FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	4	213

GENERAL NOTES (Cont'd)

25. When excavating near utility poles, the Contractor shall protect, support, secure and take all other precautions to prevent damage to or leaning of these poles. The Contractor is responsible for all costs associated to repair and/or straighten pole.

26. Where pedestrian walkways exist, they shall be maintained in a safe and passable condition, or other facilities for pedestrians shall be provided. Passages between walkways at intersections shall likewise be provided at all times.

27. The Contractor is responsible for hiring State of Hawaii licensed civil, structural, environmental, and electrical engineers to provide stamped shop drawings of a traffic control plan; a NPDES plan and erosion control plan; shop drawing details of the roadway, detour road, bridge and culvert structures, temporary structures, and all other temporary or permanent improvements required to complete the work. Only upon written approval by the State, shall the Contractor proceed with accepted portions of the proposed construction work.

28. HDOT is in the process of executing a Utility Agreement with Maui Electric, Verizon and Oceanic/Time Warner. HDOT assumes that power poles and underground conduits will need to be relocated, along with temporary relocation required to facilitate contractor's construction work.

29. Contractor shall exercise extreme caution and coordinate relocation of overhead Fiber Optic Cable with Oceanic/Time Warner Cable company. Contact Mr Bill Hanke at (808) 877-4425 ext. 838.

30. Smooth riding connections shall be constructed at all limits of project, including the beginning and end of project, connecting approaches, side streets, walkways and driveways as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to various contract items and will not be paid for separately.

31. Earth swales shall be graded to drain. This work shall be considered incidental to various contract items and will not be paid for separately.

32. All saw cutting work shall be considered incidental to structural excavation or roadway excavation and will not be paid for separately.

33. The Contractor shall indemnify and be solely responsible for the protection of adjacent properties, utilities and existing structures from damages due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.

34. The contractor shall perform all applicable construction work in accordance with the standard details entitled "Hawaii Standard Specifications for Road and Bridge Construction, 2005" as amended for the State of Hawaii.

35. All dimensions and details shown on the drawings shall be checked and verified prior to the start of construction, and any discrepancies shall be immediately brought to the attention of the engineer for clarification.

36. All existing utilities, whether or not shown on the plans, shall be protected at all times by the contractor during construction, and any damage to them shall be repaired and paid for by the contractor.

37. When trench excavation is adjacent to or under existing structures or facilities, the contractor shall be responsible for properly sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure from possible slides, cave-ins and settlement, and for properly supporting existing structures and facilities with beams, struts or underpinnings to fully protect it from damage.

38. The contractor shall restore all improvements damaged as a result of the construction to its original or better condition.

39. Design and construction of guardrail and guardrail end treatments shall conform to the latest edition of the AASHTO Roadside Design Guide, current National Cooperative Highway Research Program (NCHRP) 350 and HDOT requirements.

40. The Contractor is advised that in addition to other contractors working in the same areas, various utility companies (or their contractors) including Maui Electric Company, Verizon, Cable Television and Maui County Department of Wastewater Management may be performing work within the project area. The Contractor is to coordinate all work with other contractors in the area and to coordinate the design. In case of unreasonable conflict among contractors regarding access or work sites, the Engineer will make the final determination of priorities.

41. The Contractor shall obtain approval of lane closure hours and traffic control plans for all County streets from the Maui County, Division of Engineering.

42. A minimum 5 hazmat testing/sampling for area used by the contractor for baseyard or storage activities shall be performed when directed by HDOT.

43. Install permanent roadway monuments as required.

44. HDOT will not accept Mechanically Stabalized Earth (MSE) walls with a flapped geotextile facing. The MSE walls should have a masonry or concrete block facing with a positive mechanical connection between the facing and the geogrid.

⚠ 45. The Contractor shall provide during the course of construction, a temporary 12-foot wide gravel access road at proposed agricultural under crossing. The Contractor shall insure that temporary access road shall be adequately protected from construction activities. The limits of access road shall be clearly marked by an orange safety fence and Type I Barricades with flashers.

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY

1. The Contractor shall obtain a Permit to Perform Work Upon State Highway from the Maui District, State Highways, at 650 Palapala Drive, prior to commencement of work within the State highway right-of-way.

2. Construction and restoration of all existing highway facilities within State right-of-way shall be done in accordance with all applicable sections of the 1994 Standard Specifications for Road, Bridge and Public Works Construction, and the Specifications for Installation of Miscellaneous Improvements within State Highways of the State Highway Division.

3. Work may be performed only between the hours of 7:00 a.m. and 3:30 p.m., Monday through Friday, except holidays, unless otherwise permitted by the Engineer. Any work affecting County roadways will be subject to work hours permitted by the County of Maui.

4. The Contractor shall provide, install, and maintain all necessary signs, lights, flares , barricades, markers, cones, and other protective facilities, and shall take necessary precautions for the protection, convenience, and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways", adopted by the Director of Transportation, and the current U.S. Federal Highway Administration "Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI - Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility and Incident Management Operations" and NCHRP 350.

5. No material and/or equipment shall be stockpiled or otherwise stored within the highway right-of-way, except at locations designated in writing and approved by the Engineer.

6. The Contractor shall be required to provide adequate, safe, non-skid bridging material over any trench, including shoring, when trenching in pavement areas to handle all types of vehicular traffic. The use of steel plates shall not be used in the freeway travelway.

7. No trench shall be opened more than 200 feet in advance of the installed and tested pipe and/or ductline. No jumps or spaces will be permitted unless approved in writing by the Engineer.

8. Longitudinal drainage along the highway shall be maintained, at all times to allow freeflow.

9. All regulatory, guide and construction signs and barricades shall be high intensity reflective sheeting.

10. Stop work and contact the State Historic Prevention Division at (808) 692-8083 immediately should any unidentified archaeological site or remains (such as artifacts, shells, bones, charcoal deposits, road or coral alignments, pavings or walls) been countered during construction.

11. The Contractor shall inform the HDOT-Maui District Office at 873-3535 at least five (5) working days prior to any lane closures or changes to lane closures.

12. All signs, pavement markings, striping, etc. removed or damaged by the Contractor shall be replaced by the Contractor at no additional cost to the State.

PUBLIC HEALTH, SAFETY AND CONVENIENCE

1. The Contractor shall observe and comply with all federal, state and local laws required for the protection of public health and safety and environmental quality.

2. The Contractor, at his own expense, shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the air pollution standards and regulations of the State Department of Health.

3. The Contractor shall be responsible for the cleaning and removal of all silt and debris generated by his work and deposited and accumulated within downstream waterways, ditches and drain pipes and on public and private roadways. The contractor agrees to reimburse the State or City and County of Honolulu, the costs expended in performance of the above work if required for public health and safety, or made necessary by non-performance by the contractor.

4. The Contractor shall submit a noise pollution control plan when applying for a construction permit.

DATE	REVISION
1/18/10	⚠ Add Note 45

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No. 6998-C
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EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL & CONSTRUCTION NOTES

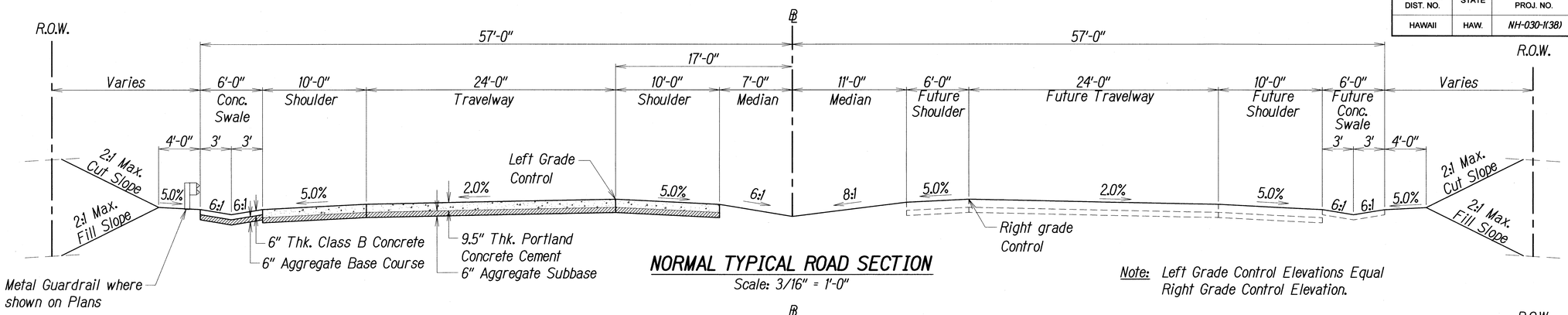
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: None Date: November 23, 2009

SHEET No. 2 OF 5 SHEETS

ADD. 4

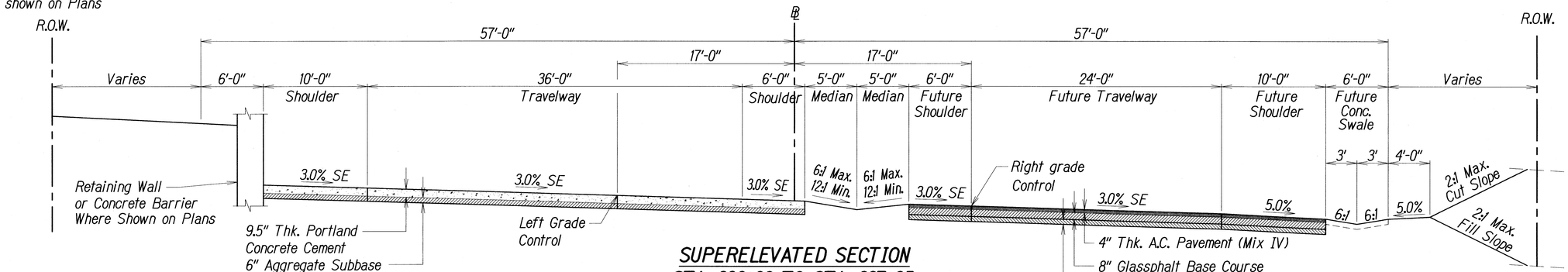
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	8	213



NORMAL TYPICAL ROAD SECTION

Scale: 3/16" = 1'-0"

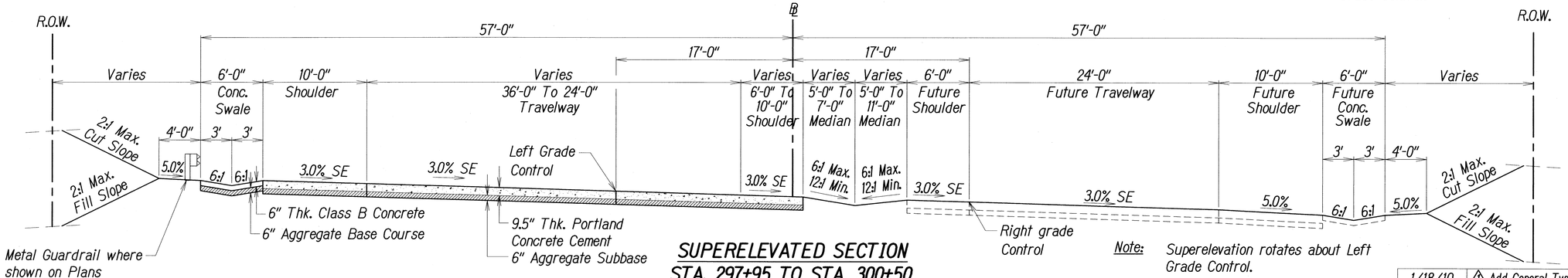
Note: Left Grade Control Elevations Equal Right Grade Control Elevation.



SUPERELEVATED SECTION STA. 296+00 TO STA. 297+95

Scale: 3/16" = 1'-0"

Note: Superelevation rotates about Left Grade Control.



SUPERELEVATED SECTION STA. 297+95 TO STA. 300+50

Scale: 3/16" = 1'-0"

Note: Superelevation rotates about Left Grade Control.

⚠ General Note for All Typical Sections

The top two (2) feet of subgrade, measured from the bottom of the pavement section, within the future travelway, shoulder and concrete swale areas shall meet Section 203.03 (C) Embankment Construction.

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DATE	REVISION
1/18/10	⚠1 Add General Typ. Section Note

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL ROADWAY SECTIONS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 3/16" = 1'-0" Date: November 23, 2009

SHEET No. 1 OF 8 SHEETS

ADD. 8

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	20	213

NOTE:
For Retaining Wall Plan & Profile, See Sht. 38

BEGIN PROJECT
F.A.P. No. NH-030-1(38)
℄ Sta. 296+00

℄ Sta. 297+92, o/s 51' lt.
Begin Metal Beam Guardrail
Install W-Beam Terminal Connector (RWE02B)

℄ Sta. 297+95
Begin Lane Taper
Begin 61616 Conc. Swale

℄ Sta. 298+65.5, o/s 51' lt.
End Metal Beam Guardrail
Begin Type "A" Flare

℄ Sta. 299+76, o/s 65' lt.
End Type "A" Flare

℄ Sta. 300+00, o/s 54' lt.
DI B-1

℄ Sta. 303+00, o/s 57' lt.
End Type "A" Flare
Begin Metal Beam Guardrail

℄ Sta. 302+52, o/s 65' lt.
Type "A" Flare

℄ Sta. 304+00
Begin Roadway Taper

℄ Sta. 305+60, o/s 58' lt.
End Metal Beam Guardrail
Begin Type "A" Flare

℄ Sta. 300+50
End Road Taper

61616 Conc. Swale
See Det. on Sht. 82

PCC to AC Pavement Connection
See State Std. Det. D-20

Exist. PP to be relocated by others

℄ Sta. 298+00, o/s 54' lt.
DI A-6

℄ Sta. 301+13, o/s 7' lt.

℄ Honoapiilani Highway

℄ Sta. 303+25
DI C-1

℄ Sta. 297+85

℄ Sta. 298+00, o/s 16' rt.
DI A-5

℄ Sta. 298+00, o/s 54' rt.
DI A-4

℄ Sta. 300+00, o/s 54' rt.
DI A-3

℄ Sta. 302+00, o/s 53.6' rt.
DI A-2

℄ Sta. 303+10, o/s 44' rt.
DMH A-1

℄ Sta. 303+19, o/s 48' rt.
W.Q. A

Drainline A
Drainline B
Drainline C

Culvert 1
(2) 16'x9' Arch-Box
Concrete Culverts

existing 25' wide overhead utility esmt.

Construction Parcel
New Conc. Barrier
New Retaining Wall
P.C.C. ℄ Sta. 296+00
R=3000'
Match Exist. Retaining Wall
R/W
Construction Parcel
55'
296'
310' R.O.W.
80'
222'
Construction Parcel
True North
Scale: 1"=40'
10' 24' 6'11"
10' 36' 6'10.6" 24" 10.6' 1'
ES
EP
295+00
300+00
305+00
D24"
D30
D48
M12
9" HP
D24
6'12.0"
7'10.24"
5°50'53"
HONOAPIILANI HIGHWAY
344°53'46"
1818.30'
R=550'
M.L. ℄ STA. 306+00
R/W
Construction Parcel
Match Exist. Conc. Pavement
Provide Smooth Riding Connection
See Det. 1 on Sht. 16 & Det. 3 on Sht. 17
50' Construction Parcel
29' Construction Parcel
150'
Construction Parcel
50'
50'
C1

PLAN
Scale: 1"=40'

Legend:
AC Pavement

℄ CURVE DATA

	△	△/2	R	T	Ch	Lc
C1	35°16'54"	17°38'27"	3000.00'	954.01'	1818.30'	1847.34'

PROFILE
Scale: Horiz. 1"=40'
Vert. 1"=8'

Begin Project
208.01'
Sta. 296+00 Left Grade Control
Finish Grade @ Left Grade Control (By Others)
Sta. 296+00 Right Grade Control
207.05'
existing grade @ ℄ of road
Finish Grade @ Left Grade Control
Finish Grade @ Right Grade Control
1.00%
D24
D24
Culvert 1
(2) 16'x9' Arch-Box
Concrete Culverts
M.L. ℄ STA. 306+00
240
230
220
210
200
190
180
295+00
296+00
297+00
298+00
299+00
300+00
301+00
302+00
303+00
304+00
305+00
306+00

DATE	REVISION
1/18/10	⚠ Revised Construction Parcels

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN & PROFILE

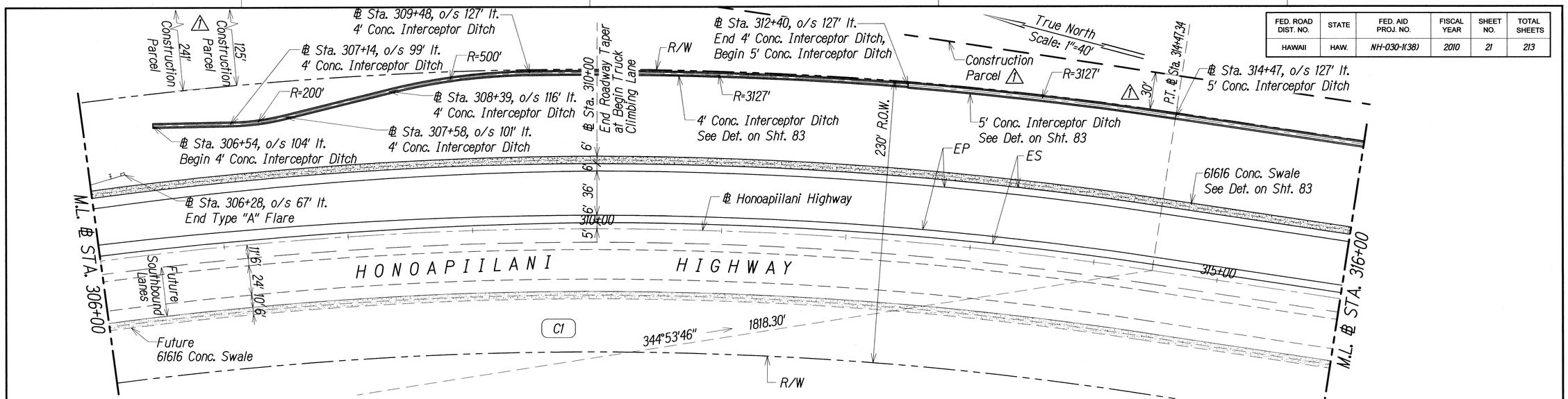
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1"=40' Date: November 23, 2009

SHEET No. 1 OF 11 SHEETS

ADD. 20

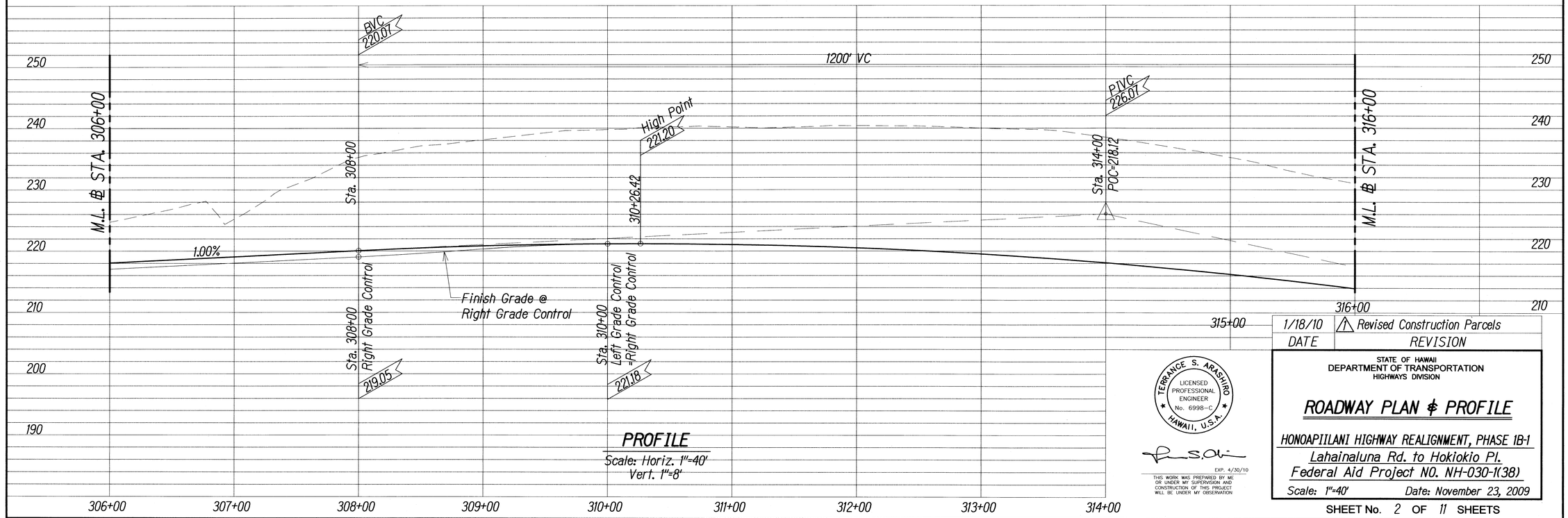
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	21	213



℄ CURVE DATA

	△	△/2	R	T	Ch	Lc
C1	35°16'54"	17°38'27"	3000.00'	954.01'	1818.30'	1847.34'

PLAN
Scale: 1"=40'



PROFILE
Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠1 Revised Construction Parcels

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN & PROFILE

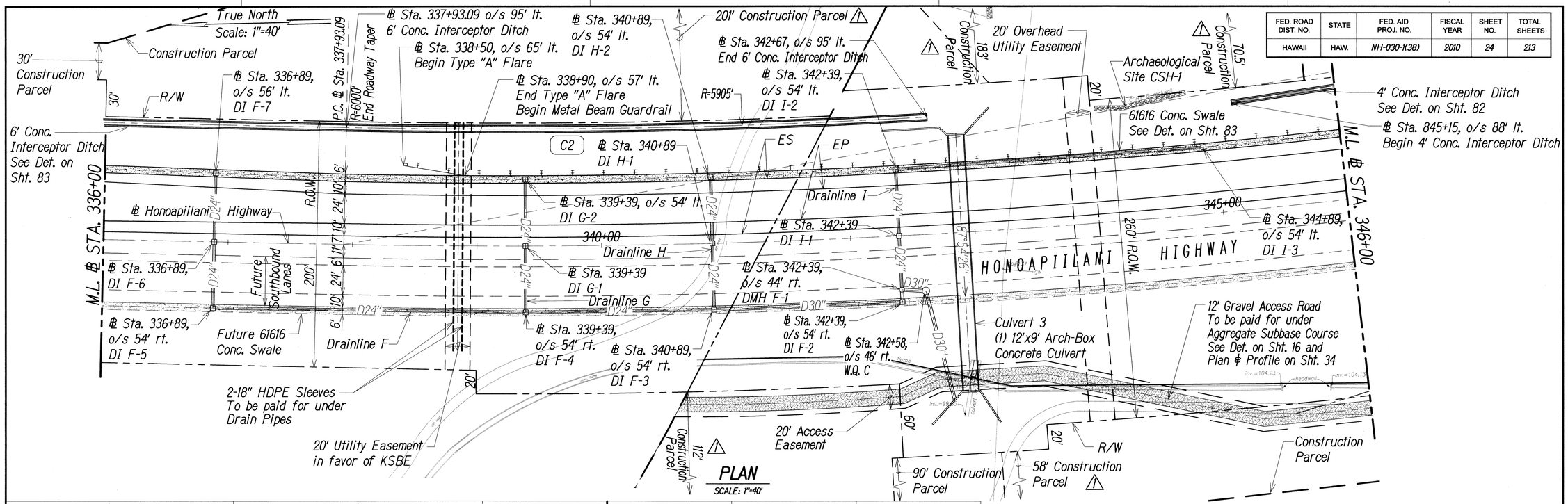
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1"=40' Date: November 23, 2009

SHEET No. 2 OF 11 SHEETS

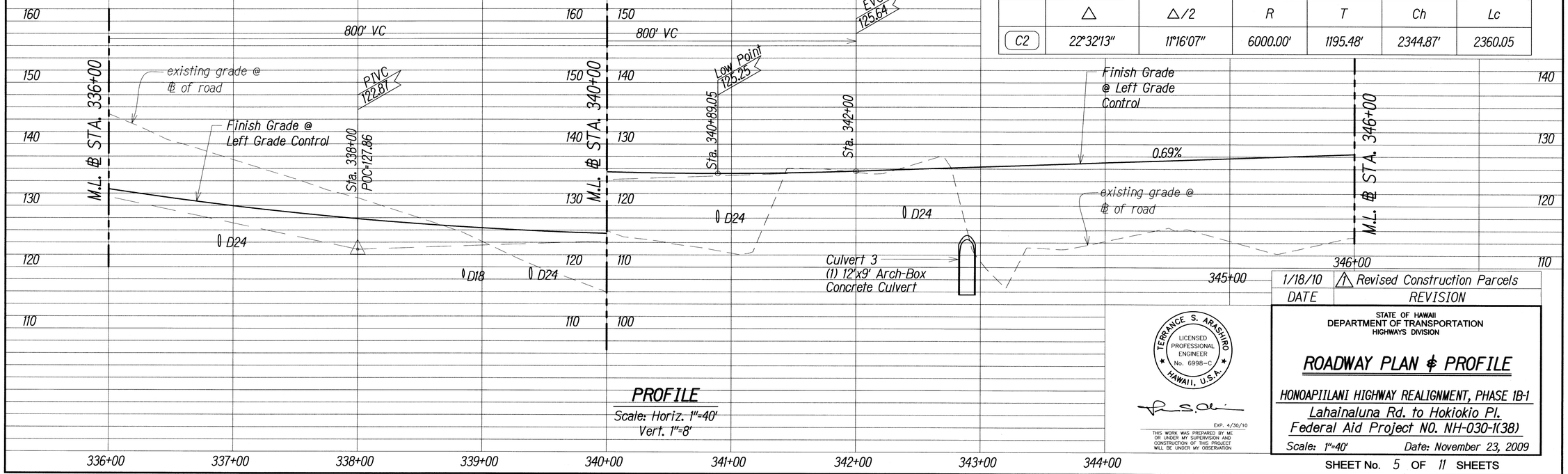
ADD. 21

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	24	213



℄ CURVE DATA

	△	△/2	R	T	Ch	Lc
C2	22°32'13"	11°16'07"	6000.00'	1195.48'	2344.87'	2360.05



PROFILE
Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠1 Revised Construction Parcels

