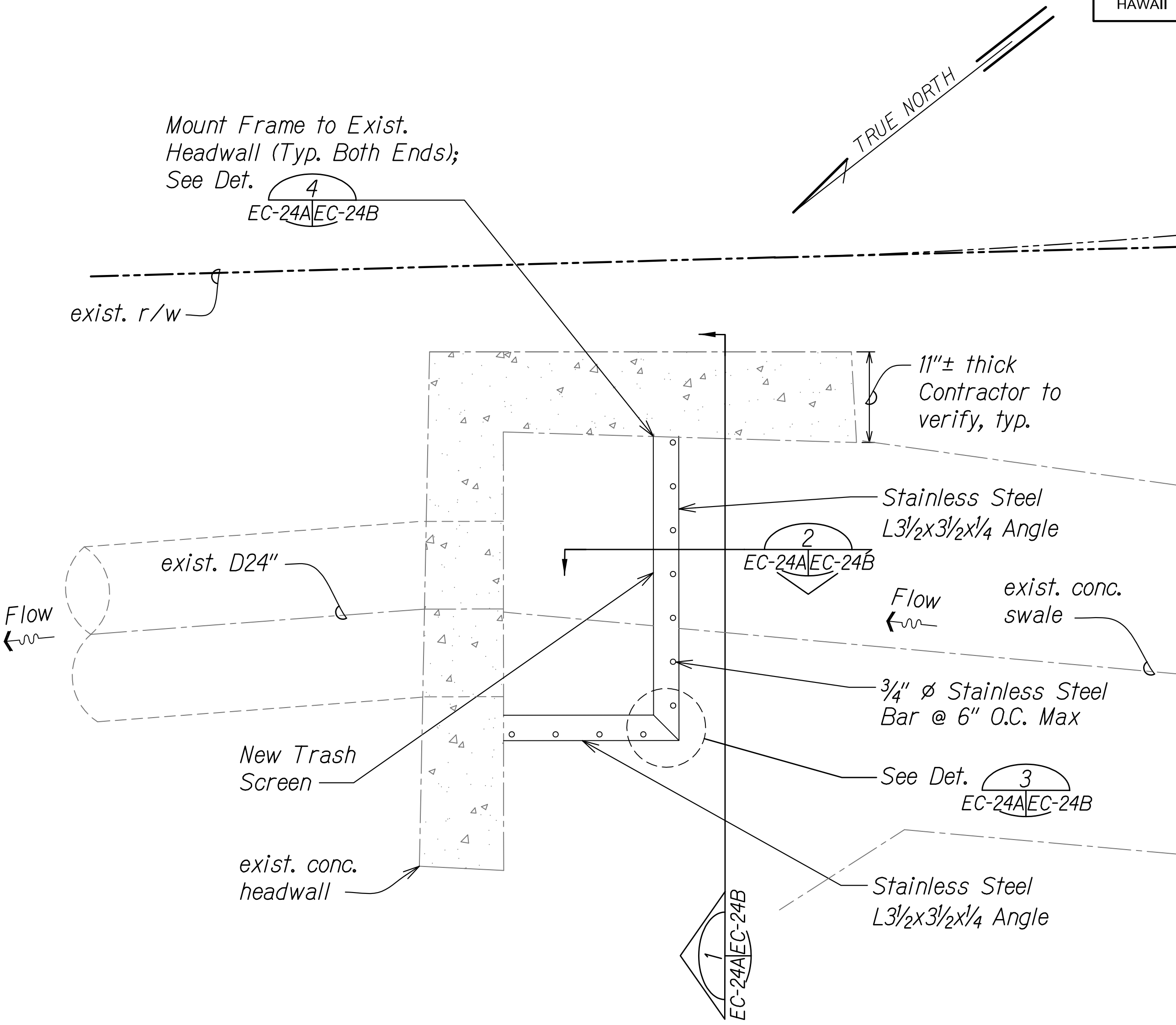
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 38S-1	65

STRUCTURAL COLD-FORMED STAINLESS STEEL NOTES:

1. Fabrication and erection of cold-formed stainless-steel shall conform to ASCE 8-02.
2. Structural stainless steel shall conform to ASTM A276, Grade 316/316L unless otherwise noted.
3. Structural stainless steel angles shall conform to ASTM A276, Grade 316/316L.
4. Threaded rods shall conform to ASTM A276, Grade 316/316L unless otherwise noted.
5. Welds and welding procedures shall conform to the structural welding code AWS D1.6 of the American Welding Society.
6. Welding shall be performed by welders pre-qualified for welding procedures to be used.
7. Welding electrodes shall be ER308/ER308L.
8. The following shall be submitted to the Engineer for review:
 - a. Shop drawings detailing fabrication of structural stainless steel components including details of cuts; connections; holes; welds; type, size and length of bolts; and other pertinent data.
 - b. Current welder's certification of each individual performing welding work.
 - c. Mill test reports signed by manufacturers certifying that structural stainless steel, bolts, and other components comply with requirements.

EPOXIED DOWEL & THREADED ROD INSTALLATIONS NOTES:

1. Epoxy used for anchoring threaded rods and dowels into existing concrete shall be Hilti HIT-HY 200 -A or -R system, Simpson SET-XP system, or approved equal, and shall be installed per manufacturer's recommendations.
2. Anchors shall be installed within the minimum embedment requirements as indicated on the drawings.



PLAN

TRASH SCREEN FRAMING PLAN

Scale: Not to Scale

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EC-17A/EC-24A

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DESIGNED BY	
	NOTED BY	
	CHECKED BY	
NOTE BOOK No.	DESIGNED BY	
	CHECKED BY	

XX-DETAILS 1 (P)COLDING 2/12/2019 12:46:49 PM

01/31/19	Revised Improvements for PID 467
DATE	REVISION

JASON H. LAU

LICENSED PROFESSIONAL ENGINEER

NO. 9360-C

HAWAII USA

4/30/18

EXP. DATE

This work was prepared by me or under my supervision.