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN & PROFILE

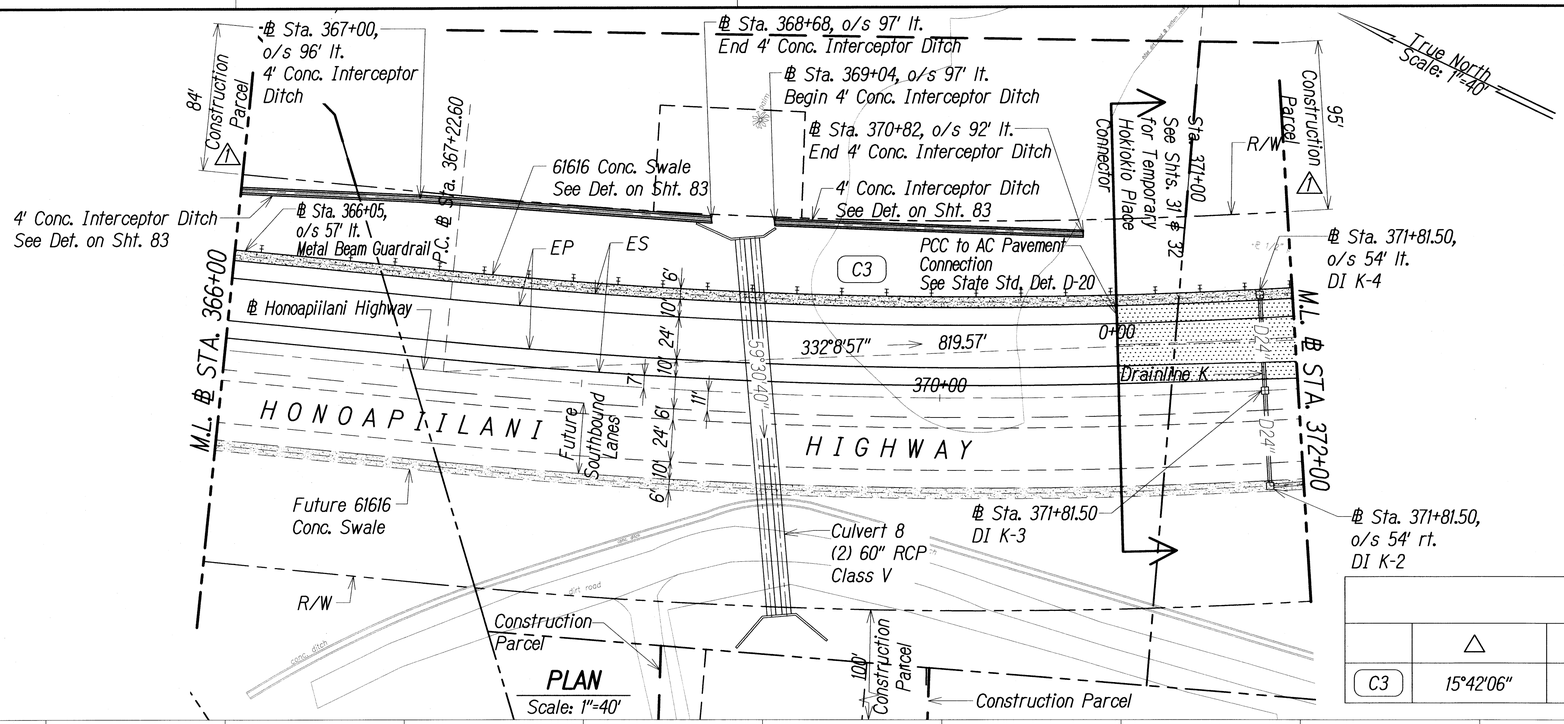
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1"=40' Date: November 23, 2009

SHEET No. 5 OF 11 SHEETS

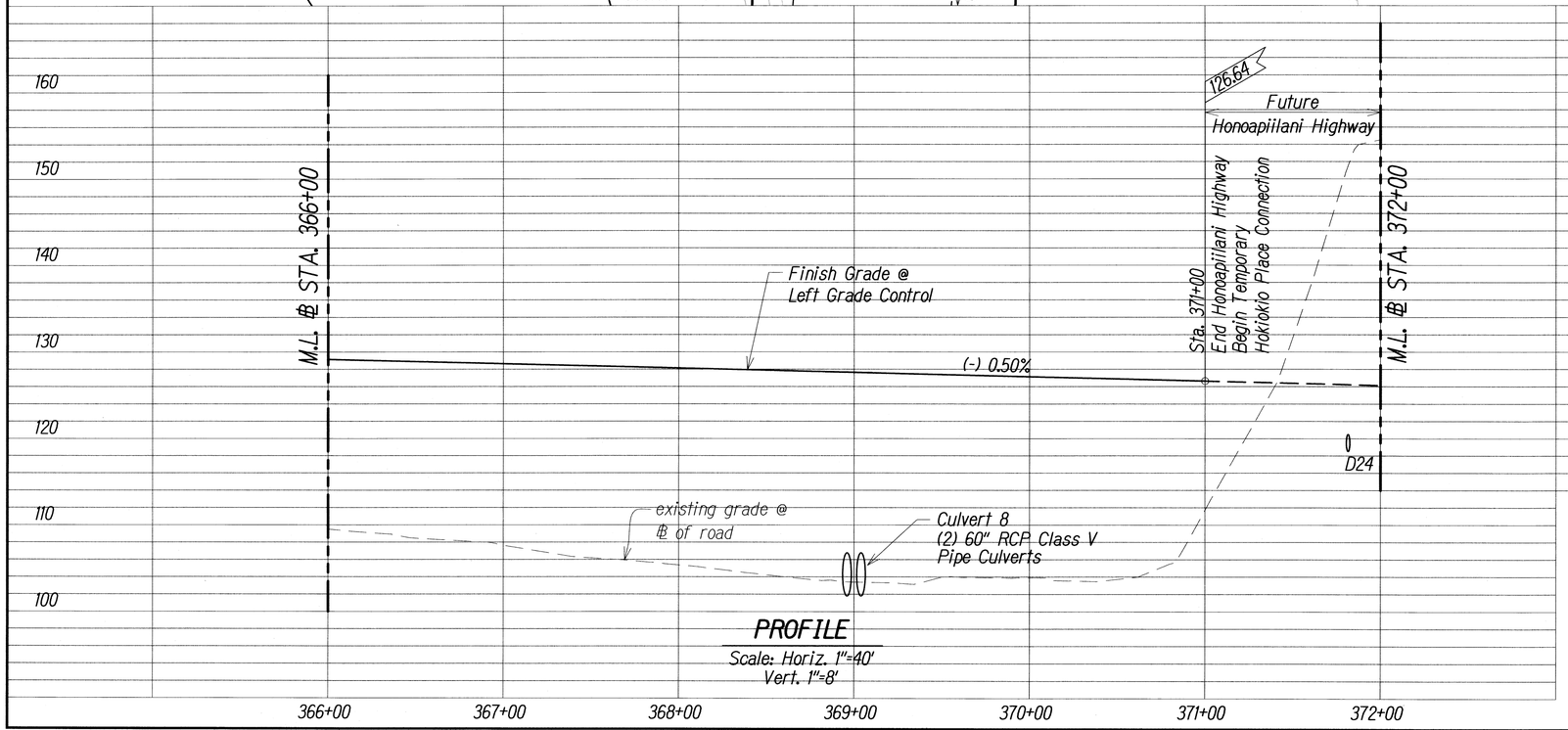
ADD. 24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	27	213



℄ CURVE DATA

	△	△/2	R	T	Ch	Lc
C3	15°42'06"	7°51'03"	3000.00'	413.66'	819.57'	822.14'



PROFILE
Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠ Revised Construction Parcels

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
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EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN & PROFILE

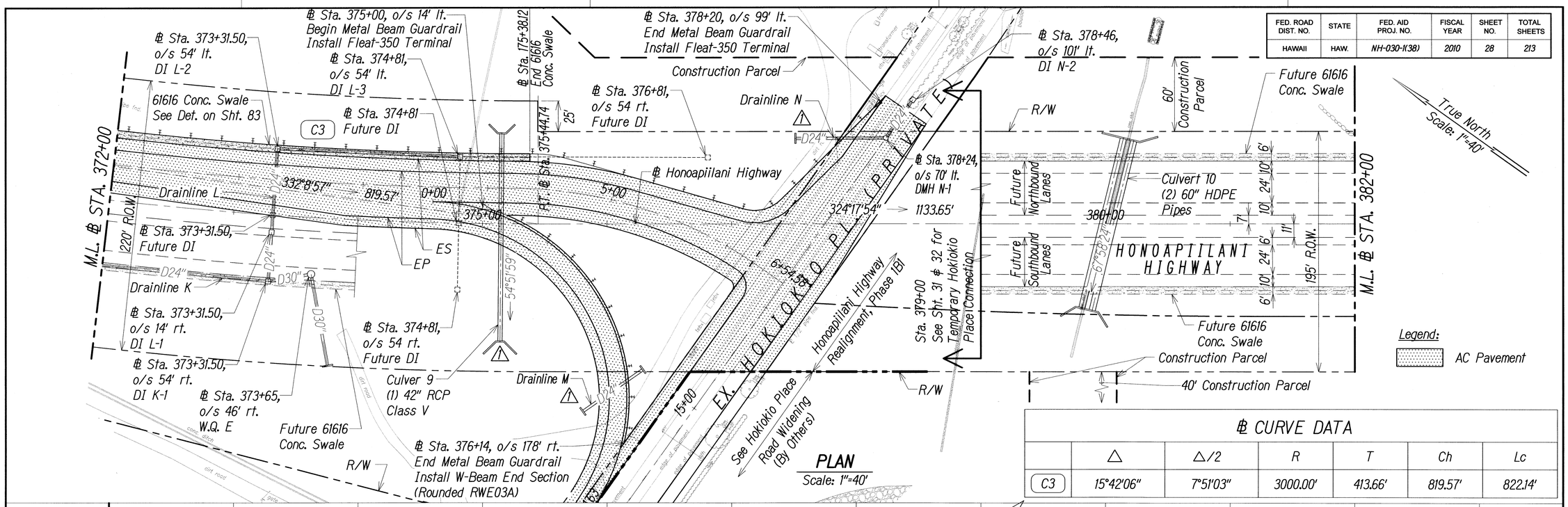
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1"=40' Date: November 23, 2009

SHEET No. 8 OF 11 SHEETS

ADD. 27

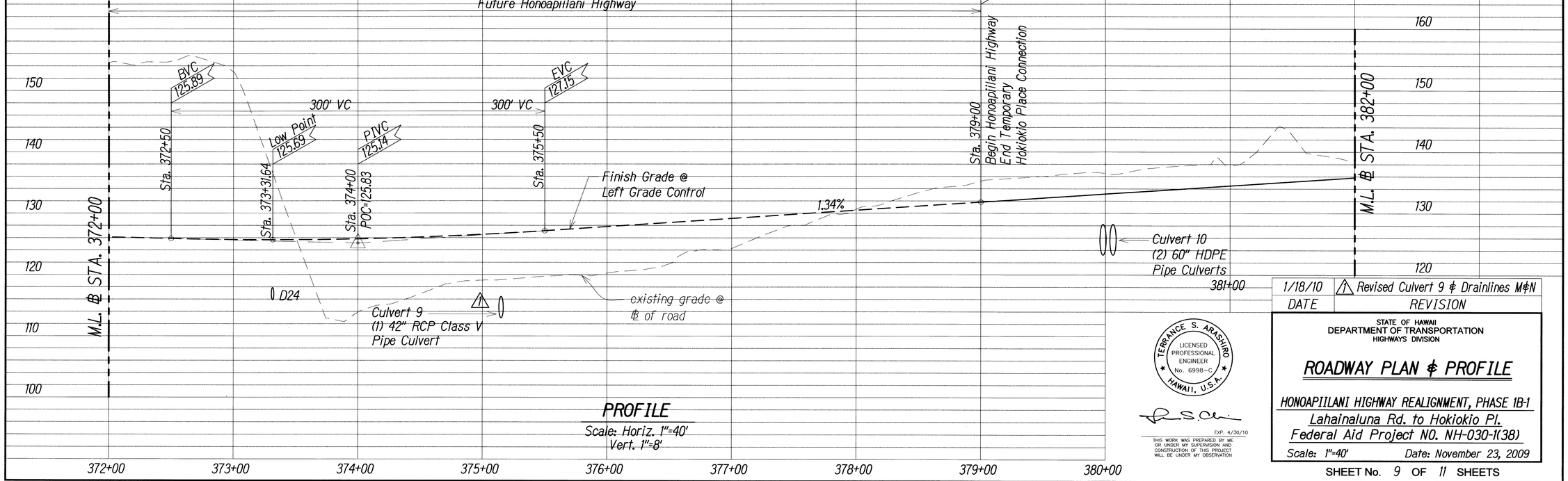
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	28	213



PLAN
Scale: 1"=40'

℄ CURVE DATA

	△	△/2	R	T	Ch	Lc
C3	15°42'06"	7°51'03"	3000.00'	413.66'	819.57'	822.14'



PROFILE
Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠1 Revised Culvert 9 ℄ Drainlines M℄N

TERRANCE S. ARASHIRO
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EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN & PROFILE

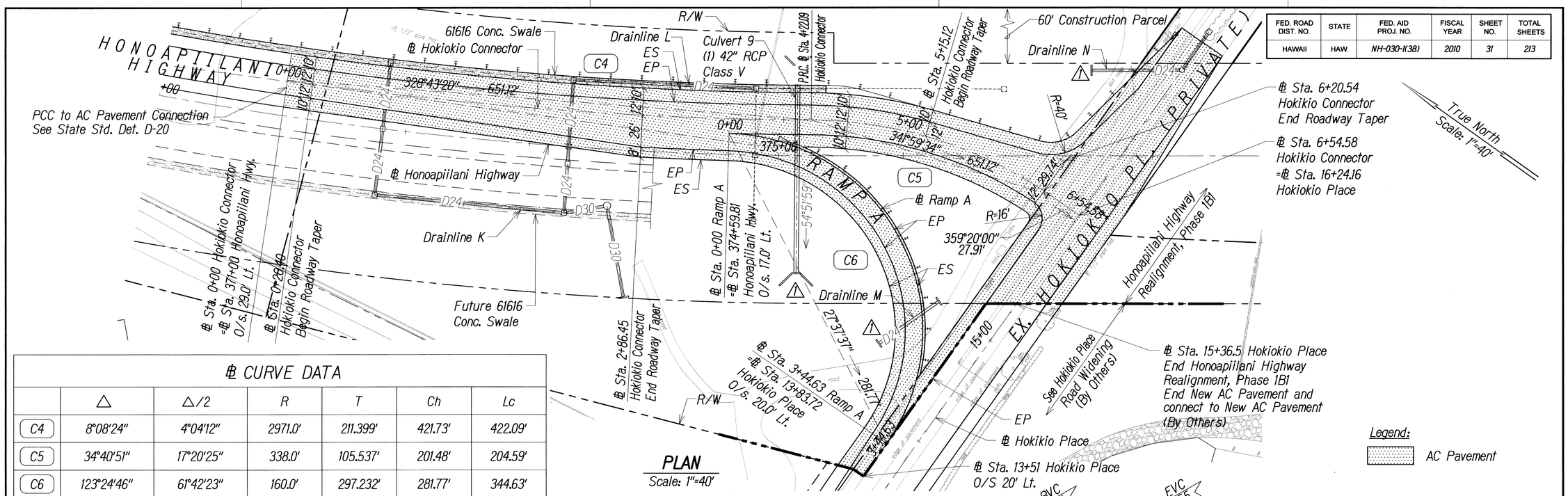
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1"=40' Date: November 23, 2009

SHEET No. 9 OF 11 SHEETS

ADD. 28

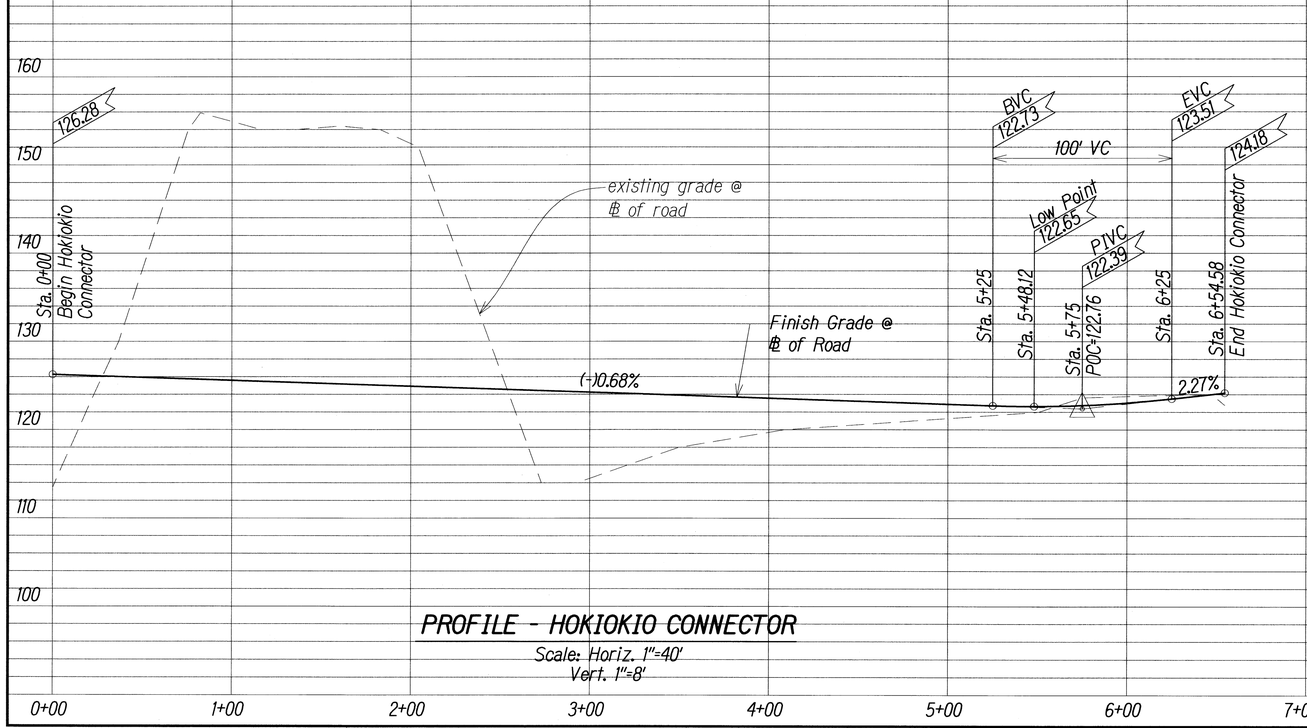
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	31	213



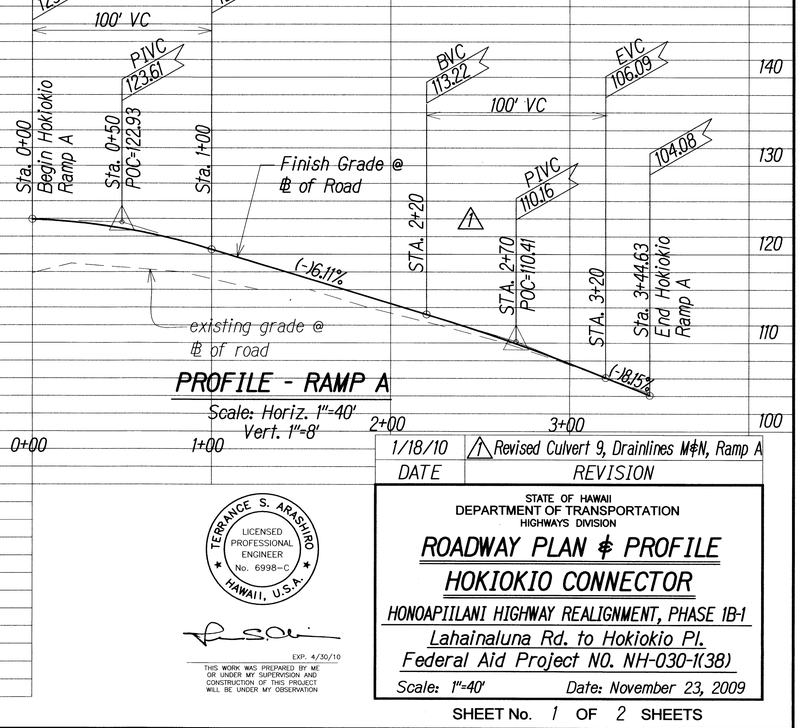
PLAN
Scale: 1"=40'

℄ CURVE DATA

	△	△/2	R	T	Ch	Lc
C4	8°08'24"	4°04'12"	2971.0'	211.399'	421.73'	422.09'
C5	34°40'51"	17°20'25"	338.0'	105.537'	201.48'	204.59'
C6	123°24'46"	61°42'23"	160.0'	297.232'	281.77'	344.63'



PROFILE - HOKIOKIO CONNECTOR
Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE - RAMP A
Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠1 Revised Culvert 9, Drainlines M℄N, Ramp A

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

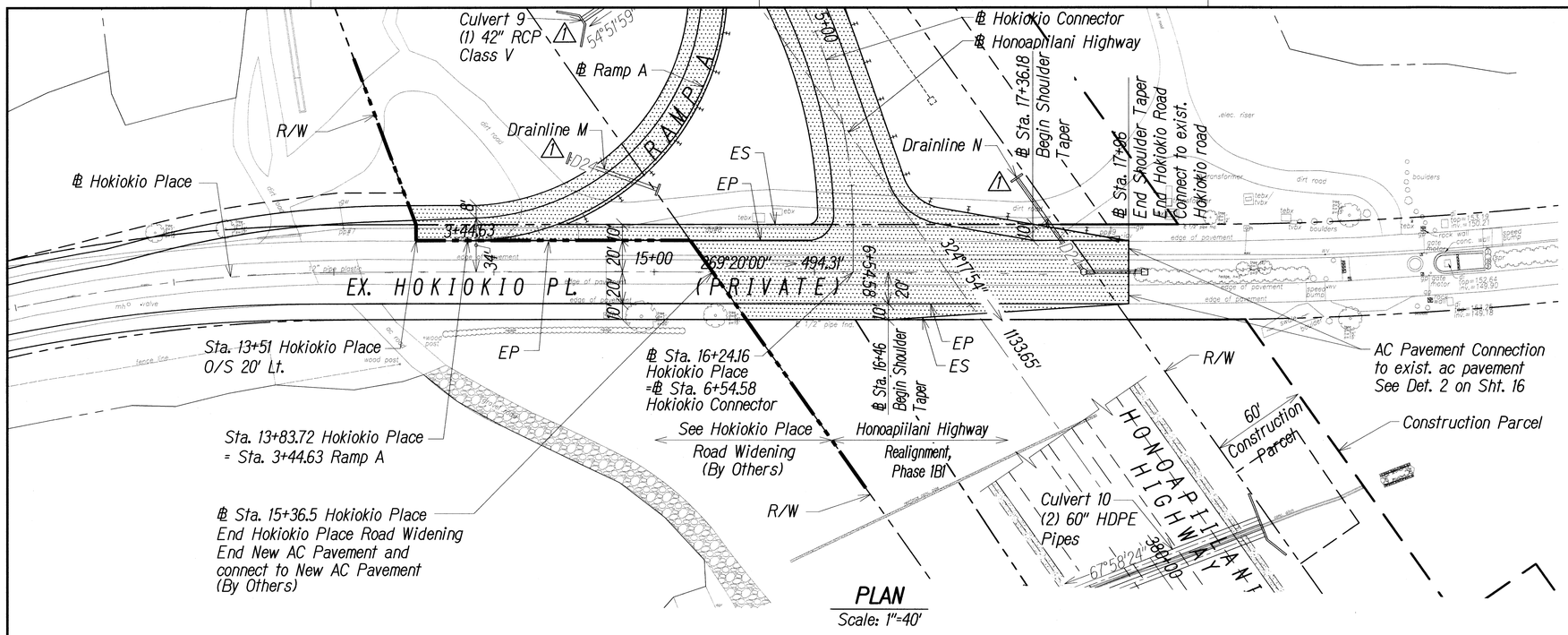
ROADWAY PLAN ℄ PROFILE
HOKIOKIO CONNECTOR
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1"=40' Date: November 23, 2009

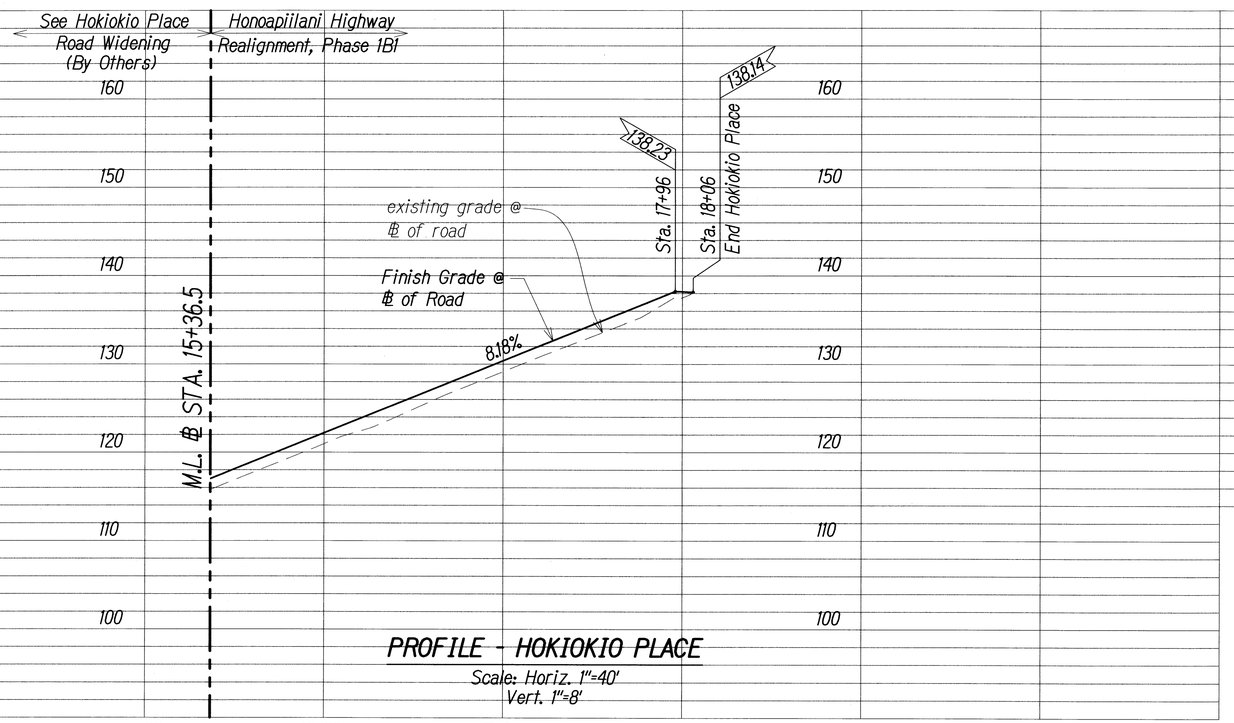
SHEET No. 1 OF 2 SHEETS

ADD. 31

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	32	213



PLAN
Scale: 1"=40'



PROFILE - HOKIOKIO PLACE
Scale: Horiz. 1"=40'
Vert. 1"=8'

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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DATE	REVISION
1/18/10	⚠1 Revised Culvert 9 ℄ Drainlines M℄N

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN & PROFILE
HOKIOKIO CONNECTOR

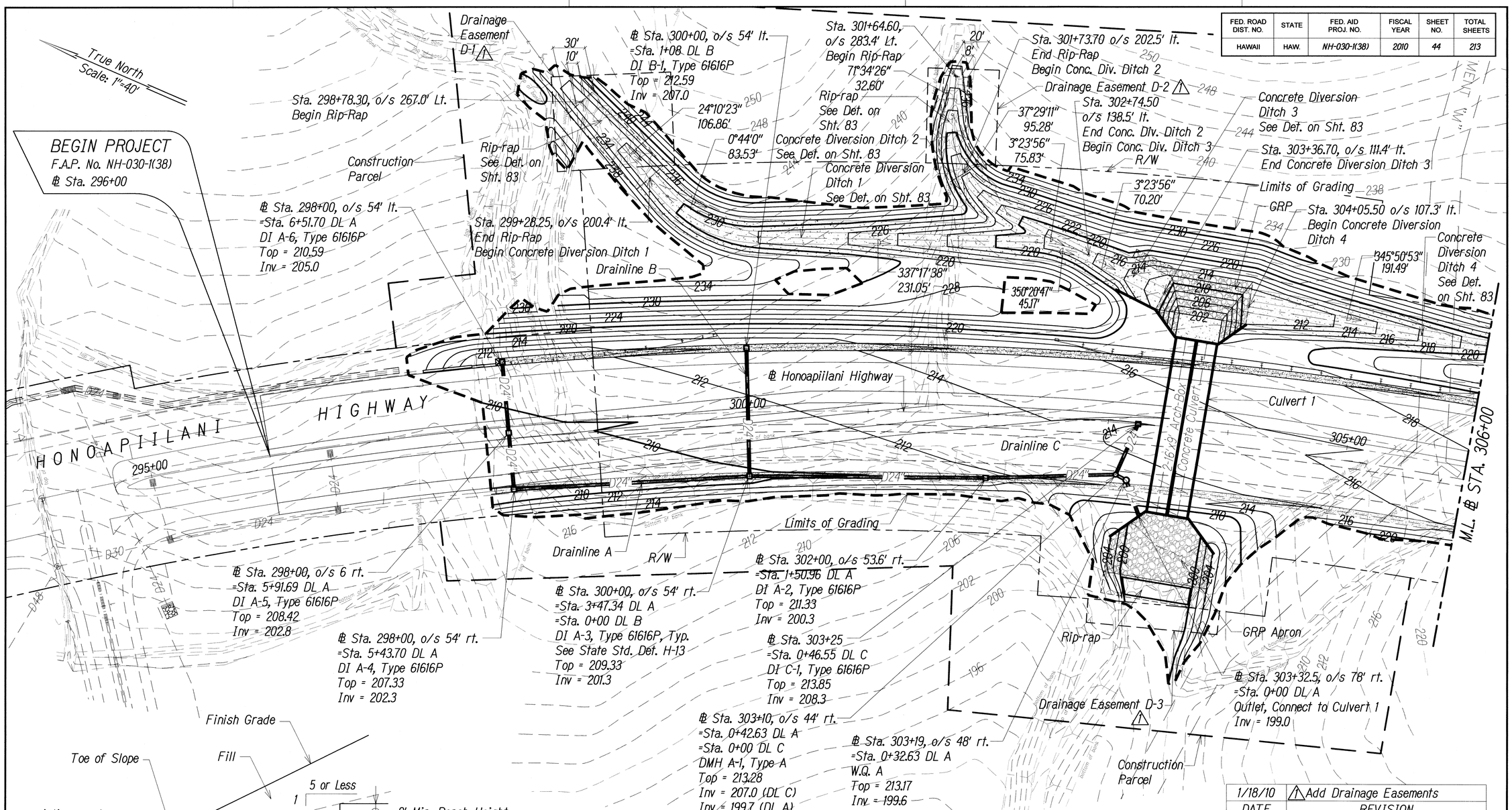
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

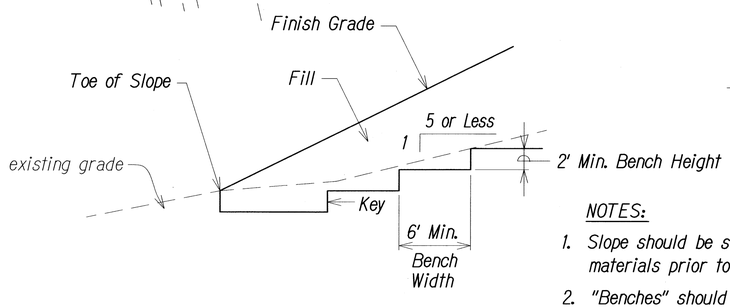
Scale: 1"=40' Date: November 23, 2009

SHEET No. 2 OF 2 SHEETS

ADD. 32

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	44	213





SLOPE FILL PLACEMENT

Not to Scale

NOTES:

1. Slope should be stripped of topsoil and unsuitable materials prior to placing any fill.
2. "Benches" should be minimum 6 feet wide.
3. "Key" should be minimum 2 feet deep and 6 feet wide, extending the full length of the slope face.

TERRANCE S. ARASHIRO
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HAWAII, U.S.A.

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DATE	REVISION
1/18/10	⚠1 Add Drainage Easements

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

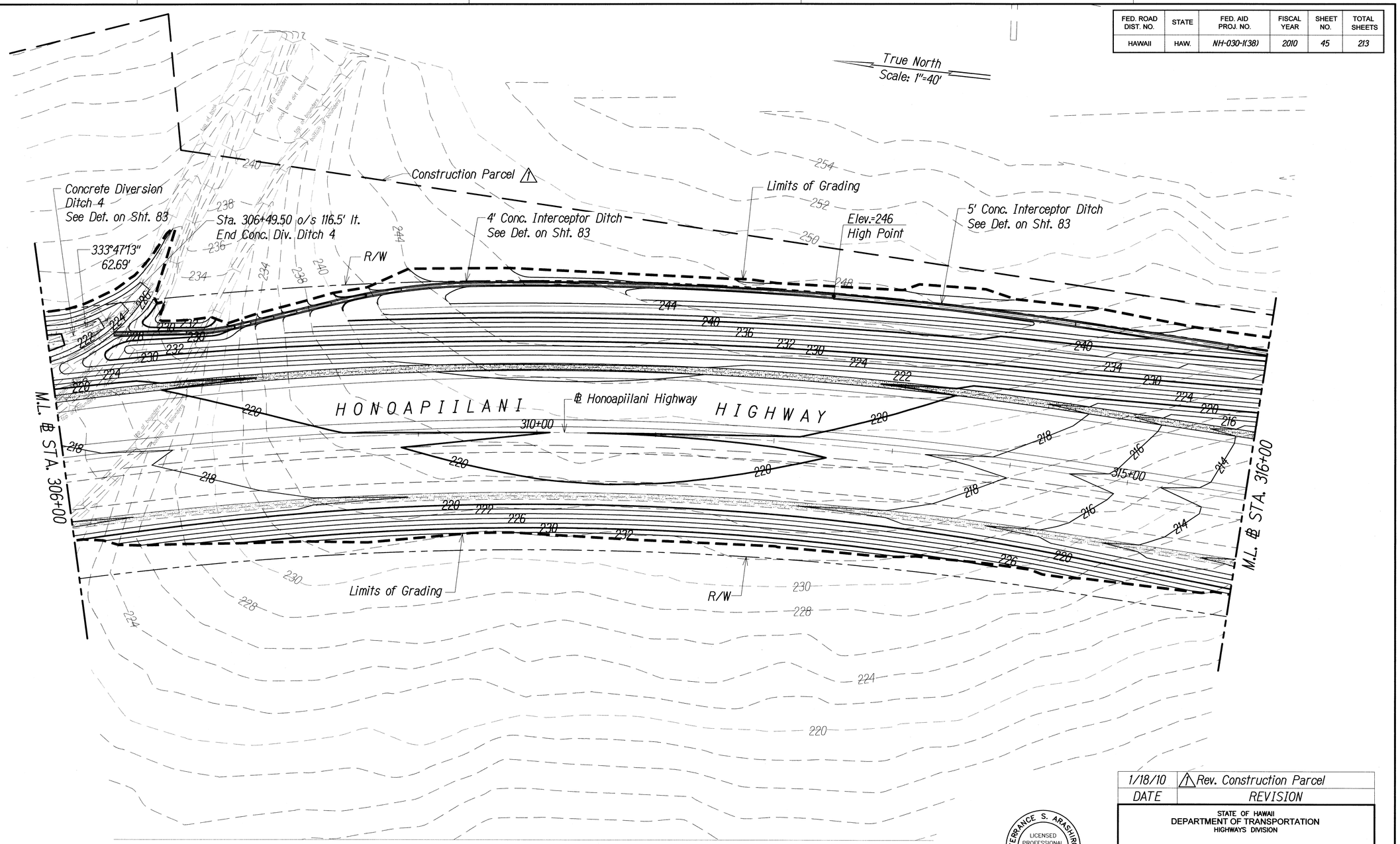
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

SHEET No. 1 OF 13 SHEETS

ADD. 44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	45	213



1/18/10	⚠ Rev. Construction Parcel
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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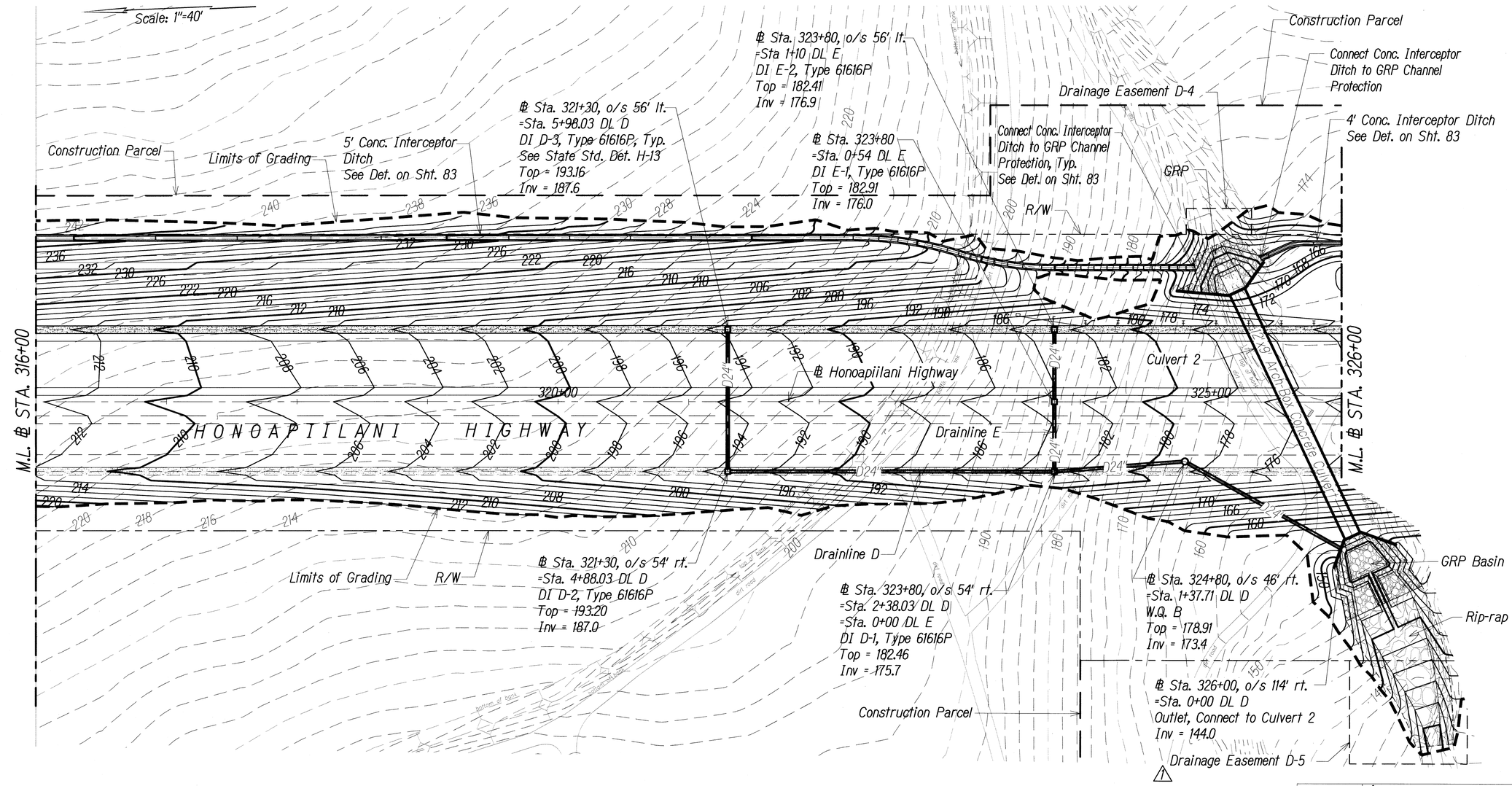
SHEET No. 2 OF 13 SHEETS

ADD. 45

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	46	213



1/18/10	⚠ Add Drainage Easements
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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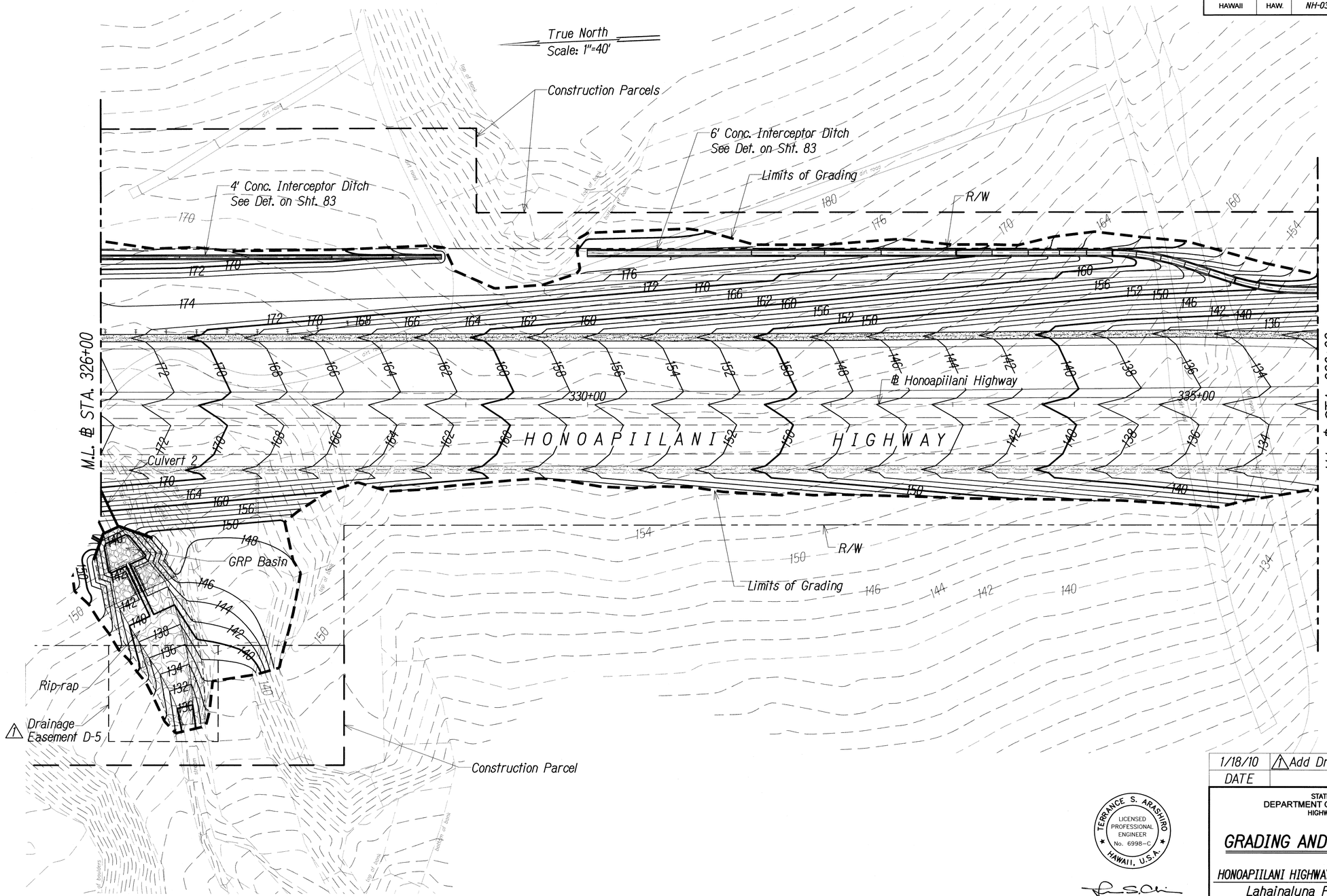
SHEET No. 3 OF 13 SHEETS

ADD. 46

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	47	213



1/18/10	⚠ Add Drainage Easements
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

TERRANCE S. ARASHIRO
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No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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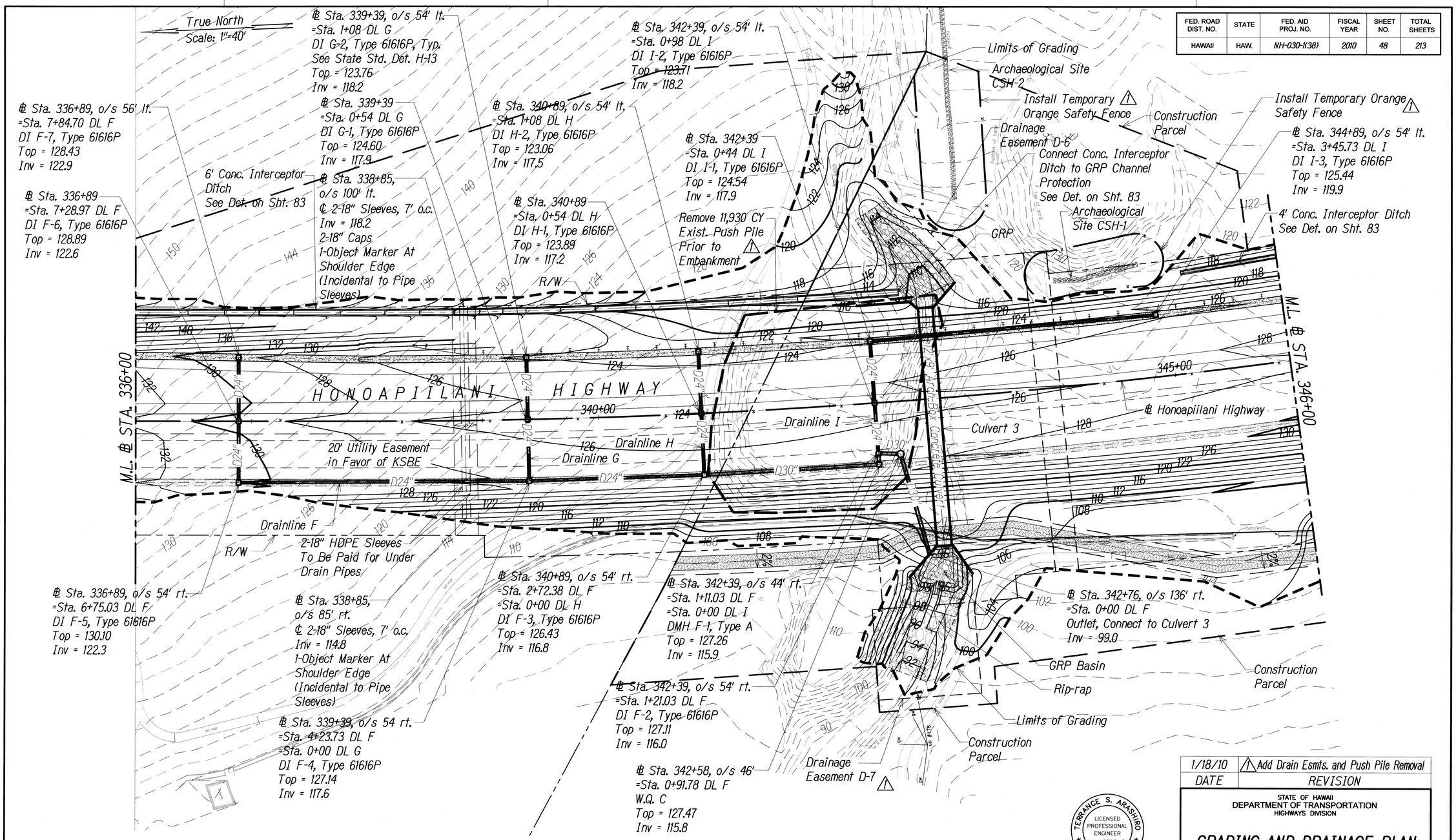
SHEET No. 4 OF 13 SHEETS

ADD. 47

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	48	213



1/18/10	⚠ Add Drain Esmts. and Push Pile Removal
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

TERRANCE S. ARASHIRO
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No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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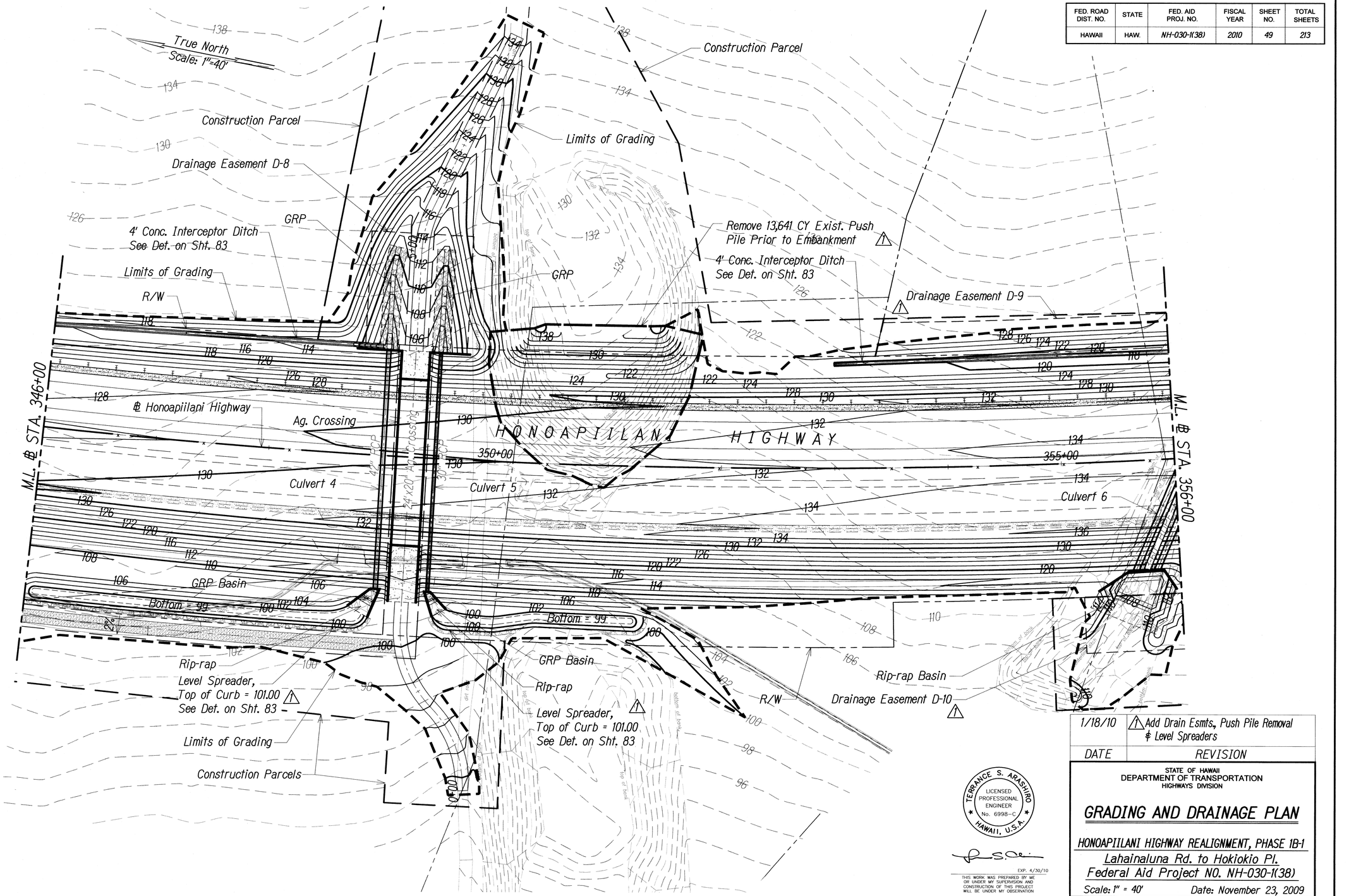
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	49	213