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DETAILS

SLOPE IMPROVEMENTS FOR EROSION CONTROL

AT VARIOUS SITES ON OAHU, PHASE 8

Project No. HWY-O-01-18

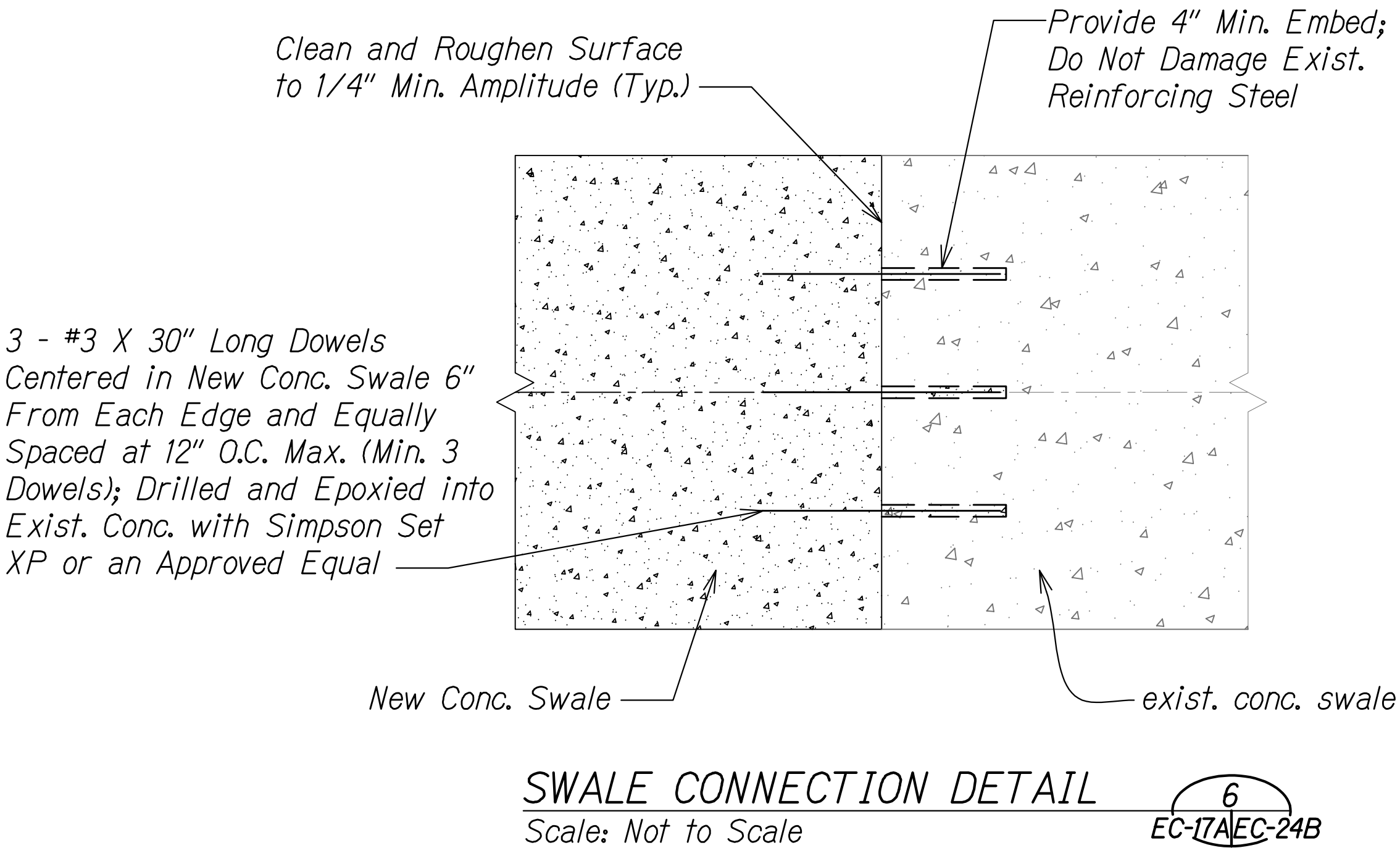