DATE	REVISION
1/18/10	⚠1 Add Drain Esmts., Push Pile Removal & Level Spreaders

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

TERRANCE S. ARASHIRO
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No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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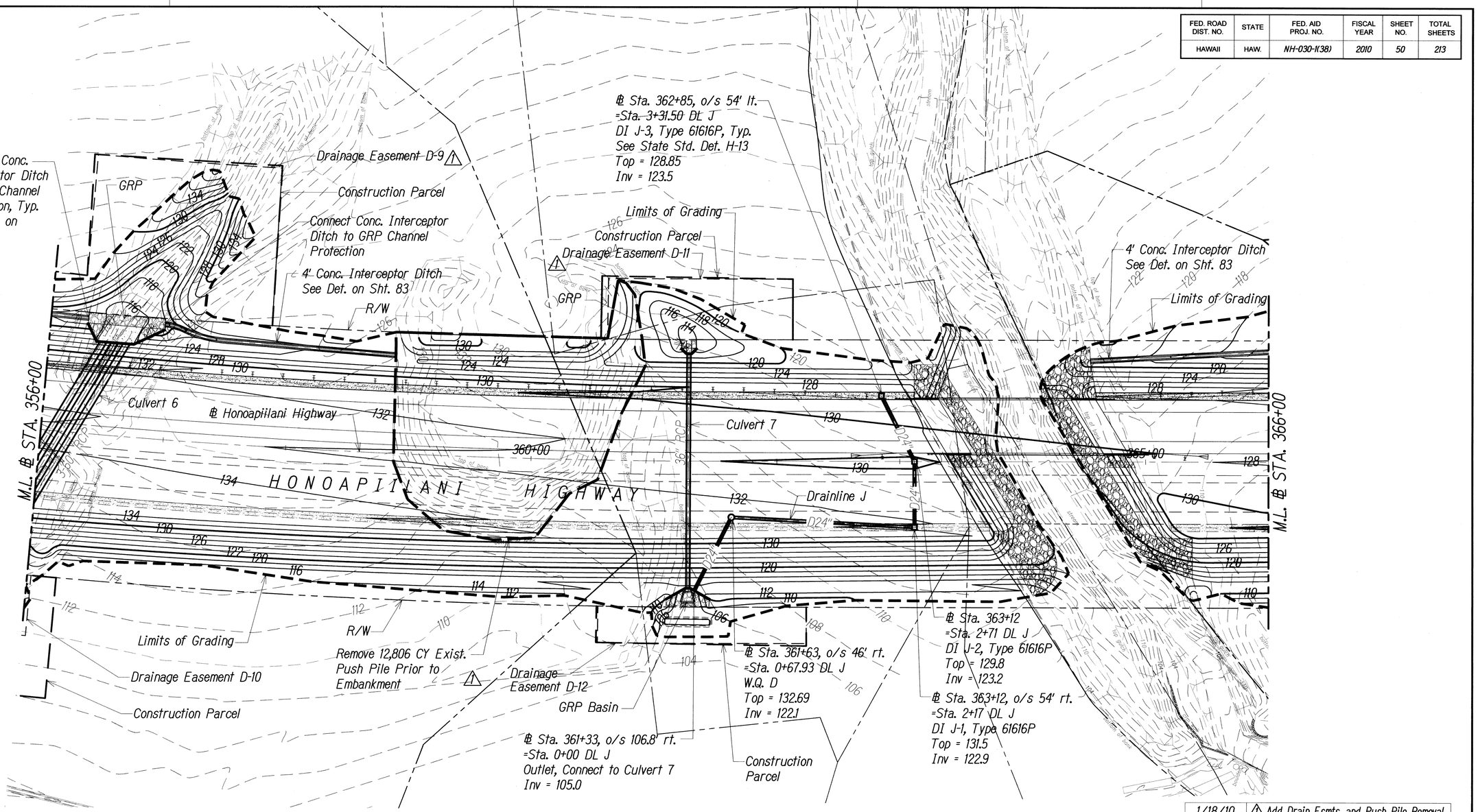
SHEET No. 6 OF 13 SHEETS

ADD. 49

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	50	213



1/18/10	⚠ Add Drain Esmts. and Push Pile Removal
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

TERRANCE S. ARASHIRO
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No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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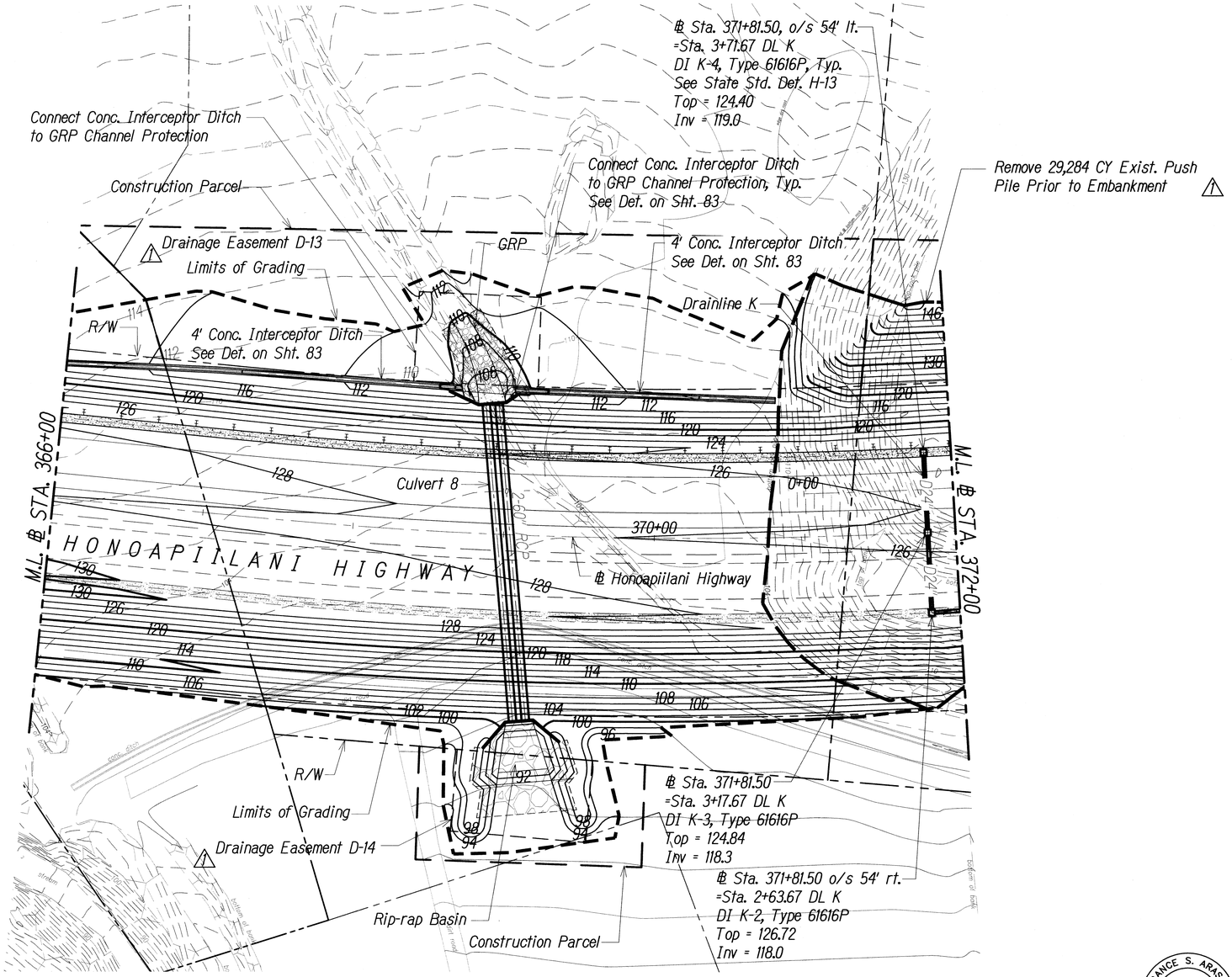
SHEET No. 7 OF 13 SHEETS

ADD. 50

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	51	213



DATE	REVISION
1/18/10	1 Add Drain Esmts. and Push Pile Removal

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

TERRANCE S. ARASHIRO
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No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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SHEET No. 8 OF 13 SHEETS

ADD. 51

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	52	213

℄ Sta. 373+31.50, o/s 54' lt.
=Sta. 1+07.95 DL L
DI L-2, Type 61616P
Top = 123.46
Inv = 116.1

Remove 36,728 CY Exist. Push Pile Prior to Embankment ⚠

℄ Sta. 373+31.50
Future DI,

℄ Sta. 373+31.50, o/s 14' rt.
=Sta. 0+40 DL L
DI L-1, Type 61616P
Top = 123.65
Inv = 115.7

℄ Sta. 374+81,
Future DI

℄ Sta. 374+81, o/s 54' lt.
=Sta. 2+54.75 DL L
DI L-3, Type 61616P, Typ.
See State Std. Det. H-13
Top = 122.48
Inv = 116.9

Limits of Grading
Construction Parcel ⚠
Drainage Easement D-15

℄ Sta. 376+81,
o/s 54' rt.
Future DI

℄ Sta. 377+51, o/s 69 lt.
=Sta. 0+00 DL N
Outlet, Std. Concrete Headwall, Typ.
See State Std. Det. H-21
Inv = 128.0

℄ Sta. 378+24, o/s 70' lt.
=Sta. 0+73 DL N
DMH N-1, Type A
Top = 135.95
Inv = 130.6

Construction Parcel

℄ Sta. 378+46, o/s 101' lt.
=Sta. 1+11 DL N
DI N-2, Type 61616P
Top = 137.50
Inv = 132.0

Drainage Easement D-16
Limits of Grading

True North
Scale: 1"=40'

M.L. ℄ STA. 372+00

HONOAPIILANI HIGHWAY

0+00 5+00 375+00 ℄ Honoapiilani Highway

M.L. ℄ STA. 382+00

HONOAPIILANI HIGHWAY

380+00

Drainline L
Drainline K
Drainline M
Drainline N
Culvert 9
Culvert 10
GRP
GRP Basin
GRP Apron
R/W
Limits of Grading
Construction Parcel

℄ Sta. 373+31.50, o/s 54' rt.
=Sta. 1+10.99 DL K
=Sta. 0+00 DL L
DI K-1, Type 61616P
Top = 126.18
Inv = 115.5

℄ Sta. 374+81,
o/s 54' rt.
Future DI

15' Wide Chain Link Gate

℄ Sta. 373+82, o/s 120' rt.
=Sta. 0+00 DL K
Outlet, Std. Concrete Headwall
Inv = 97.0

℄ Sta. 373+65, o/s 46' rt.
=Sta. 0+76 DL K
W.Q. E
Top = 126.59
Inv = 115.3

6' High Chain Link Fence
See State Std. Det. D-02
For Fence Layout
See Det. on this Sht.

Honoapiilani Highway Realignment, Phase 1B1

Kiokio Place Widening (By Others)

See Hokiokio Place Road Widening (By Others)

℄ Sta. 15+36.5 Hokiokio Place
End Honoapiilani Highway
Realignment, Phase 1B1

℄ Sta. 376+29, o/s 118' rt.
=Sta. 0+60 DL M
Inlet, Std. Concrete Headwall, Typ.
See State Std. Det. H-21
Inv = 107.0

℄ Sta. 375+80, o/s 153' rt.
=Sta. 0+00 DL M
Outlet, Std. Concrete Headwall
Inv = 105.0

℄ Hokiokio Place

℄ Sta. 373+19
o/s 97' rt.

℄ Sta. 372+99
o/s 111' rt.

℄ Sta. 372+92
o/s 157' rt.

℄ Sta. 373+09
o/s 183' rt.

℄ Sta. 374+72
o/s 99' rt.

℄ Sta. 374+89
o/s 209' rt.

℄ Sta. 375+06
o/s 137' rt.

6' High Chain Link Fence
See State Std. Det. D-02

15'

Chain Link Gate
See State Std. Det. D-02

10'

℄ Sta. 374+73
o/s 220' rt.

NOTE:
Chain Link Fence Station and Offset are taken from Honoapiilani Highway Baseline

FENCE LAYOUT
Not to Scale

DATE	REVISION
1/18/10	⚠ Rev. Culv. 9, D.L.'s M&N, Grading, Drn. Esmts. & Push Pile Removal

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

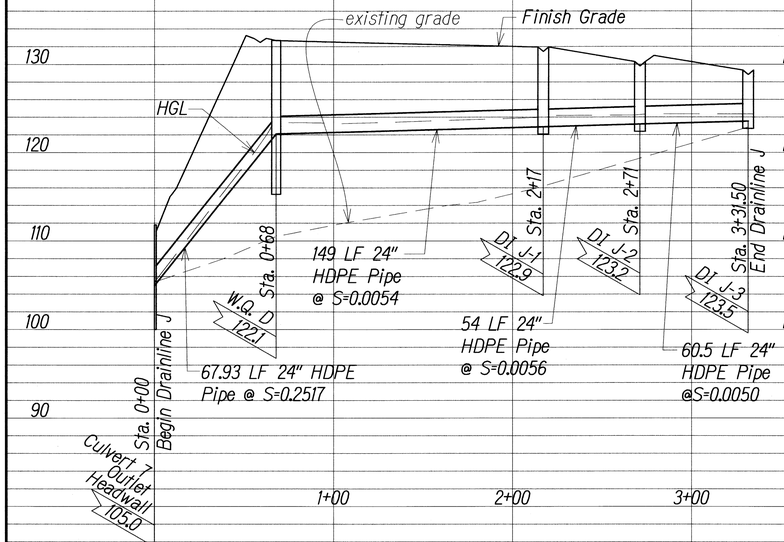
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 40' Date: November 23, 2009

SHEET No. 9 OF 13 SHEETS

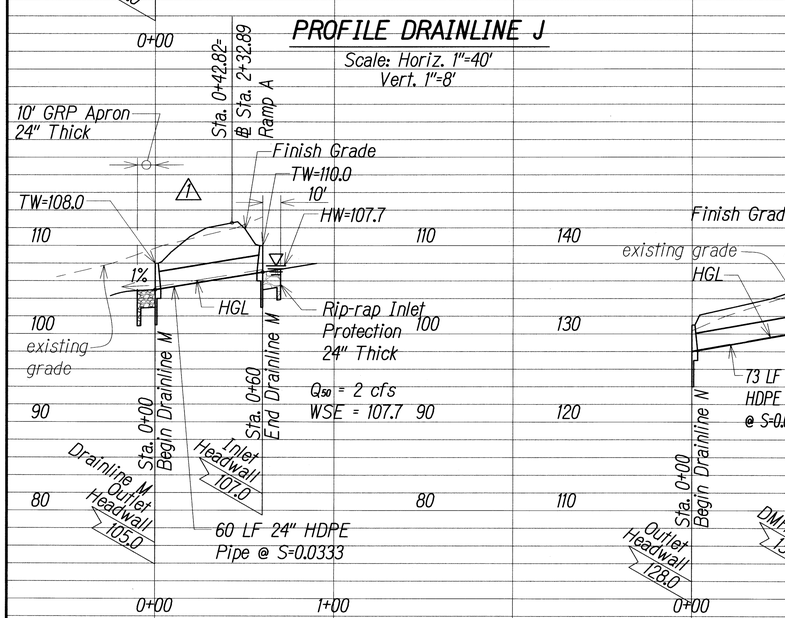
ADD. 52

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	56	213



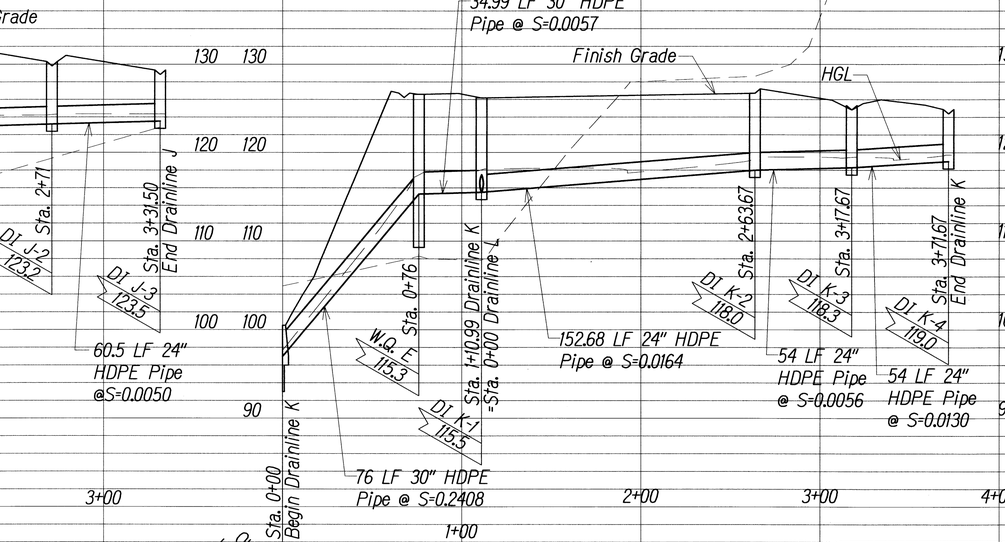
PROFILE DRAINLINE J

Scale: Horiz. 1"=40'
Vert. 1"=8'



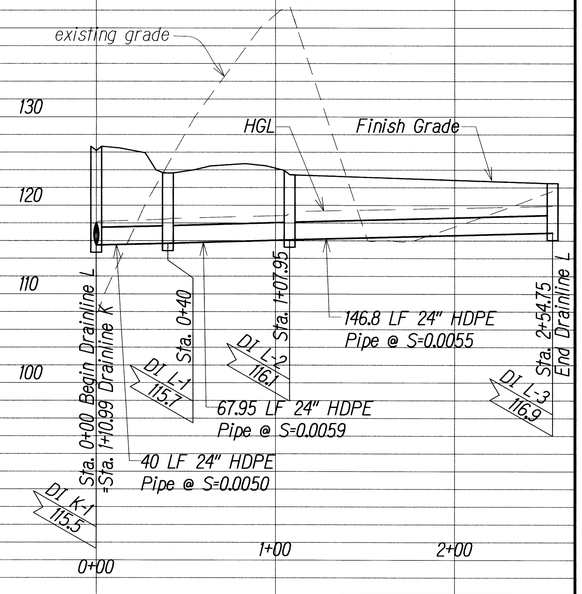
PROFILE DRAINLINE M

Scale: Horiz. 1"=40'
Vert. 1"=8'



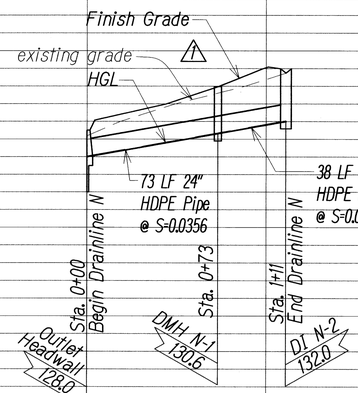
PROFILE DRAINLINE K

Scale: Horiz. 1"=40'
Vert. 1"=8'



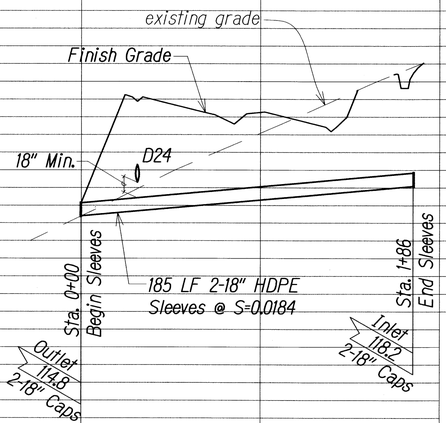
PROFILE DRAINLINE L

Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE DRAINLINE N

Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE 2-18" SLEEVES

Scale: Horiz. 1"=40'
Vert. 1"=8'

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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DATE	REVISION
1/18/10	⚠1 Revised Drainlines M & N

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINLINE PROFILES

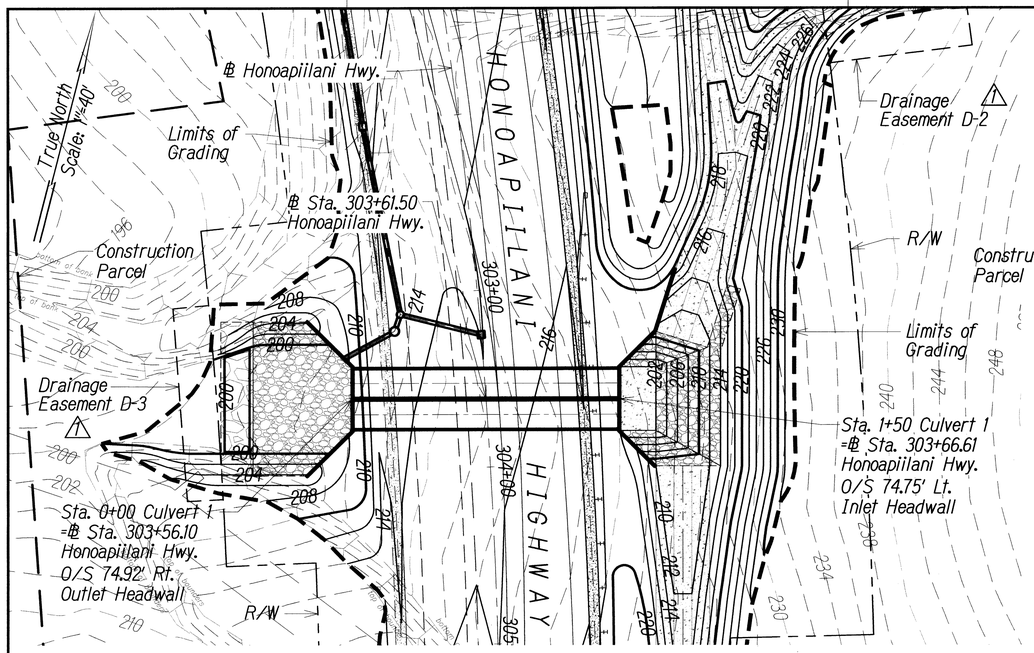
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1"=40' Date: November 23, 2009

SHEET No. 13 OF 13 SHEETS

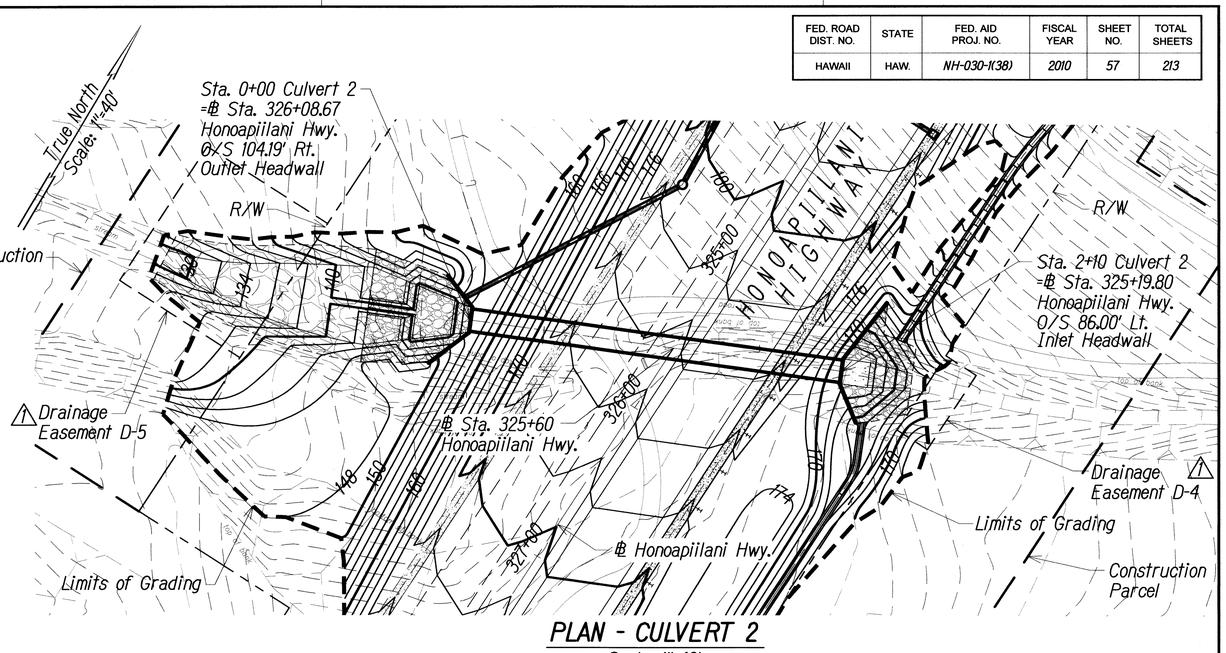
ADD. 56

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	57	213



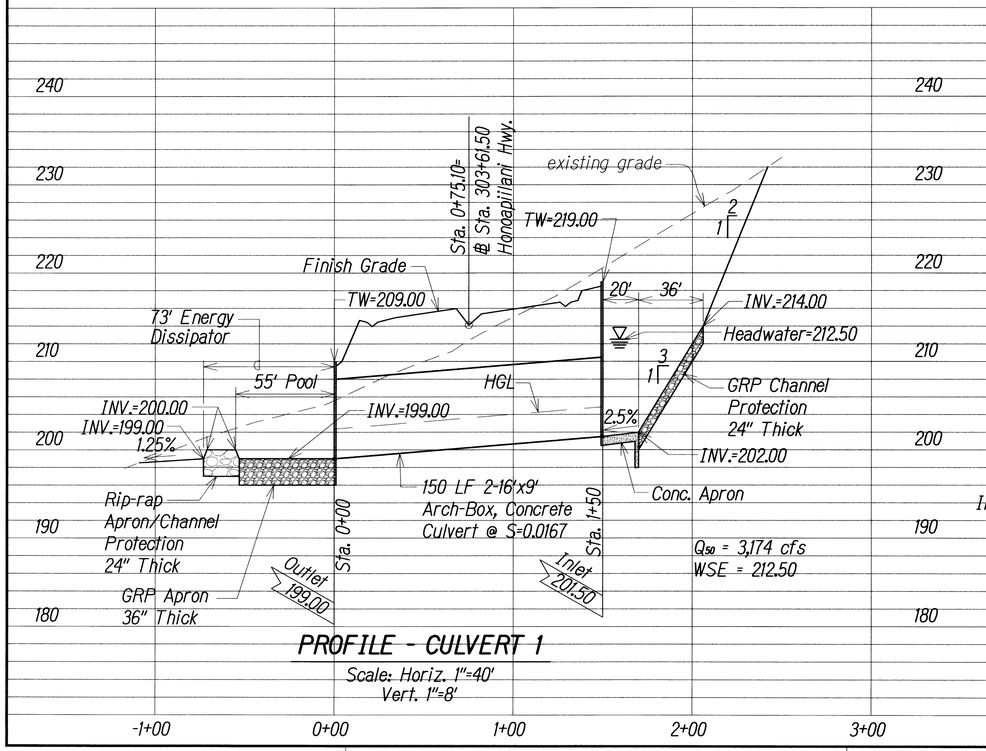
PLAN - CULVERT 1

Scale: 1"=40'



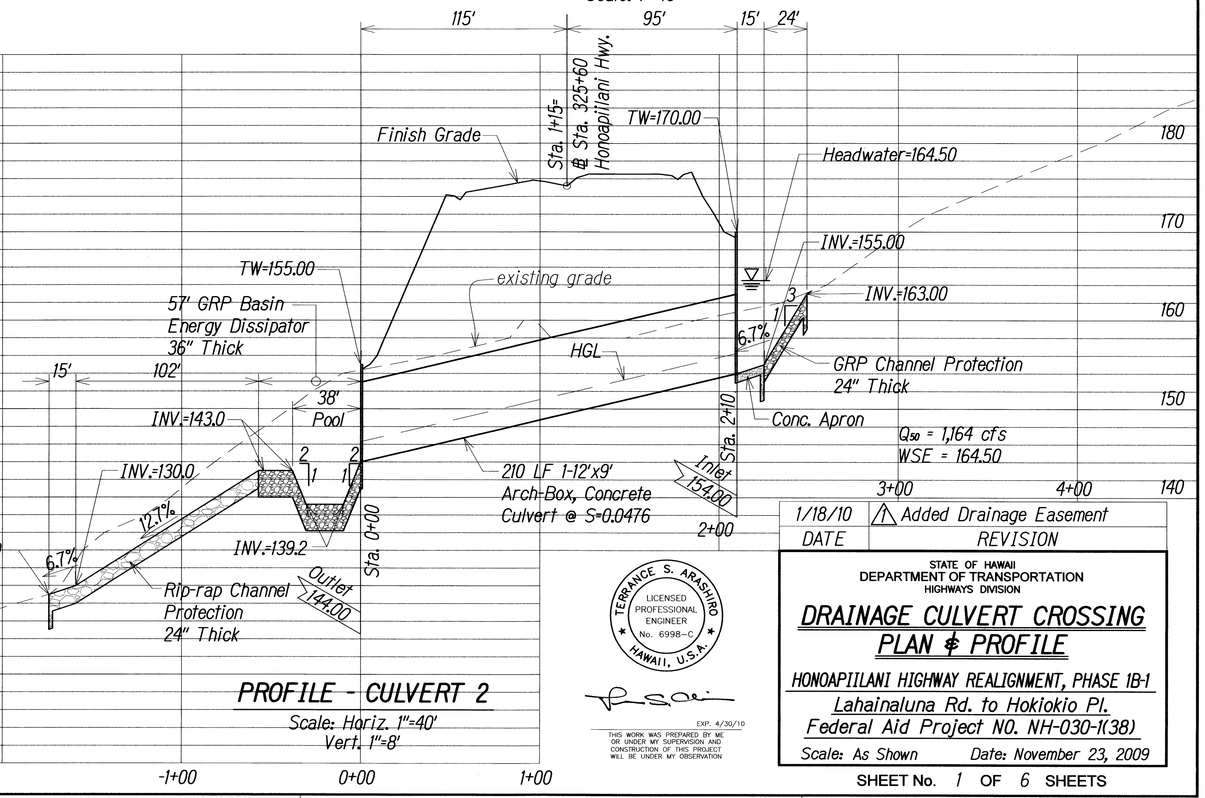
PLAN - CULVERT 2

Scale: 1"=40'



PROFILE - CULVERT 1

Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE - CULVERT 2

Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠ Added Drainage Easement

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT CROSSING PLAN & PROFILE

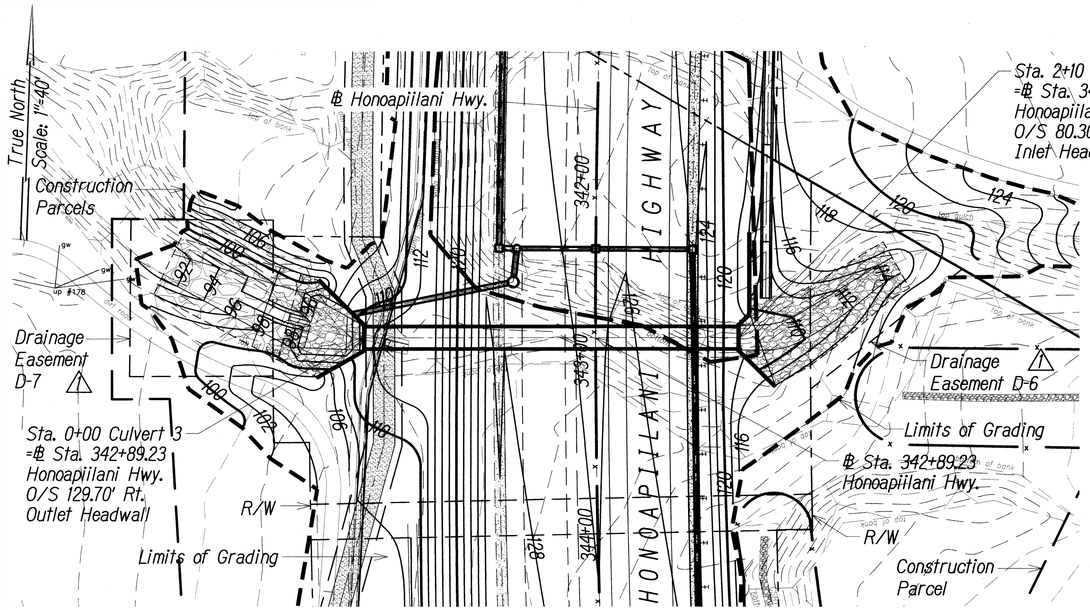
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

SHEET No. 1 OF 6 SHEETS

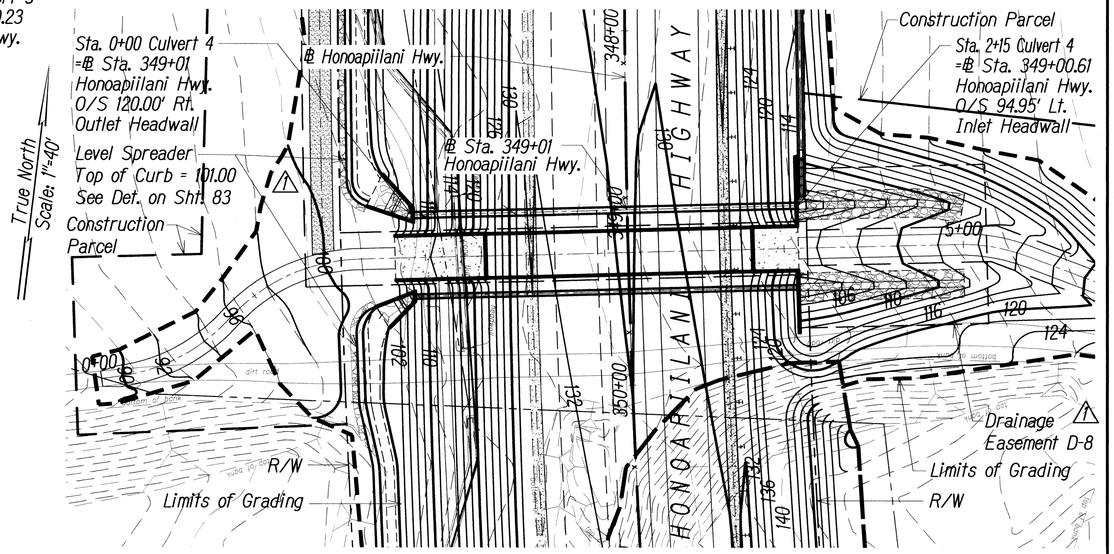
ADD. 57

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	58	213



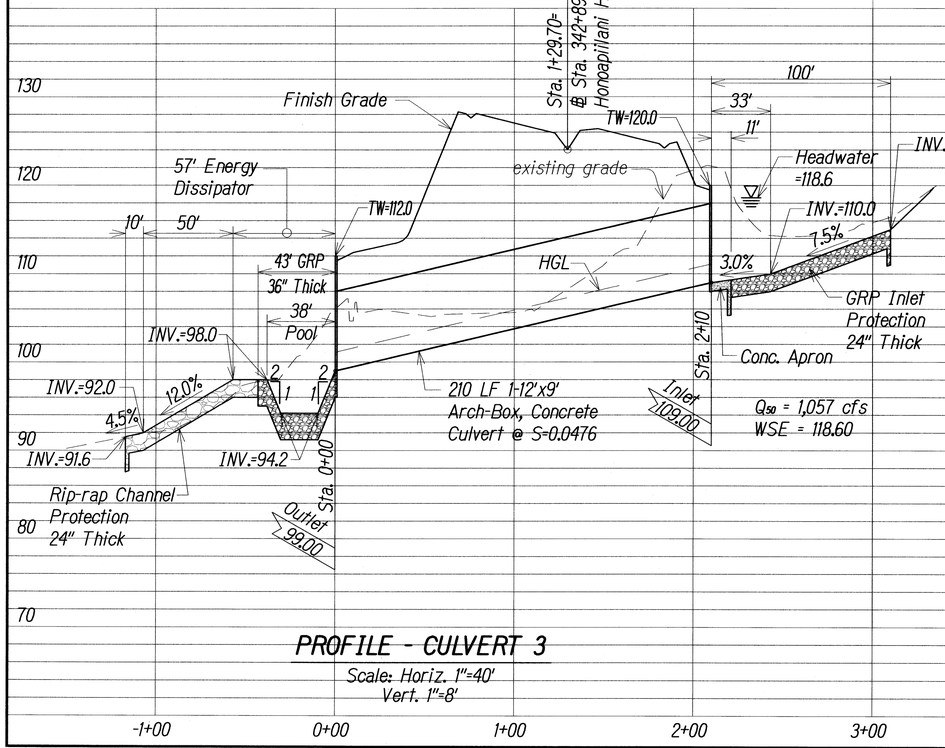
PLAN - CULVERT 3

Scale: 1"=40'



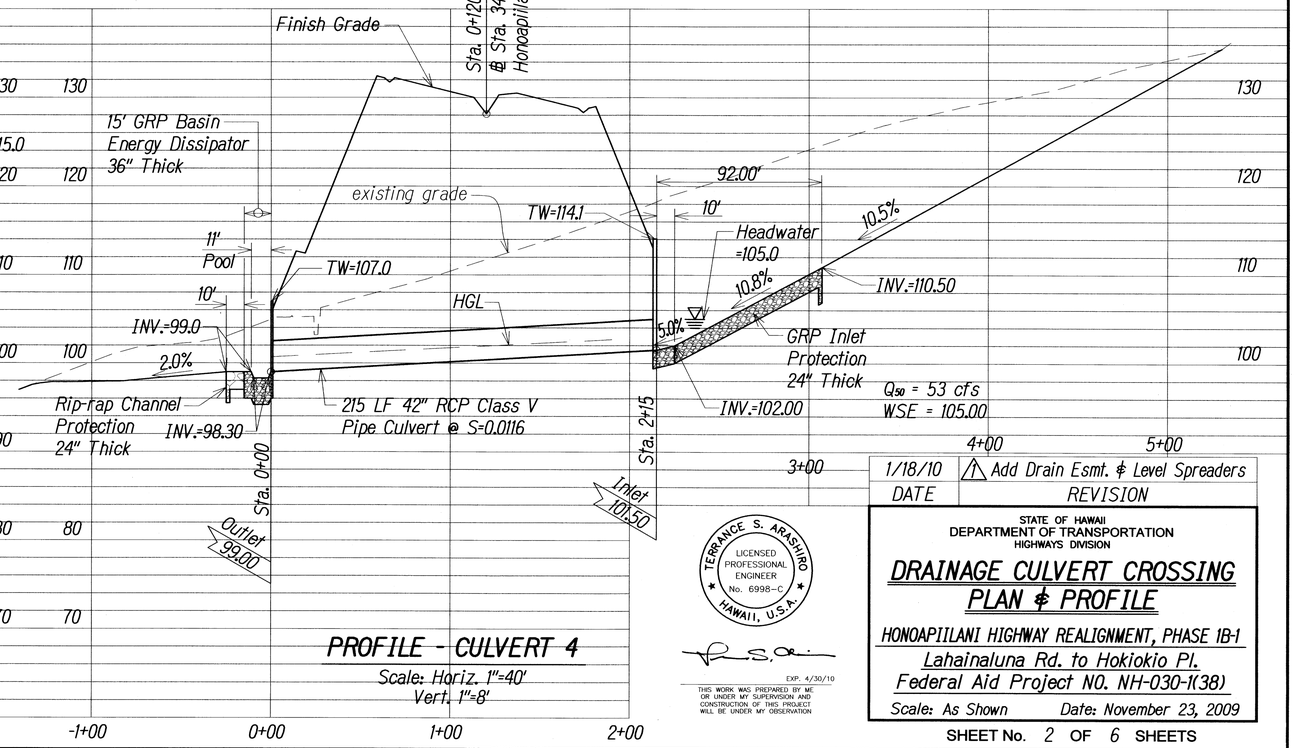
PLAN - CULVERT 4

Scale: 1"=40'



PROFILE - CULVERT 3

Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE - CULVERT 4

Scale: Horiz. 1"=40'
Vert. 1"=8'

1/18/10	⚠ Add Drain Esmt. & Level Spreaders
DATE	REVISION

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT CROSSING PLAN & PROFILE

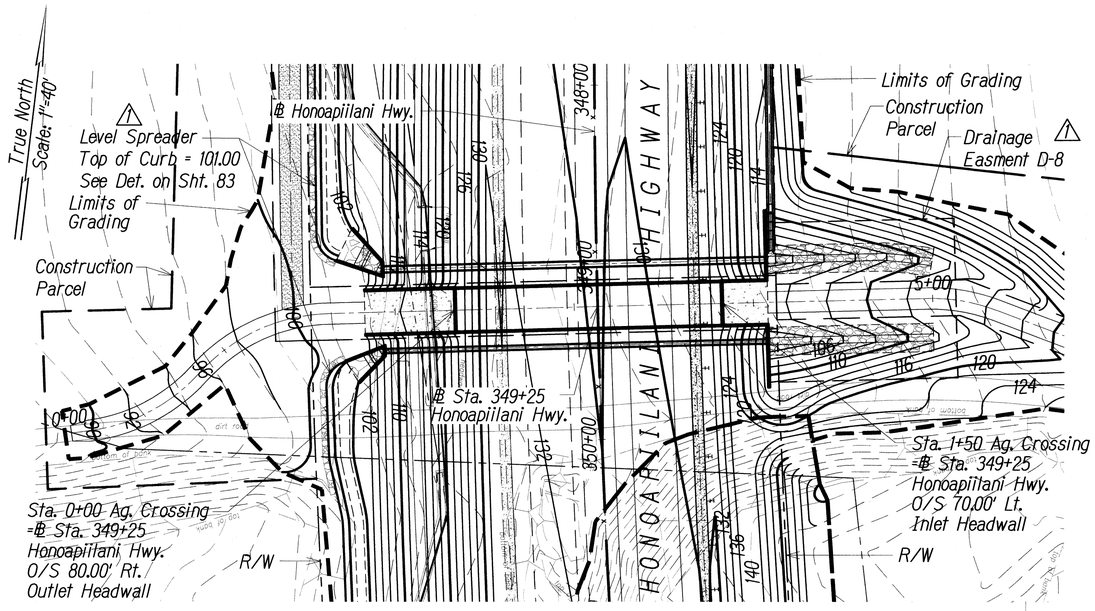
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

SHEET No. 2 OF 6 SHEETS

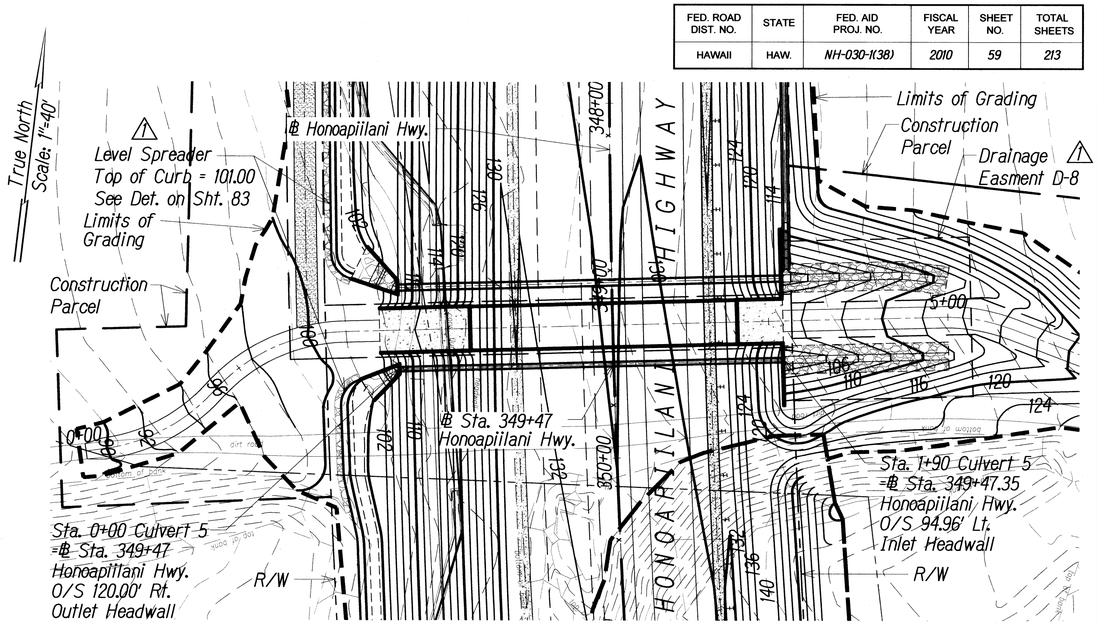
ADD. 58

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	59	213



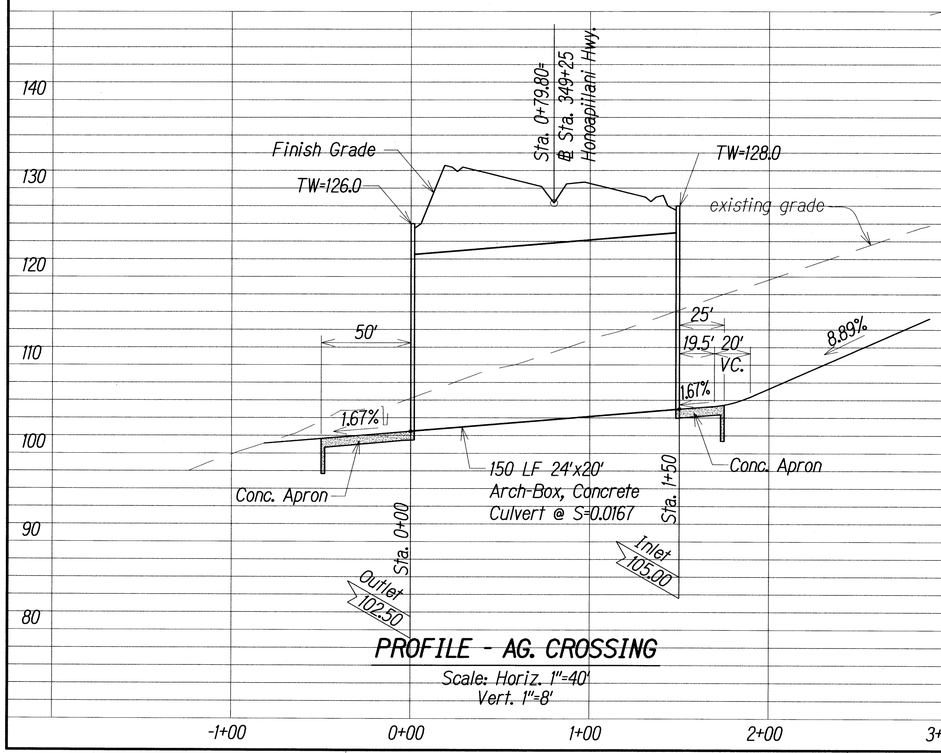
PLAN - AG. CROSSING

Scale: 1"=40'



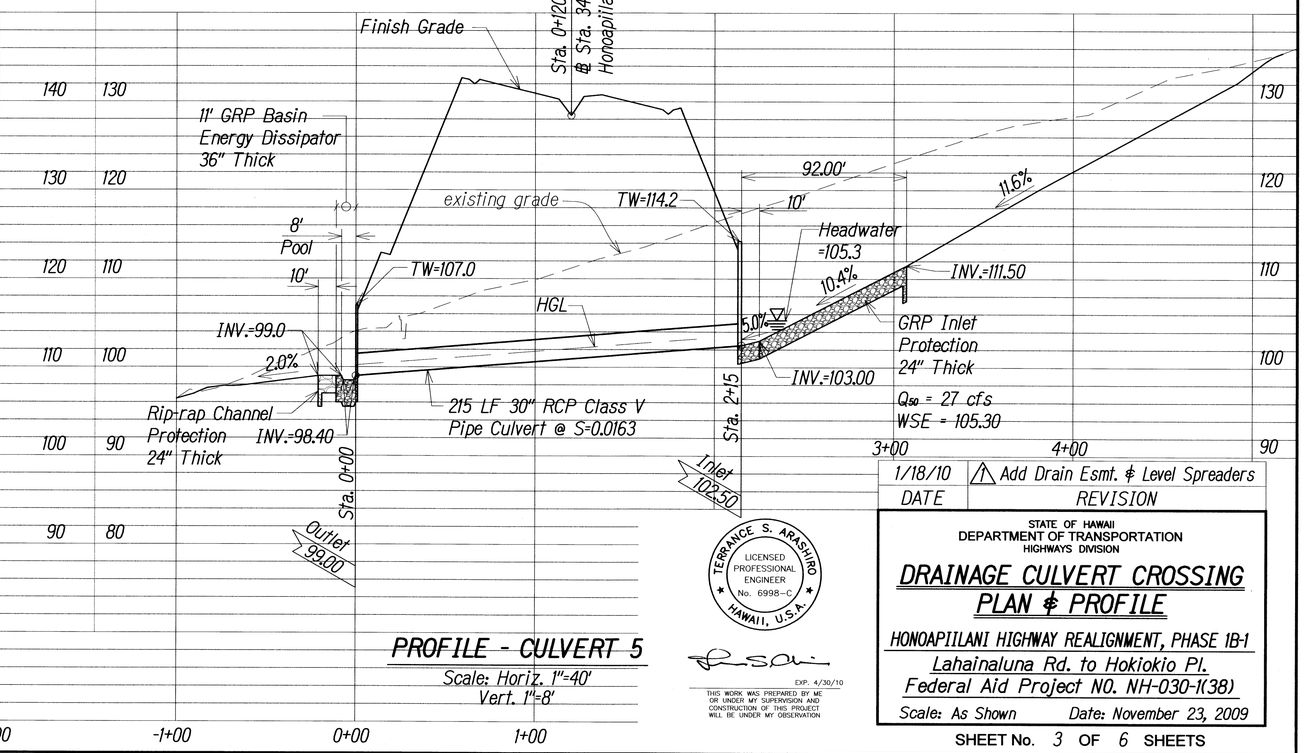
PLAN - CULVERT 5

Scale: 1"=40'



PROFILE - AG. CROSSING

Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE - CULVERT 5

Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠1 Add Drain Esmt. & Level Spreaders

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT CROSSING PLAN & PROFILE

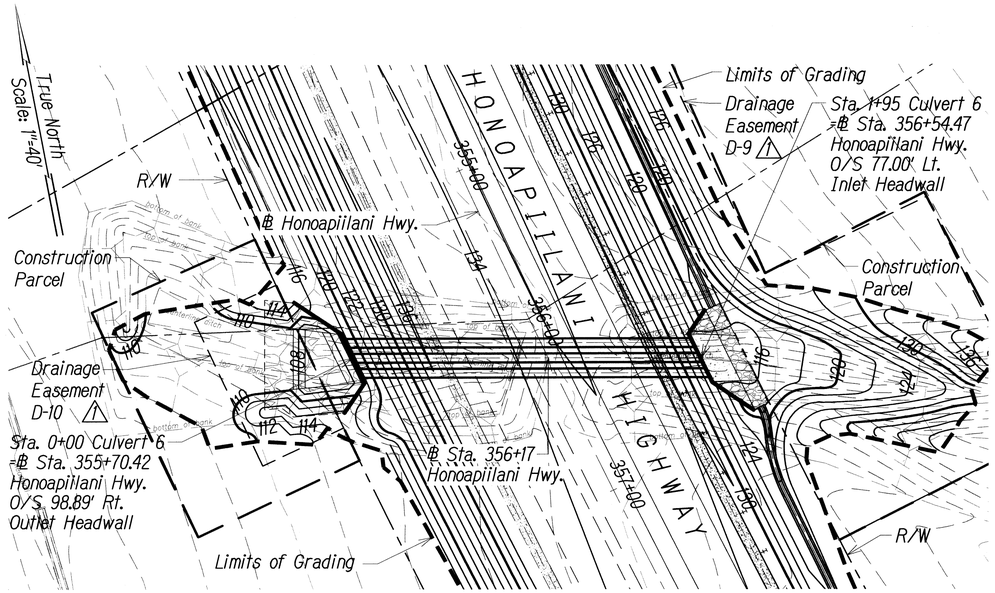
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