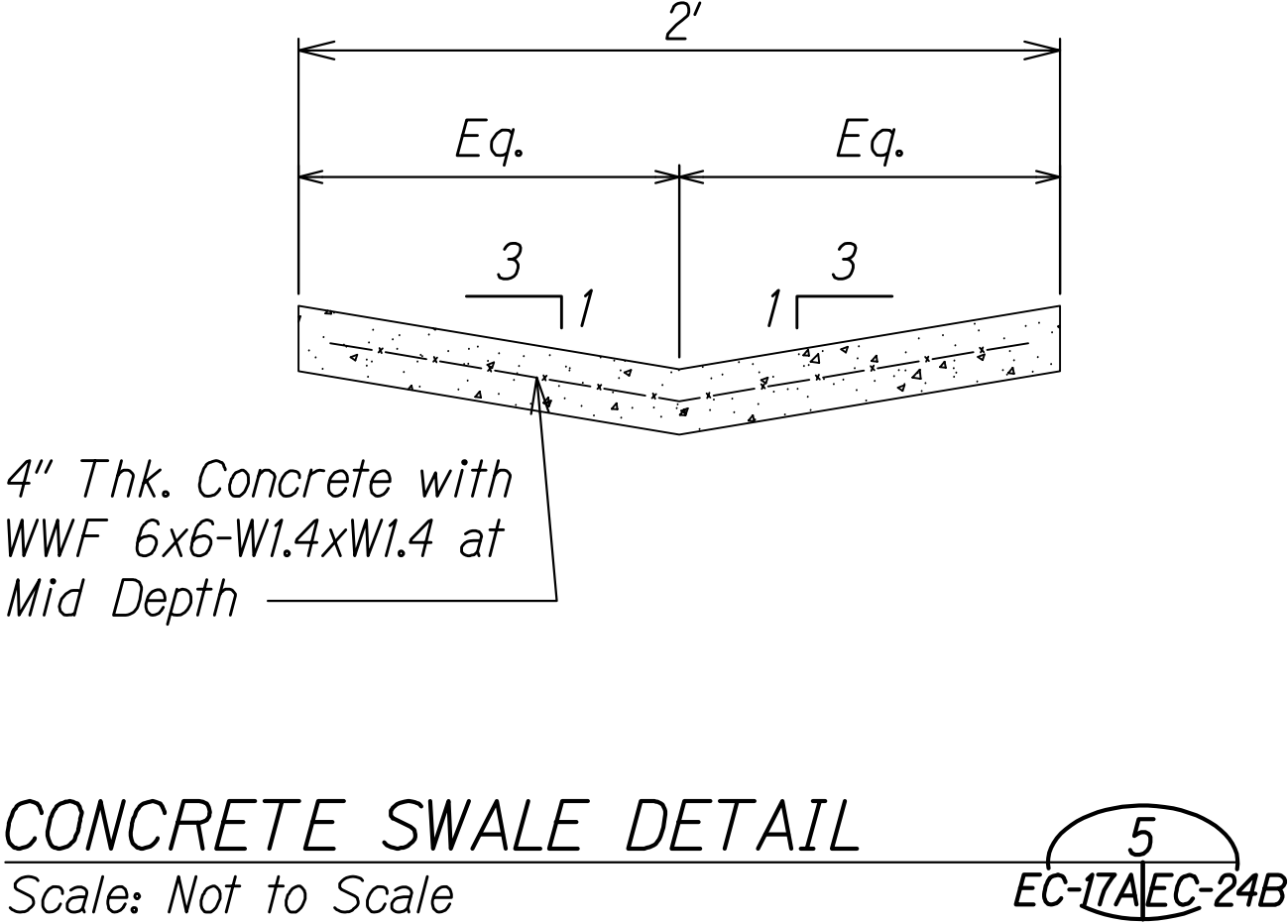
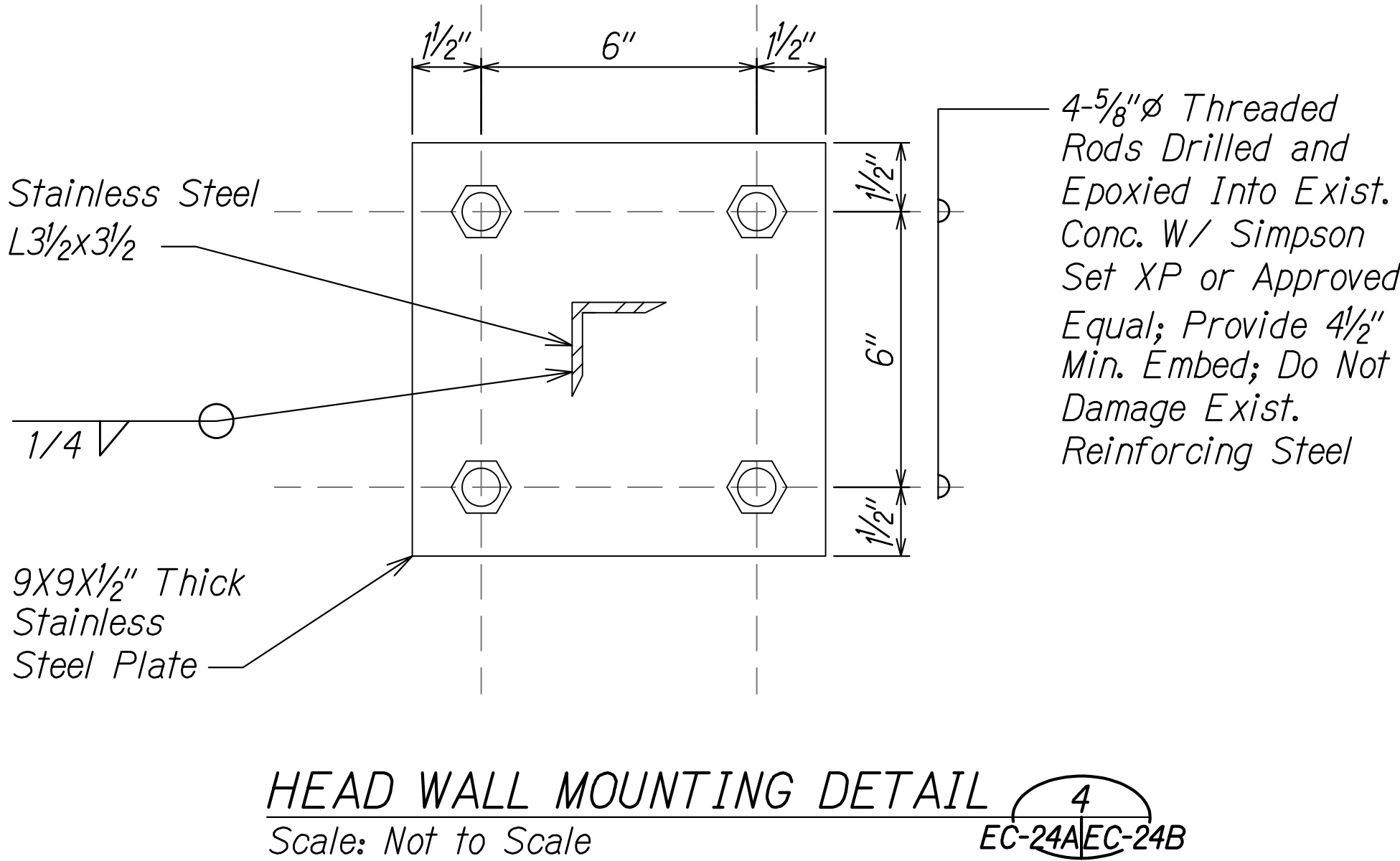
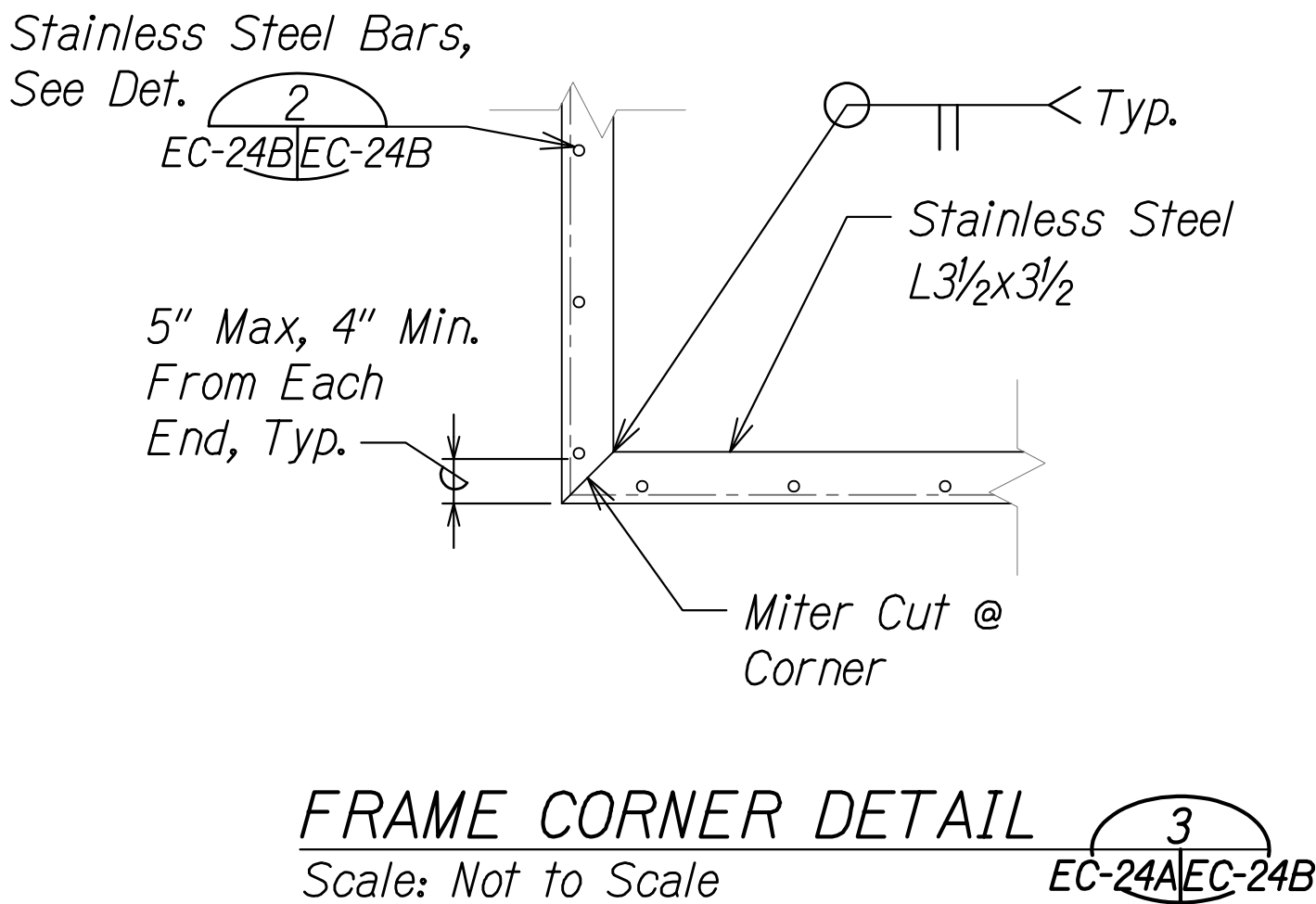
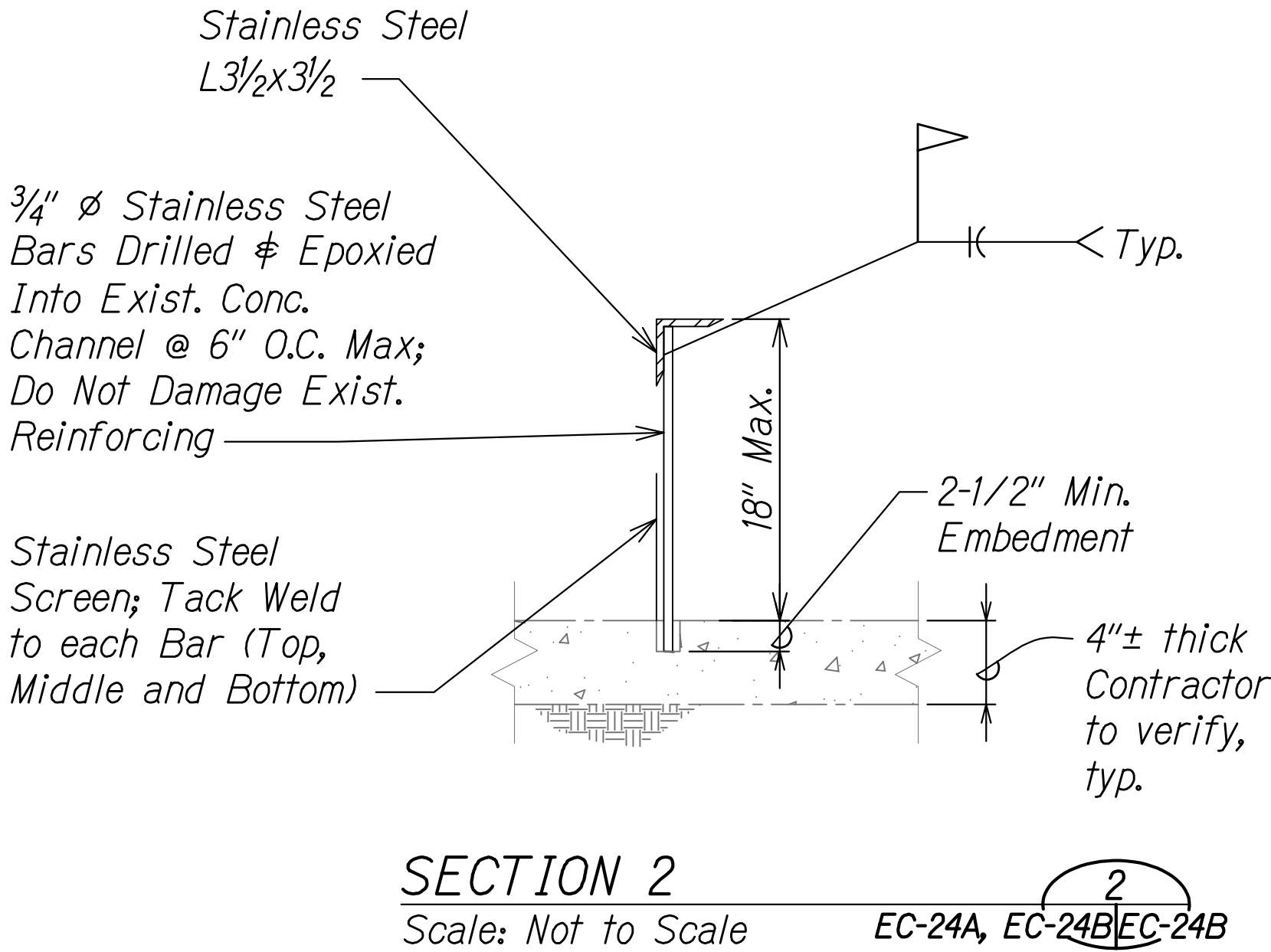