SHEET No. 3 OF 6 SHEETS

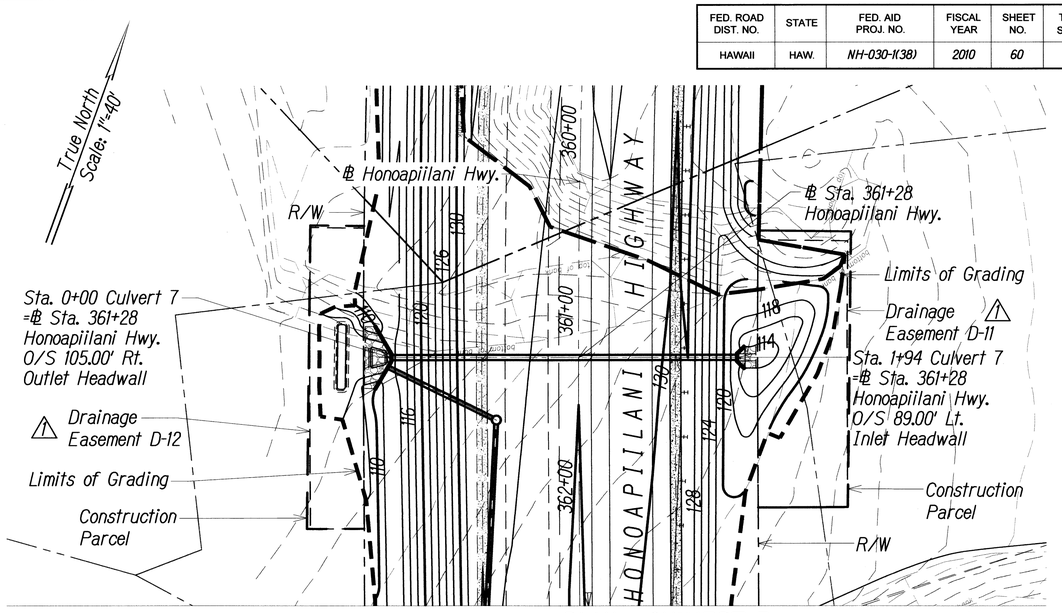
ADD. 59

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	60	213



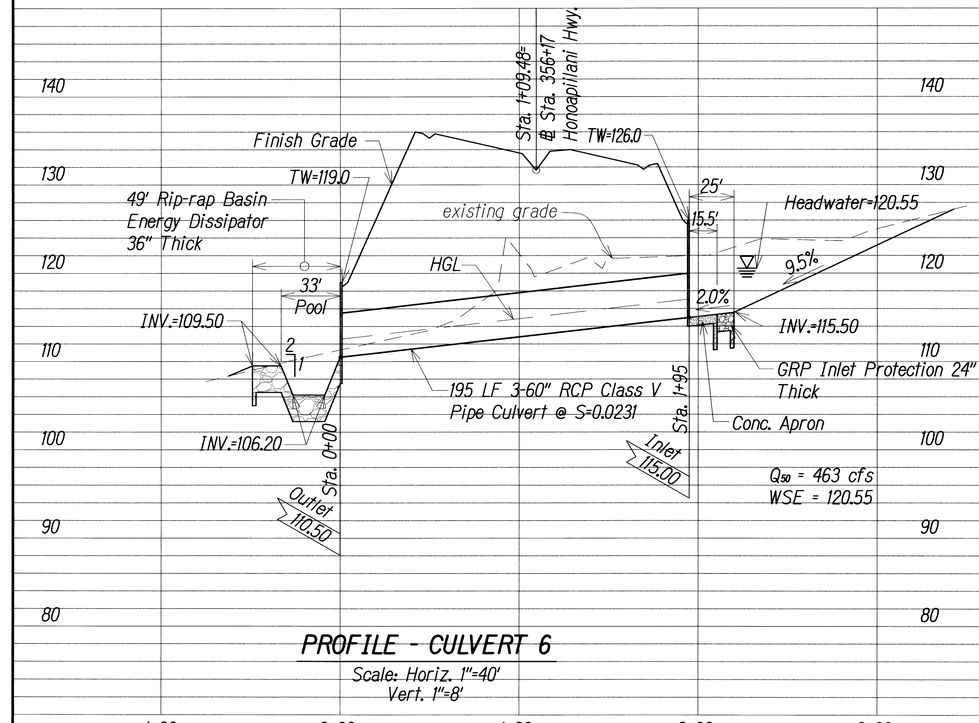
PLAN - CULVERT 6

Scale: 1"=40'



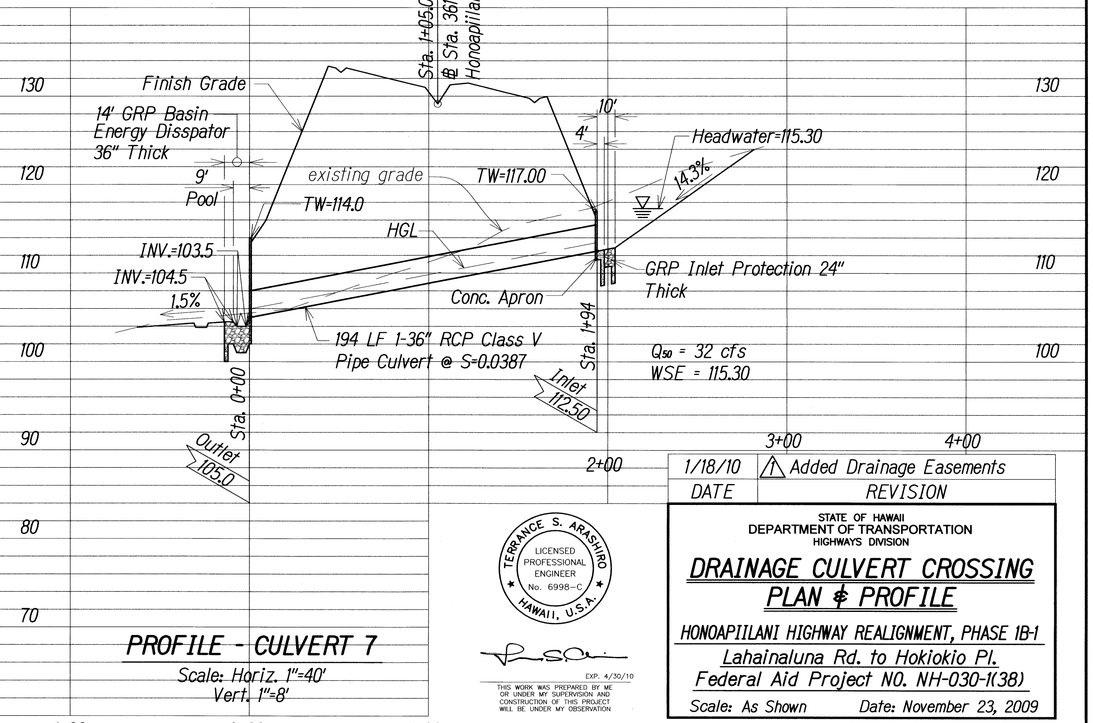
PLAN - CULVERT 7

Scale: 1"=40'



PROFILE - CULVERT 6

Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE - CULVERT 7

Scale: Horiz. 1"=40'
Vert. 1"=8'

1/18/10	⚠ Added Drainage Easements
DATE	REVISION

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT CROSSING PLAN & PROFILE

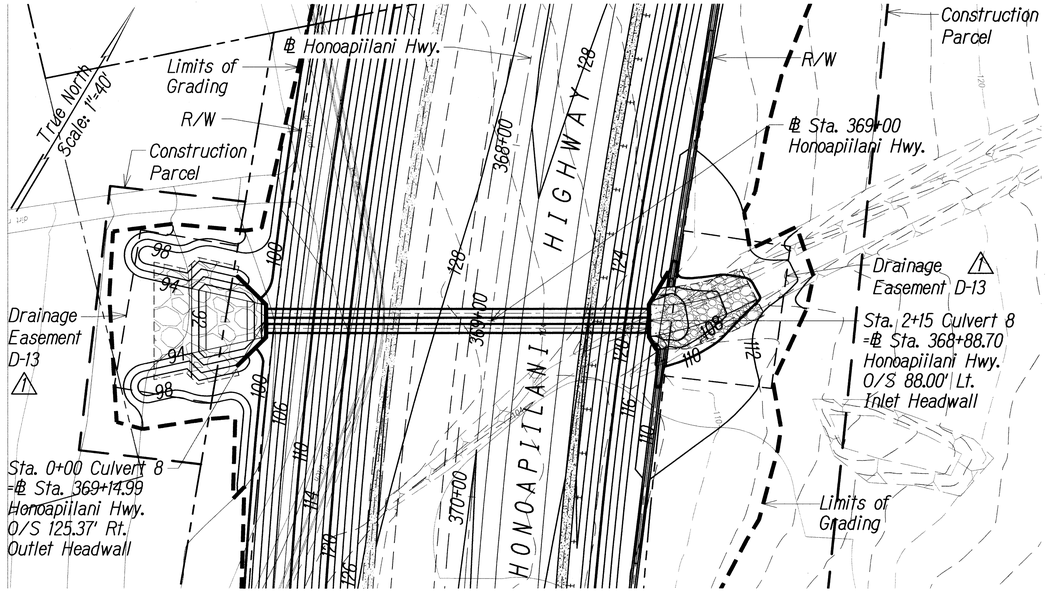
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

SHEET No. 4 OF 6 SHEETS

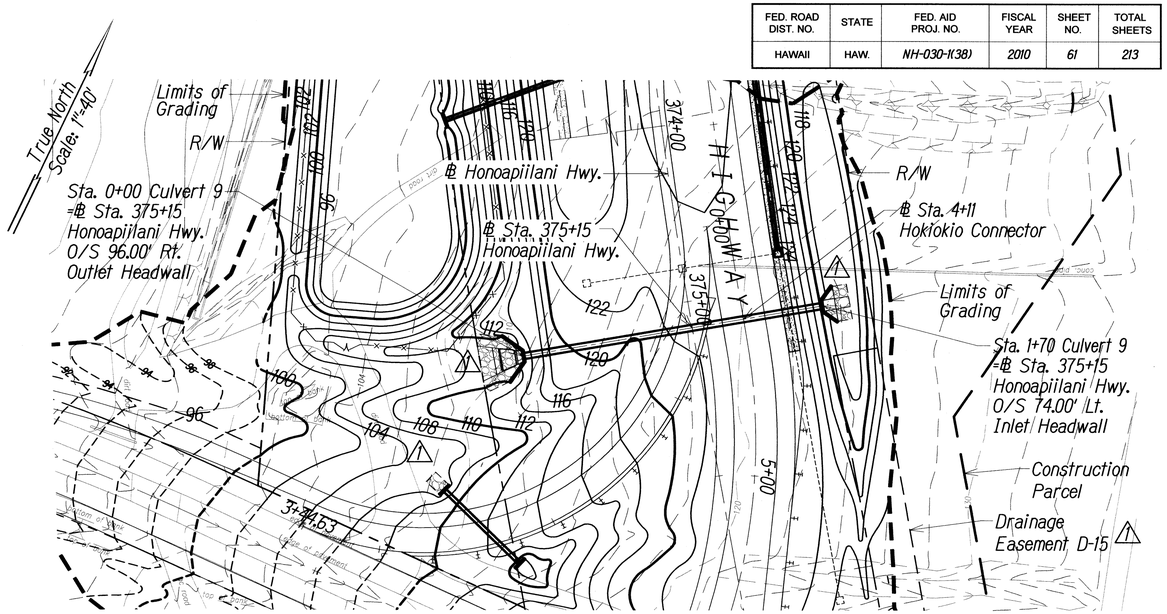
ADD. 60

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	61	213



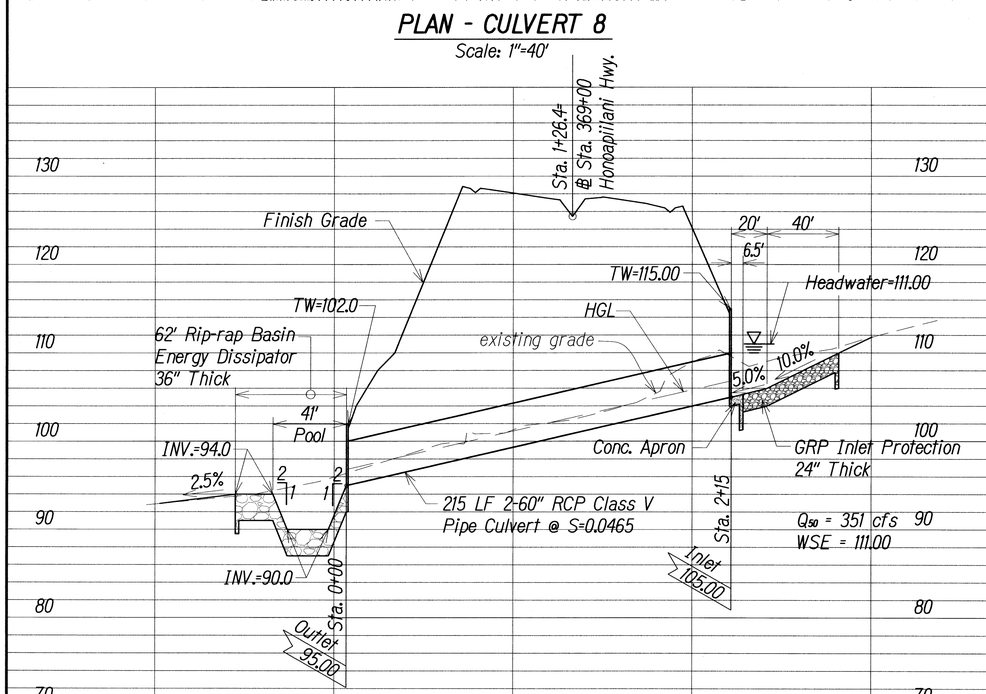
PLAN - CULVERT 8

Scale: 1"=40'



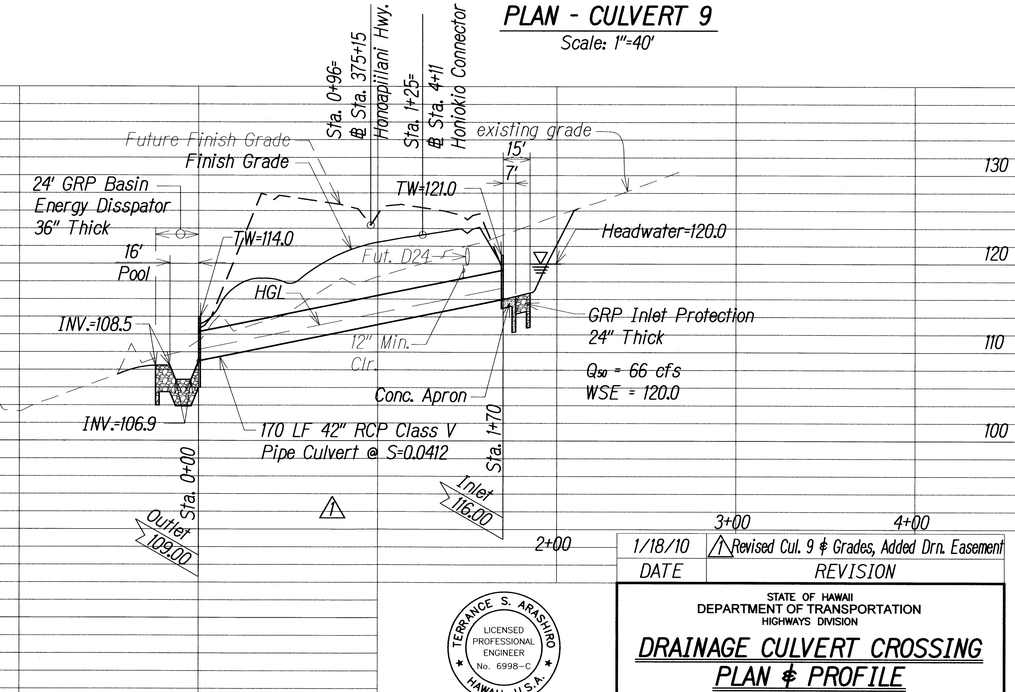
PLAN - CULVERT 9

Scale: 1"=40'



PROFILE - CULVERT 8

Scale: Horiz. 1"=40'
Vert. 1"=8'



PROFILE - CULVERT 9

Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠1 Revised Cul. 9 & Grades, Added Drn. Easement

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP: 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT CROSSING PLAN & PROFILE

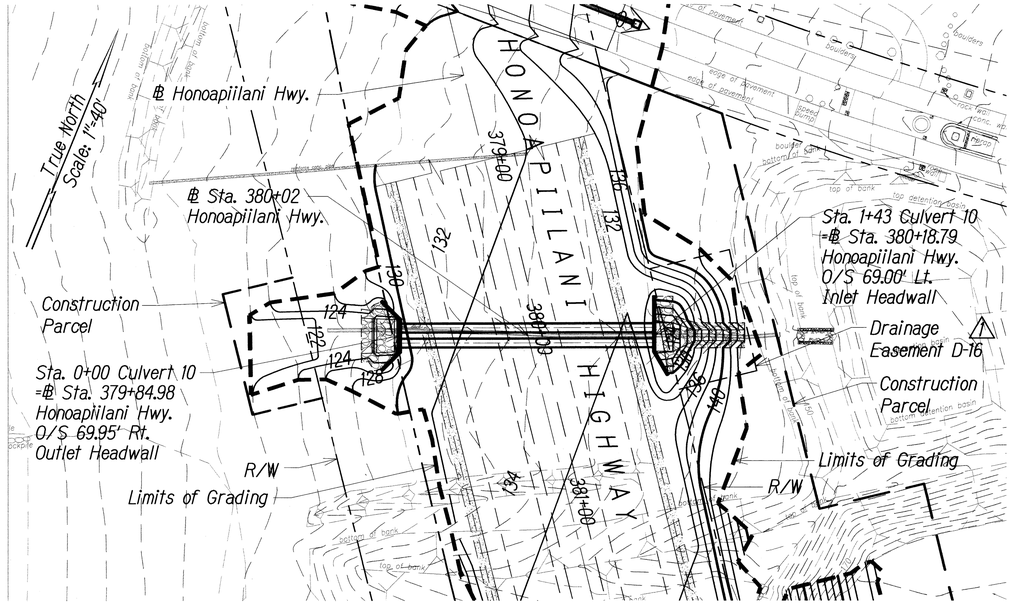
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

SHEET No. 5 OF 6 SHEETS

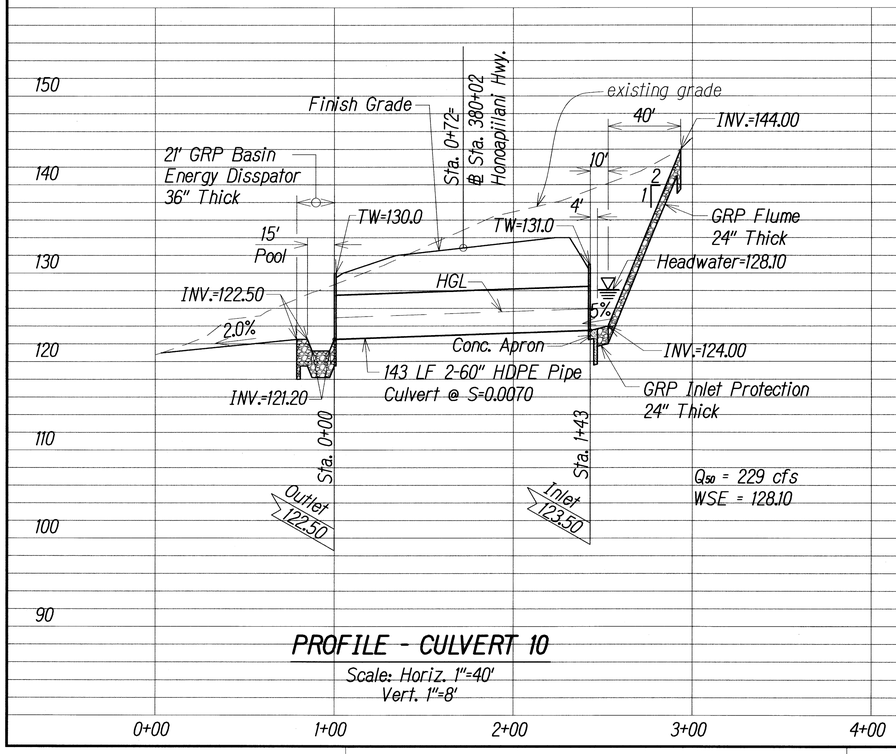
ADD. 61

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	62	213



PLAN - CULVERT 10

Scale: 1"=40'



PROFILE - CULVERT 10

Scale: Horiz. 1"=40'
Vert. 1"=8'

DATE	REVISION
1/18/10	⚠1 Added Drainage Easements

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT CROSSING PLAN & PROFILE

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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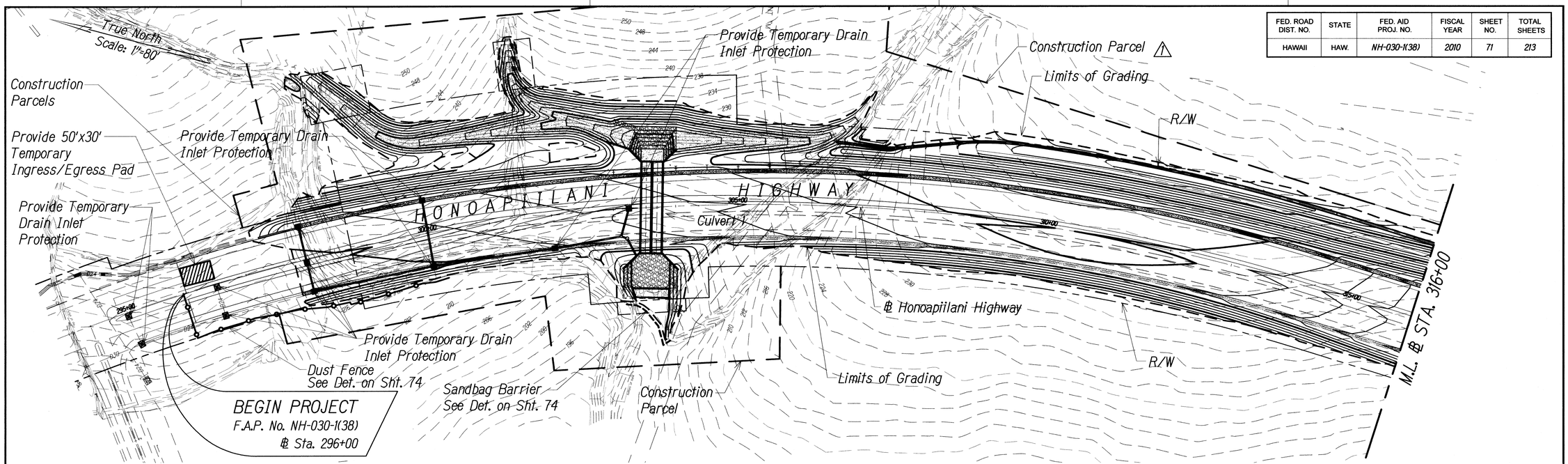
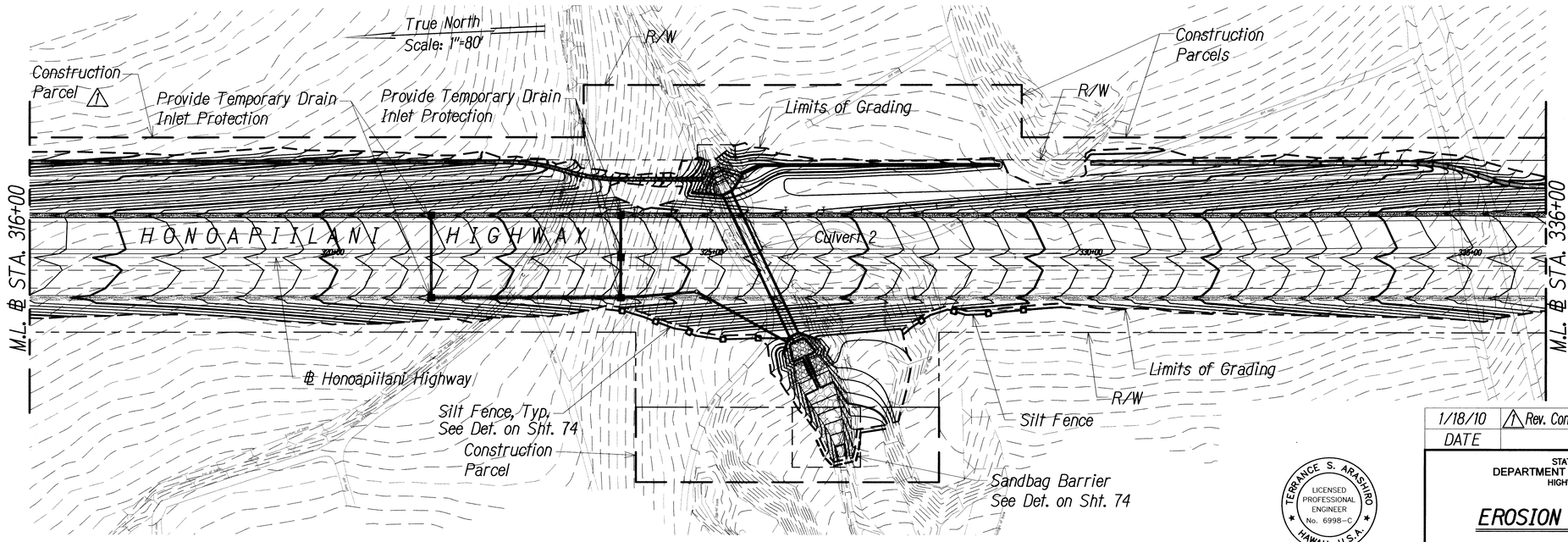
SHEET No. 6 OF 6 SHEETS

ADD. 62

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	71	213





TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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DATE	REVISION
1/18/10	⚠ Rev. Construction Parcels

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN

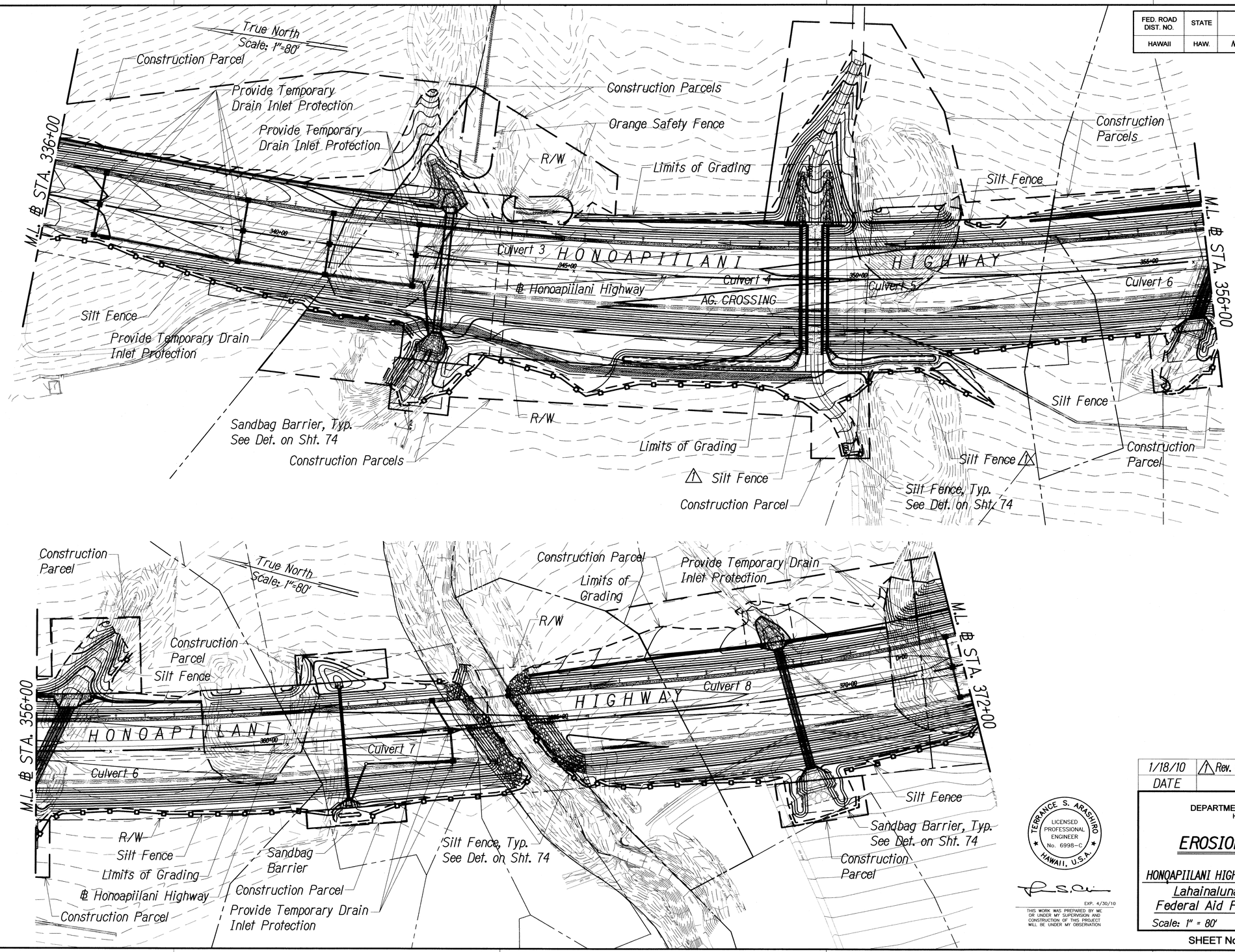
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 80' Date: November 23, 2009

SHEET No. 1 OF 6 SHEETS

ADD. 71

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	72	213



1/18/10	⚠1 Rev. Grading, Silt Fence, Add Push Piles
DATE	REVISION

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN

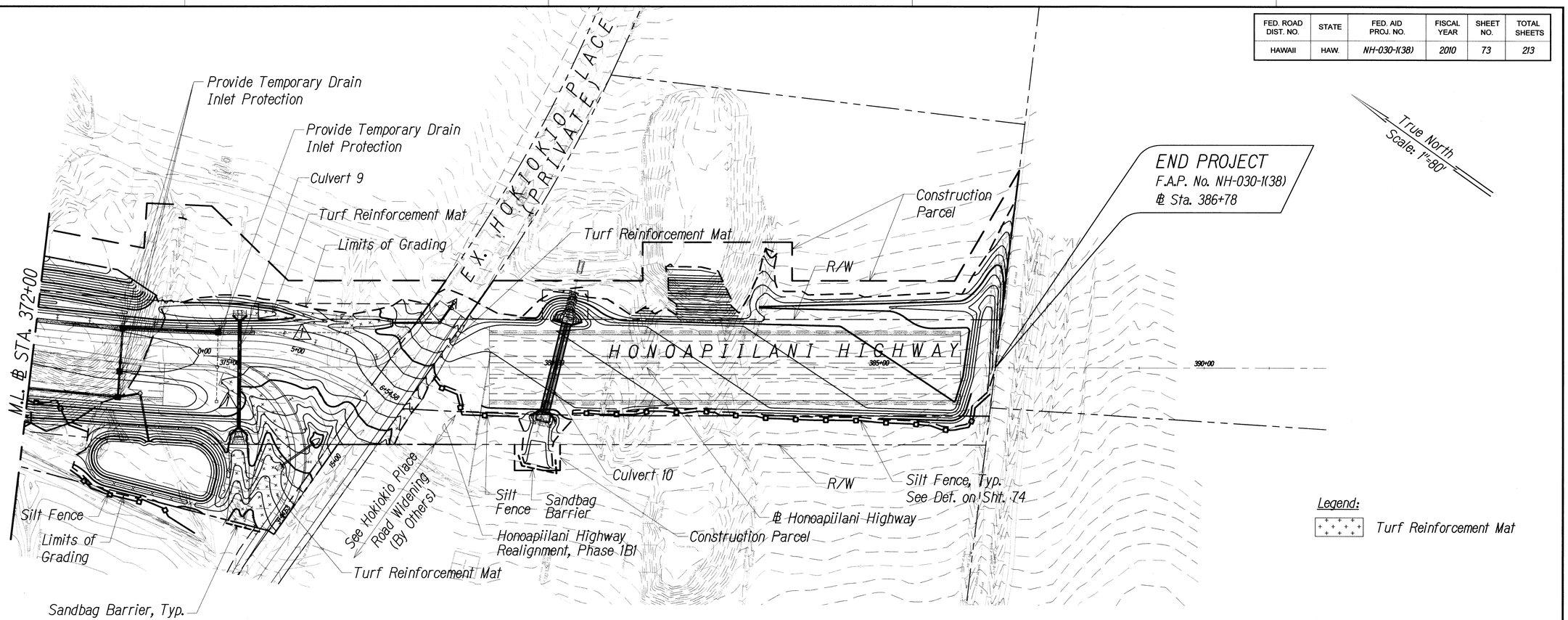
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 80' Date: November 23, 2009

SHEET No. 2 OF 6 SHEETS

ADD. 72

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	73	213



DATE	REVISION
1/18/10	⚠1 Revised TRM near Cul. 9 and D.L.'s M℄N

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: 1" = 80' Date: November 23, 2009

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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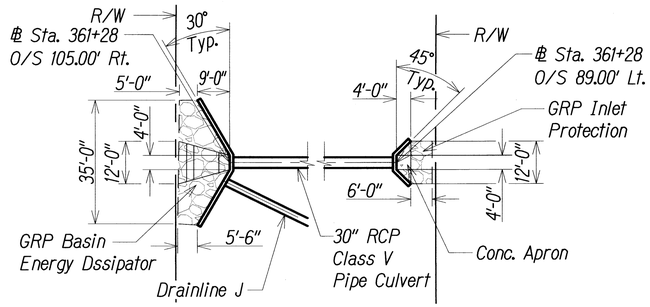
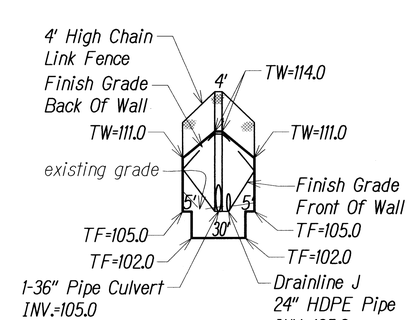
SHEET No. 3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	81	213

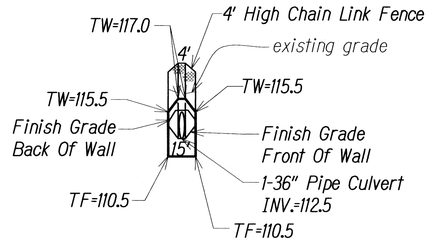


PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'



PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'

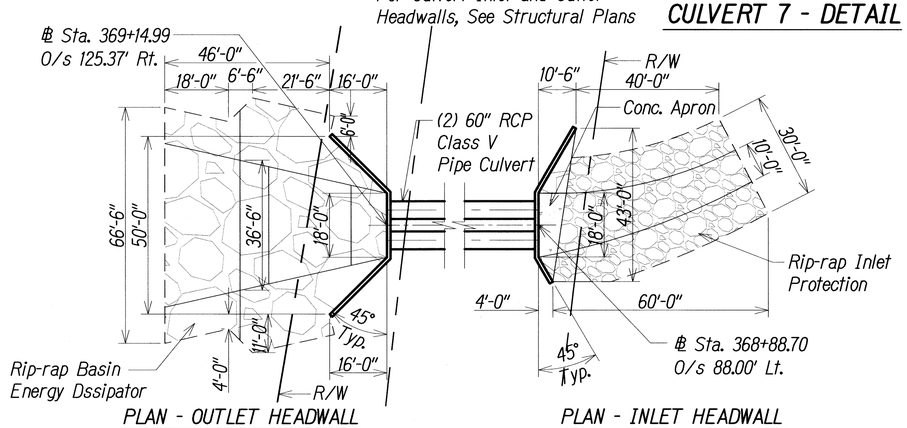
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

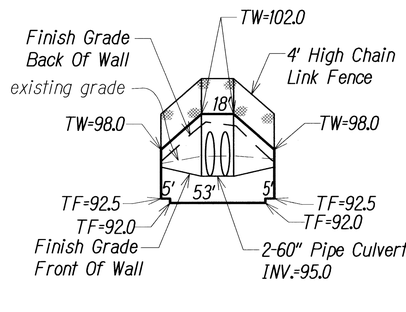
Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

℄ STA. 361+28
CULVERT 7 - DETAIL

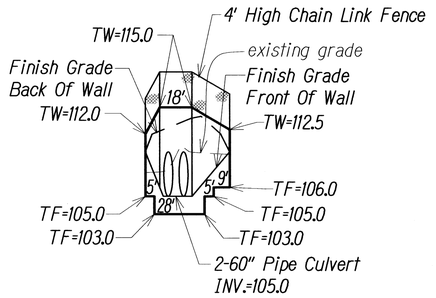


PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'



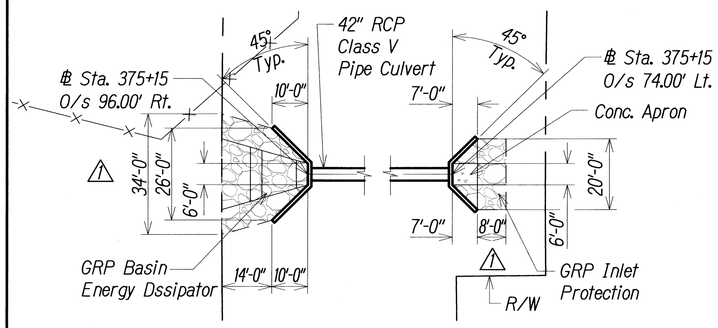
PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

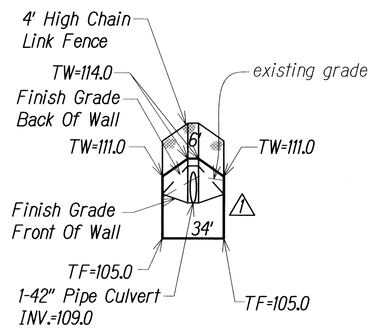
Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

℄ STA. 369+00
CULVERT 8 - DETAIL

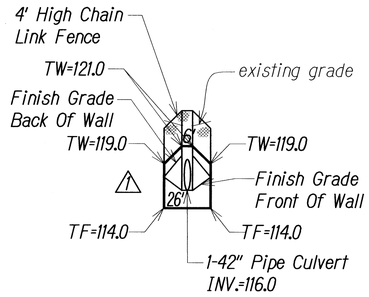


PLAN - OUTLET HEADWALL
Scale: Horiz. 1"=20'

PLAN - INLET HEADWALL
Scale: Horiz. 1"=20'



PROFILE - OUTLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'



PROFILE - INLET HEADWALL
Scale: Horiz. 1"=40'
Vert. 1"=4'

Note:
For Culvert Inlet and Outlet
Headwalls, See Structural Plans

℄ STA. 375+15
CULVERT 9 - DETAIL

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

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DATE	REVISION
1/18/10	⚠ Revised Culvert 9

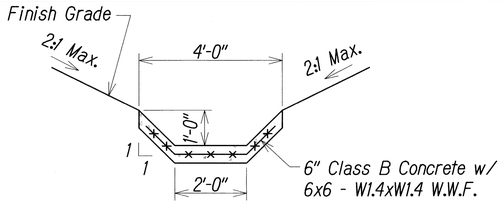
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE CULVERT DETAILS

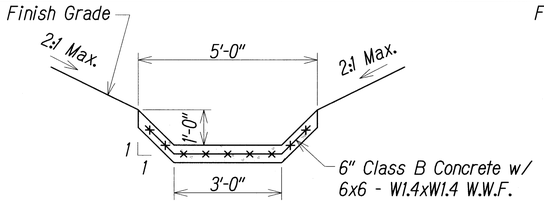
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

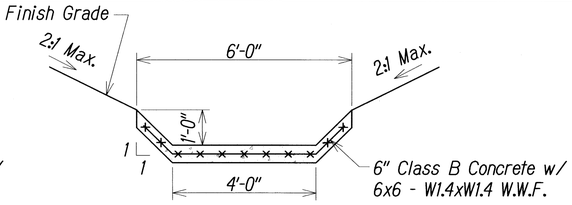
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	83	213



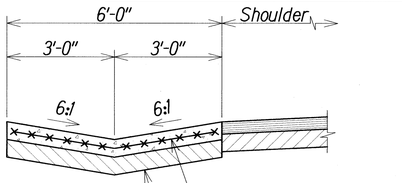
4' CONC. INTERCEPTOR DITCH
Not to Scale



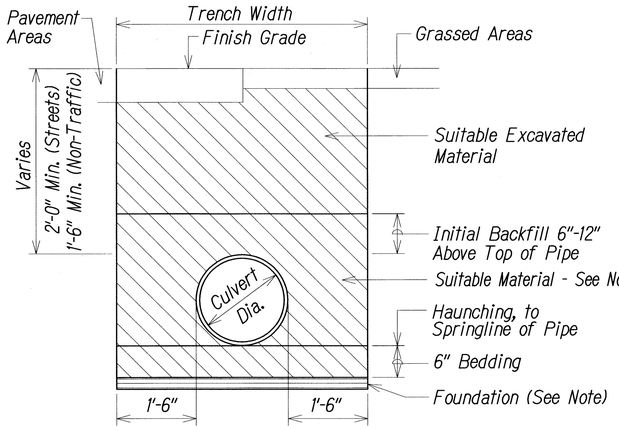
5' CONC. INTERCEPTOR DITCH
Not to Scale



6' CONC. INTERCEPTOR DITCH
Not to Scale



GUTTER TYPE 2 (61616)
Not to Scale



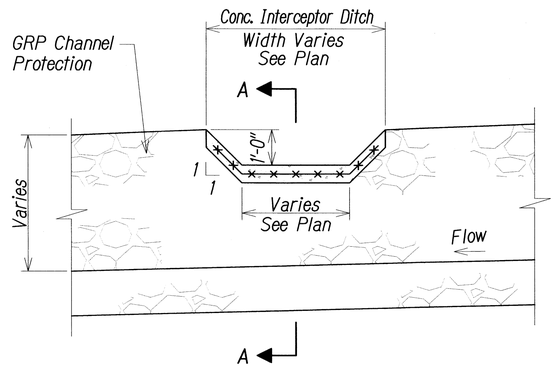
TYPICAL TRENCH DETAIL
STORM DRAIN
Not to Scale

Notes:

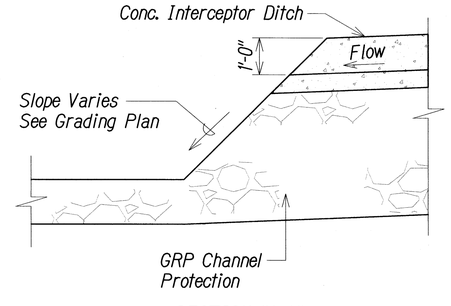
1. Foundation: Where the trench bottom is unstable, the Contractor shall excavate to a depth required by the Engineer and replace with a foundation of Class I or II material as defined in ASTM D2321, "Standard Practice for Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications," latest edition; as an alternative and at the discretion of the Engineer, the trench bottom may be stabilized using a woven geotextile fabric.
2. Bedding: Suitable material shall be Class I, II or III and installed as required in ASTM D2321, latest edition. the minimum bedding thickness shall be 6".
3. Haunching and Initial Backfill: Suitable material shall be Class I, II or III and installed as required in ASTM D2321, latest edition.
4. Unless otherwise specified on the plans, minimum trench widths shall be as follows:

Nominal Ø in	Min. Recommended Trench Width, in
24	48
30	66

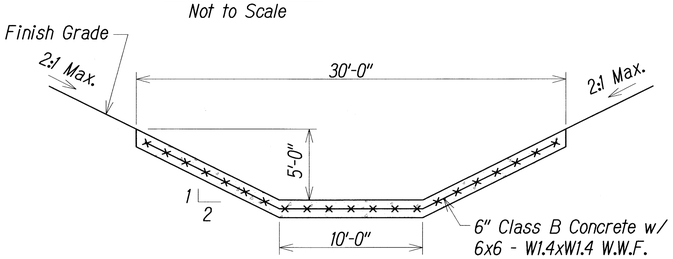
5. For all ditches and gutters, provide contraction joint every 15 ft.



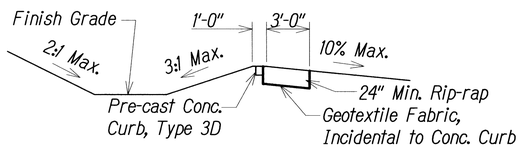
TYPICAL CONC. INTERCEPTOR DITCH
CONNECTION TO GRP CHANNEL PROTECTION
Not to Scale



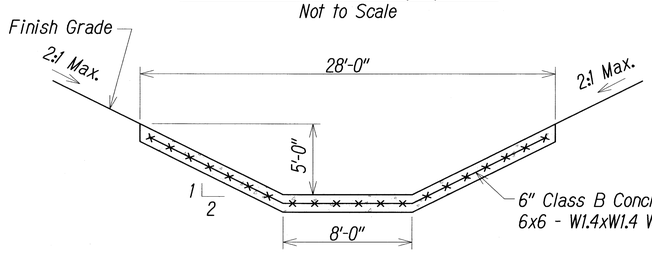
SECTION "A-A"



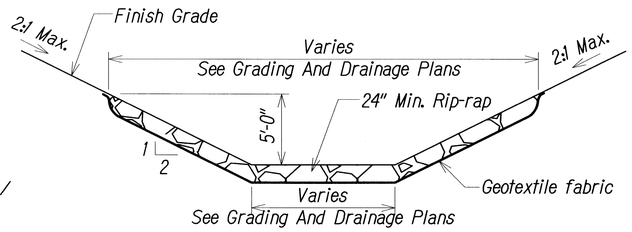
DIVERSION DITCH 1, 3, & 4
Not to Scale



LEVEL SPREADER DETAIL ⚠1
Not to Scale

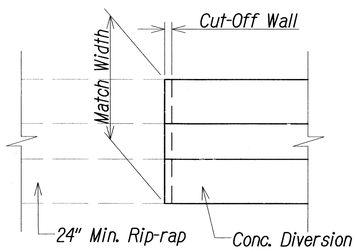


DIVERSION DITCH 2
Not to Scale

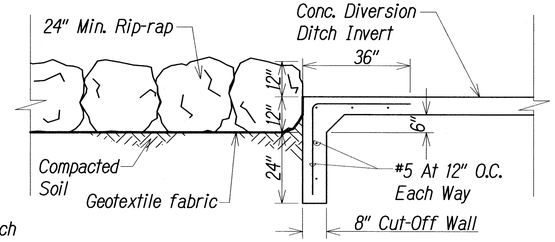


RIP-RAP DETAIL
Not to Scale

Note:
Refer to Standard Specification, Section 615 For Machine-Laid Rip-Rap Size



PLAN



ELEVATION

RIP-RAP APRON AND DIVERSION DITCH
CUT-OFF WALL CONNECTION DETAIL
Not to Scale

DATE	REVISION
1/18/10	⚠1 Add Level Spreader Detail

TERRANCE S. ARASHIRO
LICENSED PROFESSIONAL ENGINEER
No. 6998-C
HAWAII, U.S.A.

EXP. 4/30/10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

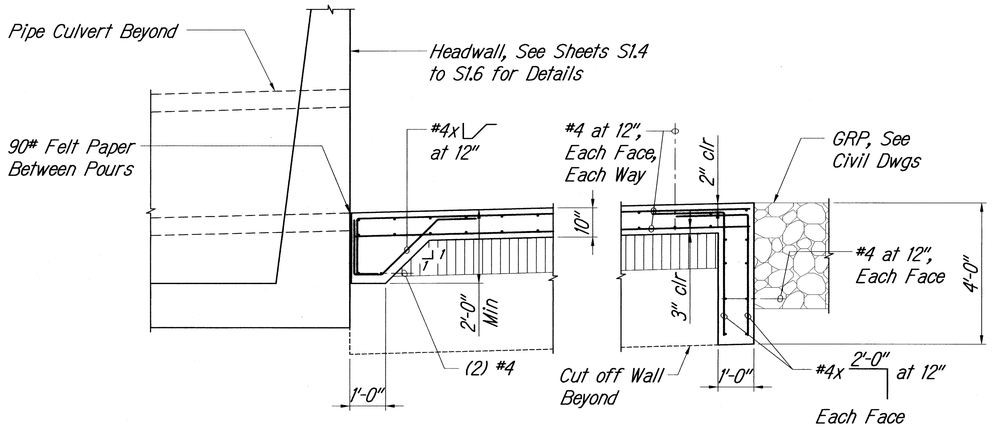
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

SHEET No. 1 OF 1 SHEETS

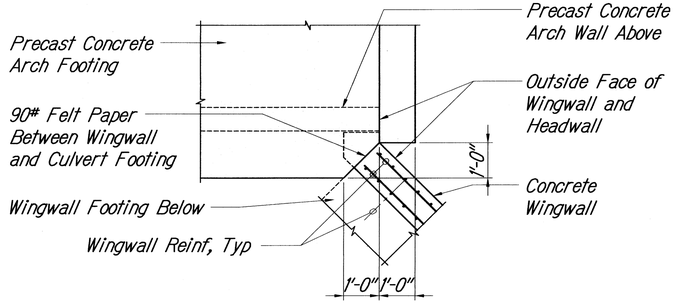
ADD. 83

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	121	213



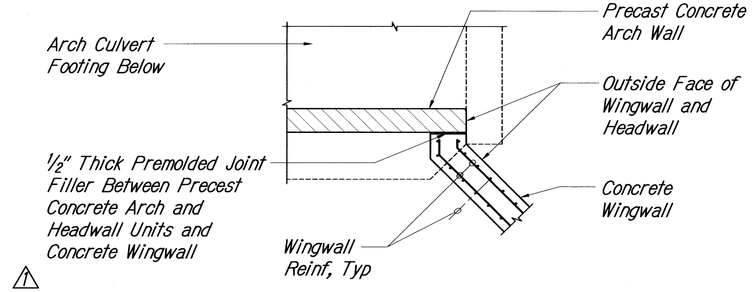
CONCRETE APRON DETAIL — 1 — S1.8 | S1.8

Scale: 1/2" = 1'-0"



SECTION AT ARCH CULVERT FOOTING — 2 — S1.8 | S1.8

Scale: 1/2" = 1'-0"



⚠1

SECTION AT ARCH CULVERT WALL — 3 — S1.8 | S1.8

Scale: 1/2" = 1'-0"

DATE	REVISION
1/18/10	⚠1 Revised Joint Detail

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONCRETE APRON DETAIL

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown — Date: November 23, 2009

KEN KAZUO HAYASHIDA — LICENSED PROFESSIONAL ENGINEER — No. 6318-S — HAWAII, U.S.A.

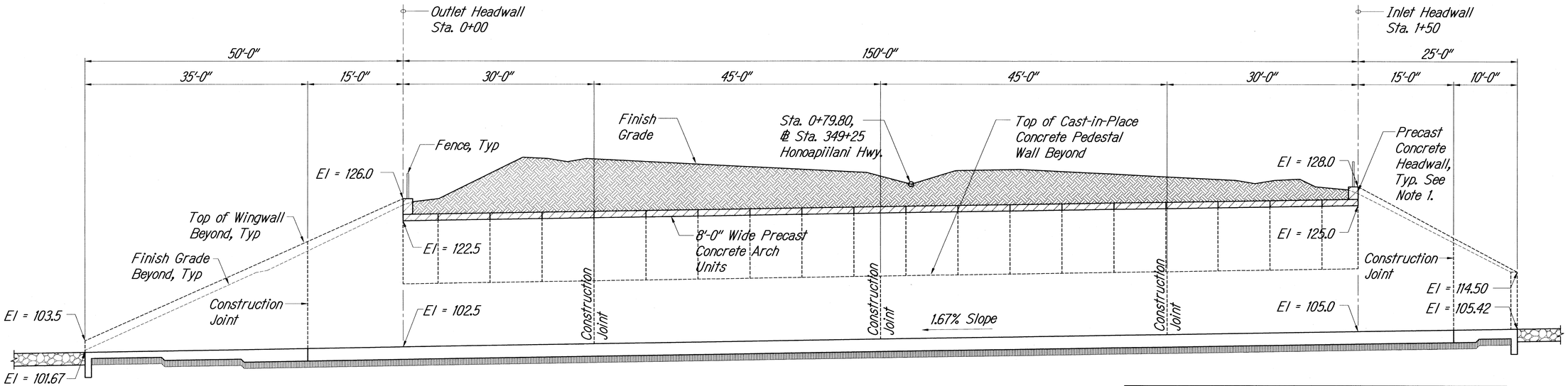
EXPIRATION DATE OF THIS LICENSE 4/30/2010
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

SHEET No. S1.8 OF 54 SHEETS

ADD. 121

P:\Drafting\2010-01-14_1917 bridge culvert - addendum 1\1917_S1.8 ADD 1.dwg, 24, 1/15/2010 11:29:03 AM, tamamaha, 1:1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	137	213



⚠1

AG. CROSSING - LONGITUDINAL SECTION ALONG CENTERLINE (1 / S5.0 | S5.3)

Scale : 1/8" = 1'-0"

Note:

1. *Precast fabricator shall design headwall connection to precast arch section. Calculations shall be stamped and signed by a structural engineer, licensed in Hawaii. Typical for all precast arch culverts.*

DATE	REVISION
1/18/10	⚠1 Revised AG. Crossing

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

AG. CROSSING - LONGITUDINAL SECTION

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 8818-S
HAWAII, U.S.A.