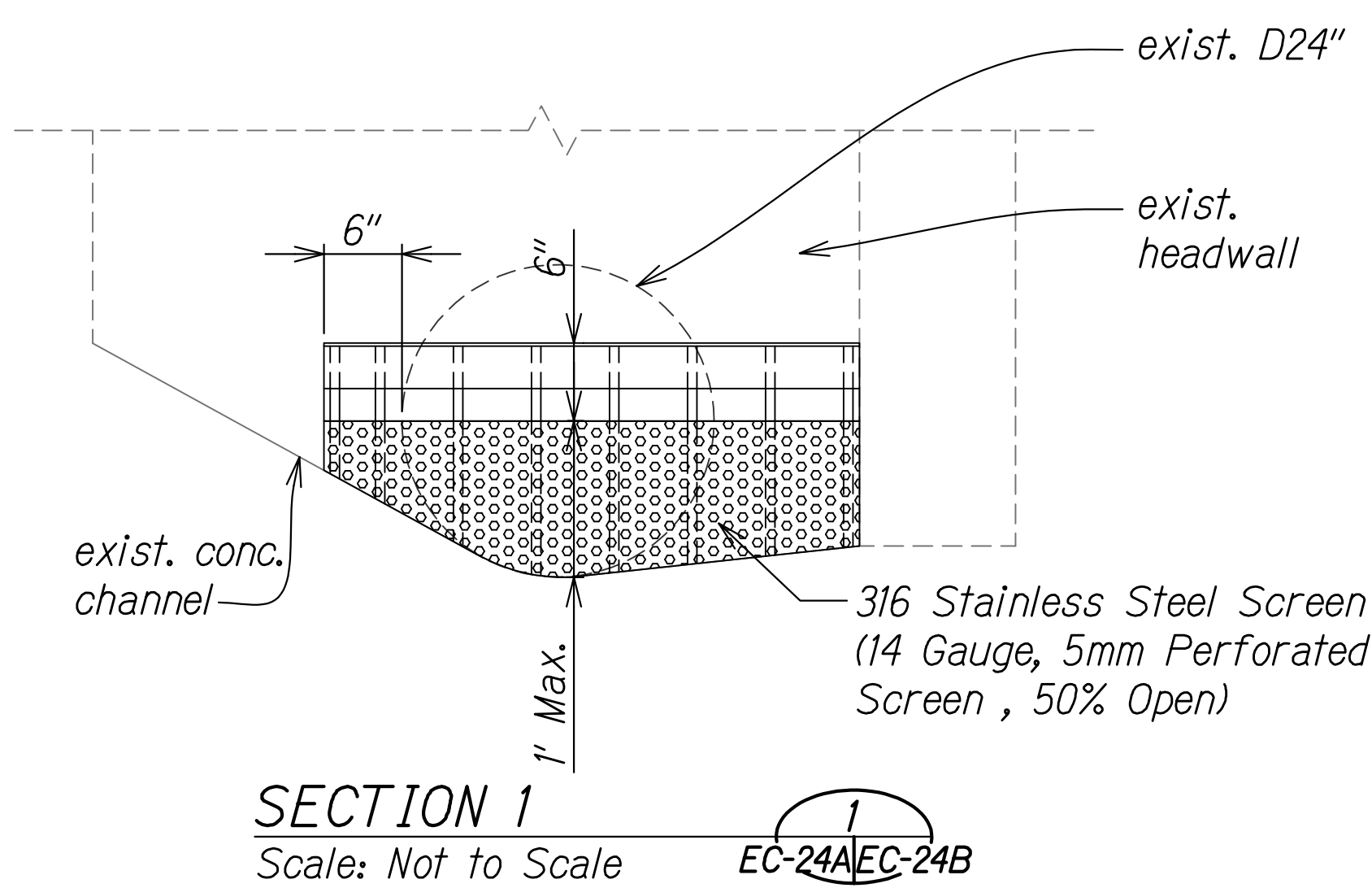
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Date: April 2018

SHEET No. EC-24AOF 25 SHEETS

C.O. 38S-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-01-18	2018	C.O. 38S-2	65



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01/31/19	Revised Improvements for PID 467
DATE	REVISION

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

**SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 8**

Project No. HWY-O-01-18
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SHEET No. EC-24BOF 25 SHEETS

C.O. 38S-2