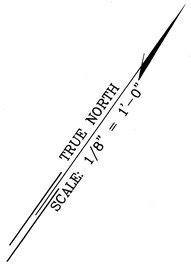
EXPIRATION DATE OF THE LICENSE 4/30/2010
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

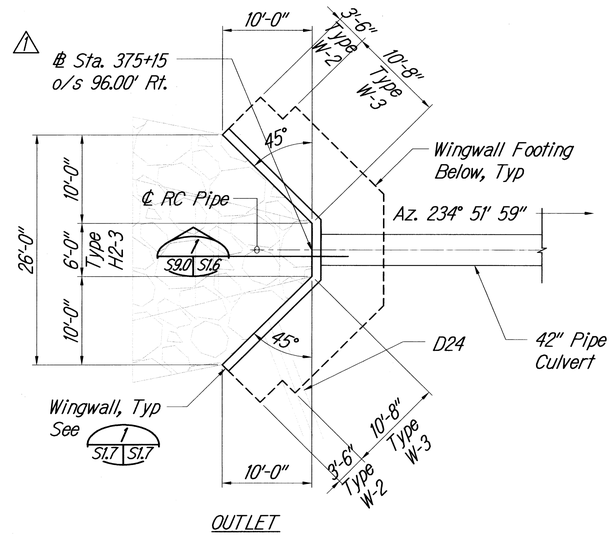
SHEET No. S5.3 OF 54 SHEETS

ADD. 137

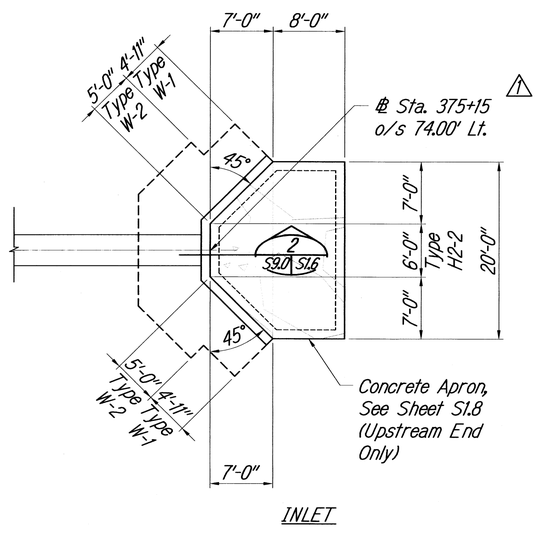
P:\Drafting\2010-01-14_1917 bridge culvert - addendum 1\1917_S5-3 ADD 1.dwg, 96, 1/15/2010 11:29:05 AM, tamanaha, 1:1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	146	213





OUTLET



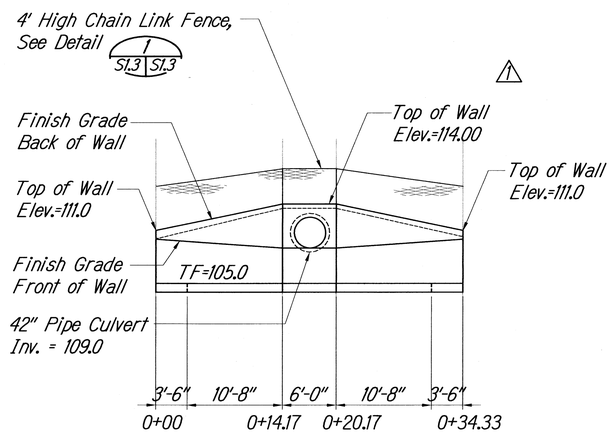
INLET

CULVERT 9 - PLAN ℄ STA. 375+15

Scale: 1/8" = 1'-0"

1 S9.0 S9.0

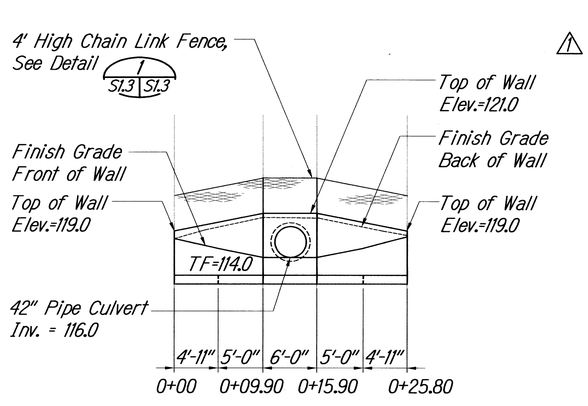
Notes:
1. For Headwall Details, See Sheet S1.6.
2. For Wingwall Details, See Sheet S1.7.



CULVERT 9 - OUTLET ELEVATION ℄ STA. 375+15

Scale: 1/8" = 1'-0"

2 S9.0 S9.0



CULVERT 9 - INLET ELEVATION ℄ STA. 375+15

Scale: 1/8" = 1'-0"

3 S9.0 S9.0

KEN KAZUO HAYASHIDA LICENSED PROFESSIONAL ENGINEER No. 8348-S HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2010
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

DATE	REVISION
1/18/10	⚠1 Revised Culvert 9

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CULVERT 9 - PLAN AND ELEVATIONS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Shown Date: November 23, 2009

SHEET No. S9.0 OF 54 SHEETS

ADD. 146

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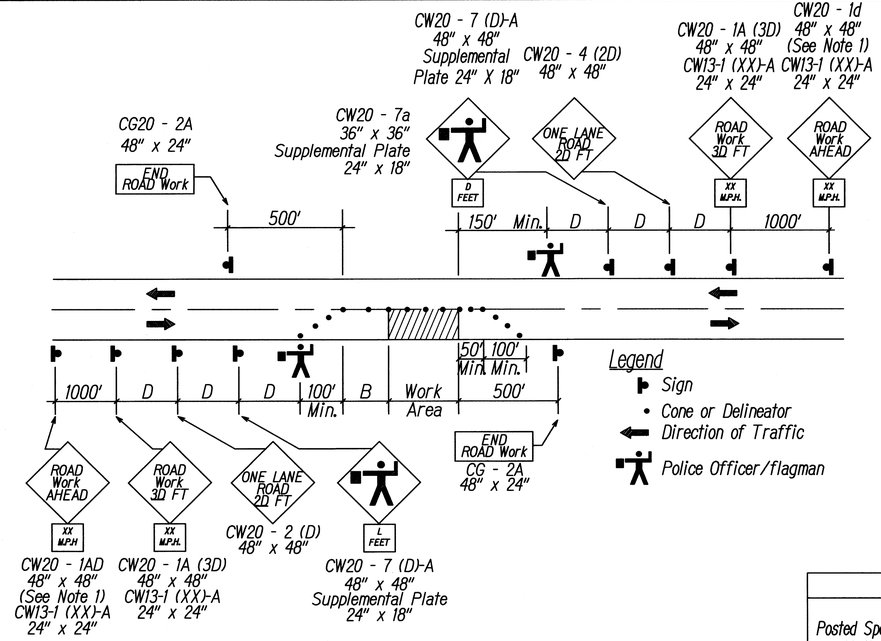
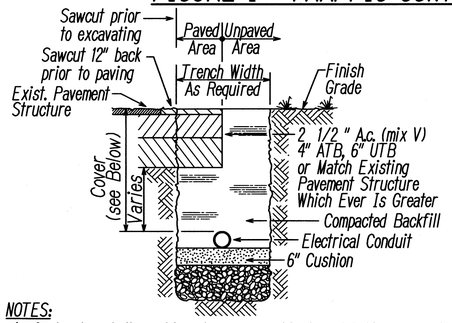


NOTES:

1. CW-20-1AD sign required for posted speed limit of 45 m.p.h. or greater.
2. See table 1 for additional dimensions.
3. One lane road (CW-20-4) and flagger ahead (CW20-7) signs shall be removed or covered when no work is being performed and lane is not closed.
4. The advisory speed (XX) shall be determined by the Engineer.
5. Cones or delineators shall be installed at 25' o.c. max. on tapers.

TWO-LANE HIGHWAY - ONE LANE CLOSED
FIGURE I - TRAFFIC CONTROL PLAN



NOTES:

1. Contractor shall provide a temporary cold mix patch if permanent restoration cannot be made within 24 hours of backfill
2. All exposed areas to be grassed.
3. Minimum Cover:
   - A) Under road pavement = 36"
   - B) Under shoulder area:
     - B1) Smaller than 4" = 24"
     - B2) 4" = 30"
     - B3) 6" and larger = 36"
4. Any damages to existing utilities shall be replaced and/or restored to its original condition at no additional cost to the owner.

TRENCH RESTORATION DETAIL

Not to Scale
(County Right-of-way)

COMPACTION REQUIREMENTS

1. Testing of materials shall be conducted by an approved independent testing agency in accordance with ASTM standard methods or as specified by the Department of Public Works, Engineering Division, as follows:
   - Embankment/select borrow and subgrade materials: one(1) Compaction test per 600 square yards per lift
   - B. Aggregate subbase course: one (1) compaction test per 400 square yards; one (1) gradation and sand equivalent test per project.
   - C. Aggregate base course: one (1) compaction test per 300 square yards; one (1) gradation and sand equivalent test per project.
   - D. Asphalt concrete pavement or asphalt treated base course: Three (3) a.c. cores for thickness and density tests per project.
   - E. Trench backfill material: one (1) test for each 300 lineal feet of trench per lift of material.
2. Contractor shall submit all testing reports including results to the County's inspection agency for review and approval prior to County's acceptance of work.
3. The Contractor shall notify the County of any testing failures and correct each failure prior to proceeding to the next phase of construction.

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

1. The Permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
2. Cones or delineators shall be extended to a point where they are visible to approaching traffic.
3. Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
4. Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered.
5. All signs shall be restored upon completion of the work.
6. Flaggers and/or police officers shall be in sight of each other or in direct communications at all times.
7. When required by the issuing office, the Permitee shall install a flashing arrow signal as shown on the traffic control plans.
8. Signs spacing (l), taper lengths (t) and spacings of cones or delineators shall be as shown in table 1, unless otherwise noted on the traffic control plans.
9. All traffic lanes shall be a minimum of 10 feet wide. All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
10. The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e. when signs have messages on both faces).
11. At the end of each day's work or as soon as the work is completed, the Permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic.
12. Removal shall be in the reverse order or installation.
13. Replace permanent pavement markings and traffic signs upon completion of work.

Table I for Traffic Control Plan

Posted Speed Limit (m.p.h.)	Sign Spacing (d) Feet	Taper Length (t) (feet) W = 12' or Less (1)	Taper Length (t) (feet) W = Greater Than 12' (1)	Longitudinal Buffer Space (B) (feet)	Spacing of Cones or Delineators (feet) Taper	Tangent	Work Area
20	250	200	W X 1.7	35	20	20	10
25	250	200	W X 1.7	55	25	25	10
30	250	250	W X 2.0	85	30	30	10
35	250	250	W X 2.0	120	35	35	10
40	500	350	W X 3.0	170	40	40	10
45	500	550	W X 4.5	220	45	45	10
50	1000	600	W X 5.0	280	50	50	10
55	1000	700	W X 5.5	335	55	55	10

Notes: (1) W = Width of Lane, Shoulder, or Offset

TRAFFIC CONTROL PLAN

Not to Scale

GENERAL NOTES:

1. Plans subject to review and approval of utility companies.
2. Install conduit marking for all stub-out locations
3. Underground utilities to be installed outside of the road right of way, within a utility easement running through the edge of the new lots.
4. The Contractor/utility company shall contact the Department of Water Supply at phone # 270-7340 one (1) week prior to commencement of work.
5. The Contractor/utility company shall be responsible to verify the exact depth and location of existing waterlines in the project area prior to commencement of work and shall meet with the Department of Water Supply personnel out in the field to help locate the existing waterlines in the project area if necessary.
6. Maintain a minimum of three (3) feet clear horizontal separation between existing waterlines and installed utilities.
7. Maintain a minimum of six (6) inches clear vertical separation between existing waterlines and installed utilities at all crossings.
8. Any installed utility crossing an existing waterline shall be concrete jacketed a minimum of five (5) feet on both sides of the crossing.

Approvals:

DIRECTOR – DEPARTMENT OF PUBLIC WORKS & ENVIRONMENTAL MANANGEMENT (APPROVAL FOR WORK WITHIN COUNTY RIGHT OF WAY ONLY) — DATE

DIRECTOR – DEPARTMENT OF WATER SUPPLY, COUNTY OF MAUI (APPROVAL LIMITED TO WATER IMPROVEMENTS WHICH WILL BE DEDICATED TO THE DEPARTMENT OF WATER SUPPLY) — DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	167	213

CONTRUCTION NOTES WITHIN COUNTY RIGHT-OF-WAY

1. Contractor shall obtain a permit to perform work on County highways from the development services administration two weeks prior to the commencement of work.
2. Standard detail drawings and standard specifications of the Department of Public Works shall be included as part of the construction plans.
3. All construction work shall strictly conform to the applicable sections of the 1994 Hawaii Standard Specifications for Road, Bridge and Public Works Construction, and the September 1984 "Standard Details" for Public Works Construction of the Department of Public Works.
4. If existing utilities, whether or not shown on plans, are damaged during construction, the Contractor shall at his own expense be required to repair such utilities.
5. Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, and other protective devices for the protection, safety and convenience of the public, according to the "Manual of Uniform Traffic Control Device for Streets and Highways", dated 2000 and to the rules and regulations governing the use of traffic control devices at worksites and/or adjacent to public streets and highways adopted by the highway safety coordinator and the U.S. Federal Highway Administration "Manual on Uniform Traffic Control Devices for Highway Construction and Maintenance Operations" dated 2001.
6. The Director Public Works and/or the Director of the Department of Water Supply has the right to stop construction should any work be found contrary to the approved construction plan or defrimental to the public's interest.
7. The Contractor shall schedule a pre-construction meeting with the Development Services Administration five (5) days prior to the commencement of construction.
8. The Contractor shall, at his own expense, keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with Air Pollution Control Standards and regulations of the State Department of Health and County Grading Ordinance.
9. The Contractor shall remove all silt and debris resulting from his work and deposited in drainage facilities, roadways and other areas. The cost incurred for any necessary remedial action ordered by the Director of Public Works shall be paid by the Contractor.
10. Construction debris and wastes shall be deposited at an appropriate work site. The Contractor shall inform the Director of Public Works of the location of the disposal sites. The disposal site must fulfill the requirements of the grading ordinance.
11. The Contractor shall submit a tiff and five (5) copies of the "as-built" drawings prior to the final approval of the improvements.
12. If the clearance between a wastewater line and a new or existing waterline is eighteen inches (18") or less, the wastewater line shall be concrete-jacketed in accordance with the Standard Details of Public Works Construction dated September 1984.
13. Should historic sites such as walls, platforms, pavements, or mounds, or remains such as artifacts burials, concentration of shell or charcoal be encountered during construction activities, work shall cease immediately in the immediate vicinity of the find and the find shall be protected from further damage. The contractor and/or landowner shall immediately contact the State Historic Preservation Division @ 243-5169 which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary.
14. Pursuant of Maui County Code section 3.44.015(c), the County of Maui is not responsible for any park, roadway, easement (including but not limited to drainage, sewer, access, reclaimed water, or avigation easement), or any other interest in real property shown on this map or shown on these plans, unless the Maui County Council has accepted its dedication by a resolution approved by a majority of Council's members at a regular or special meeting of the Maui County Council.

MARK P. RICKARD
LICENSED PROFESSIONAL ENGINEER
No. 8991-E
HAWAII, U.S.A.

EXP. 4/30/10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

DATE	REVISION
1/18/10	ADD. No. 1 - Revised Text Hts. & Fonts

STATE OF HAWAII
DEPARTMENT OF TRANSPorTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL NOTES & DETAILS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted — Date: November 23, 2009

SHEET No. 1 OF 8 SHEETS

ADD. 167

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	168	213

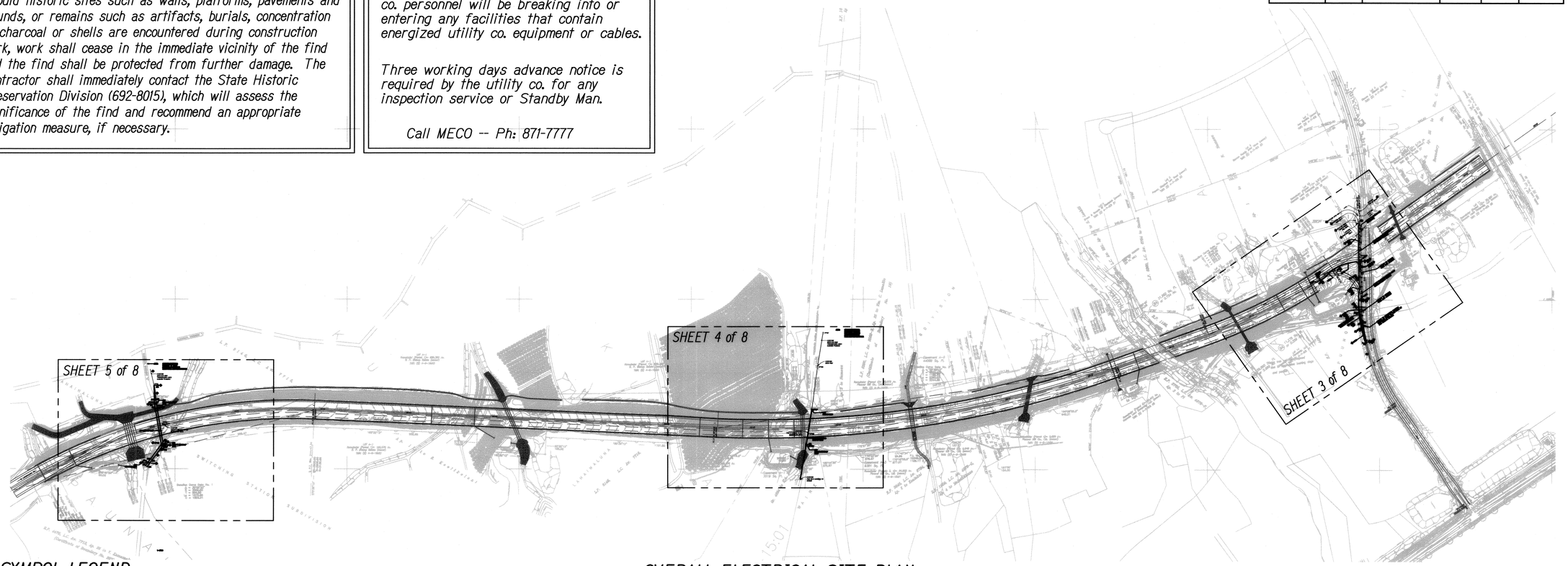
NOTE:

Should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentration of charcoal or shells are encountered during construction work, work shall cease in the immediate vicinity of the find and the find shall be protected from further damage. The Contractor shall immediately contact the State Historic Preservation Division (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary.

A Utility Co. Standby Man is required to be at the site at the time any non-utility co. personnel will be breaking into or entering any facilities that contain energized utility co. equipment or cables.

Three working days advance notice is required by the utility co. for any inspection service or Standby Man.

Call MECO -- Ph: 871-7777



SYMBOL LEGEND

- New 250W HPS MECO St. Light Pole, Full Cut-off & Shielded
- New 250W HPS MECO Pole Mounted Street Light, Full Cut-off & Shielded
- New Pole
- Existing Pole
- Existing Pole (to be removed)
- Existing Anchor
- New Anchor
- Duct Line
- Stub-out Conduit, Cap, and Concrete Marker
- Handhole Group (existing)
- Handhole Group (new)
- New Transformer Pad (MECO)
- Existing Switchgear Pad (MECO)

- EP Electrical Primary Ducts, Qty. and Size as Indicated
- ES Electrical Secondary Ducts, Qty. and Size as Indicated
- T Telephone Ducts, Qty. and Size as Indicated
- TV CATV Ducts, Qty. and Size as Indicated
- SL Street Light Ducts, Qty. and Size as Indicated
- E-2 Electrical 2'x4' Handhole, MECO Dwg. 30-2005.
- E-3 Electrical 3'x5' Handhole, MECO Dwg. 101020/101028/101029.
- E-4 Electrical 4'x6' Handhole, MECO Dwg. 101024/101028/101029.
- E-5 Electrical 5'x7' Handhole, MECO Dwg. 102302/101028/101029.
- T-2 Telephone Pullbox, Type 435TB (2'x4') HTCO Dwg. 34056.
- T-3 Telephone Pullbox , Type 180045 (3'x5') HTCO Dwg. 34110A.
- C-2 CATV Pullbox, Similar to HTCO Type 435TB, HTCO Dwg. 34056.
- C-3 CATV Pullbox, Similar to HTCO Type 3660TB (3'x5')

OVERALL ELECTRICAL SITE PLAN

Scale: 1" = 300'-0"

PLAN NOTES:

1. Existing utility pole to remain.
2. Existing utility overhead lines to remain.
3. Existing utility infrastructure to remain.
4. New pole and related anchor to be installed by MECO.
5. Coordinate with MECO to remove UG conductors where applicable prior to removal or relocation of existing MECO pullboxes and related facilities.
6. Connect re-routed conduit.
7. Equipment located in private property to be covered by easements (refer to MECO Dwg. No. 8-1-405).
8. State owned street light.
9. County owned street light.

MAUI COUNTY CODE CHAPTER 20.35
OUTDOOR LIGHTING

THE ELECTRICAL OUTDOOR LIGHTING SYSTEM AND EQUIPMENT HAVE BEEN REVIEWED BY ME AN TO THE BEST OF MY KNOWLEDGE, THIS DESIGN SUBSTANTIALLY CONFORMS TO THE REQUIREMENTS SPECIFIED IN MAUI COUNTY CODE CHAPTER 20.35 OUTDOOR LIGHTING.

SIGNATURE — PROJECT ENGINEER, TITLE

MARK P. RICKARD, NAME (PRINT) — 8991-E, STATE OF HAWAII P.E. LICENSE NUMBER

APPROVALS:

	DATE
MAUI ELECTRIC COMPANY	
HAWAIIAN TELCOM	
OCEANIC TIME WARNER CABLE	

NOTE: PLAN NOT FOR CONSTRUCTION UNLESS APPROVED

GENERAL NOTES:

1. Plans subject to review and approval of utility companies.
2. Grade beyond the MECO boxes shall not exceed 2" rise per foot within a 2'-0" wide area property side of each box, otherwise a retaining wall will be required.
3. Developer shall be responsible for the full cost to relocate MECO facilities as required.

MARK P. RICKARD LICENSED PROFESSIONAL ENGINEER No. 8991-E HAWAII, U.S.A.

EXP. 4/30/10

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

OVERALL ELECTRICAL SITE PLAN
SYMBOL LEGEND & NOTES

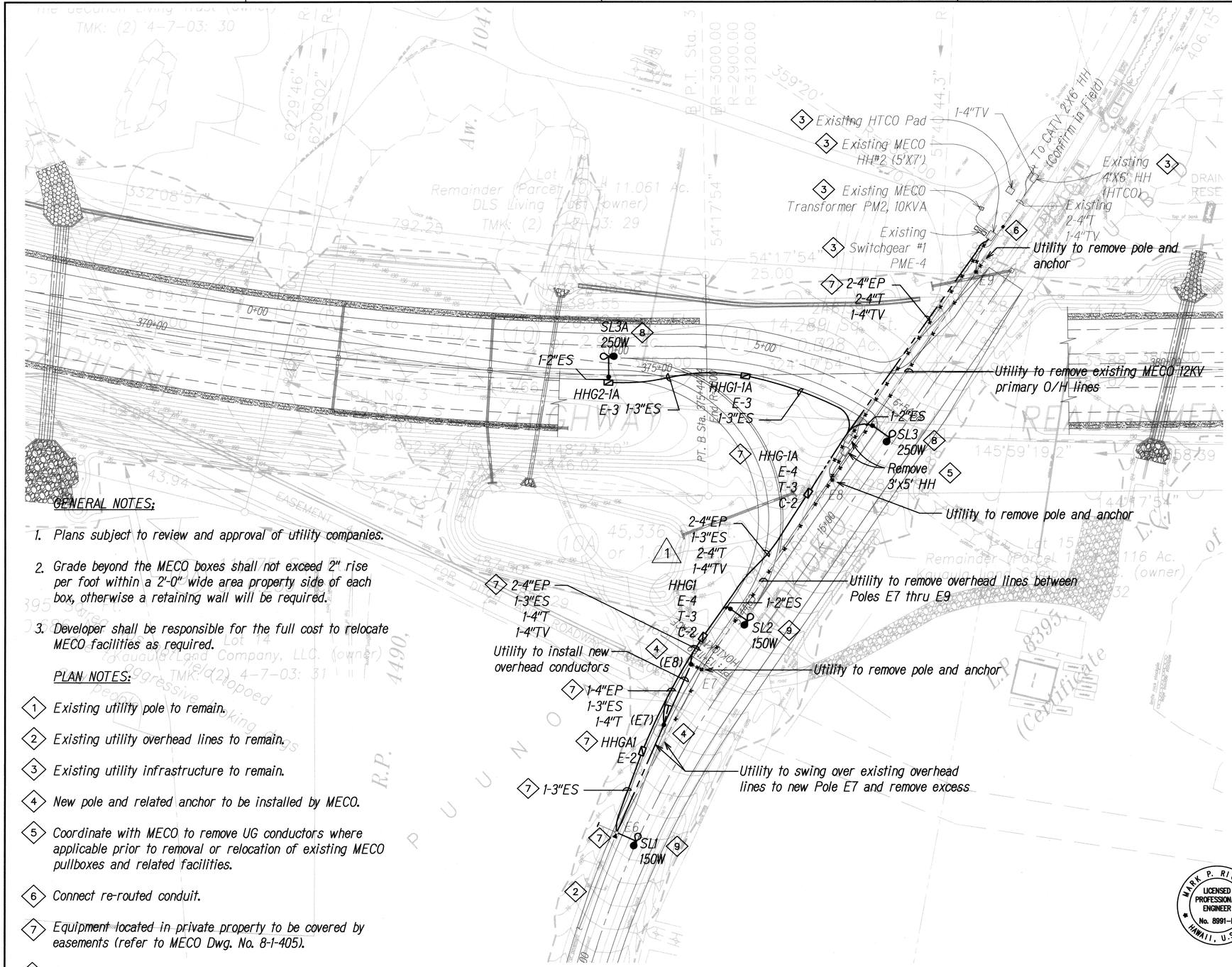
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted — Date: November 23, 2009

SHEET No. 2 OF 8 SHEETS

ADD. 168

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	169	213



PARTIAL ELECTRICAL SITE PLAN

Scale: 1" = 50'-0"

GENERAL NOTES:

1. Plans subject to review and approval of utility companies.
2. Grade beyond the MECO boxes shall not exceed 2" rise per foot within a 2'-0" wide area property side of each box, otherwise a retaining wall will be required.
3. Developer shall be responsible for the full cost to relocate MECO facilities as required.

PLAN NOTES:

1. Existing utility pole to remain.
2. Existing utility overhead lines to remain.
3. Existing utility infrastructure to remain.
4. New pole and related anchor to be installed by MECO.
5. Coordinate with MECO to remove UG conductors where applicable prior to removal or relocation of existing MECO pullboxes and related facilities.
6. Connect re-routed conduit.
7. Equipment located in private property to be covered by easements (refer to MECO Dwg. No. 8-1-405).
8. State owned street light.
9. County owned street light.

DATE	REVISION
1/18/10	ADD. No. 1 - Revised Text Hts. & Fonts
	Add 4"T

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PARTIAL ELECTRICAL SITE PLAN
SYMBOL LEGEND & NOTES

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted Date: November 23, 2009

MARK P. RICKARD LICENSED PROFESSIONAL ENGINEER No. 8991-E HAWAII, U.S.A.

EXP. 4/30/10
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SHEET No. 3 OF 8 SHEETS

ADD. 169

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	170	213

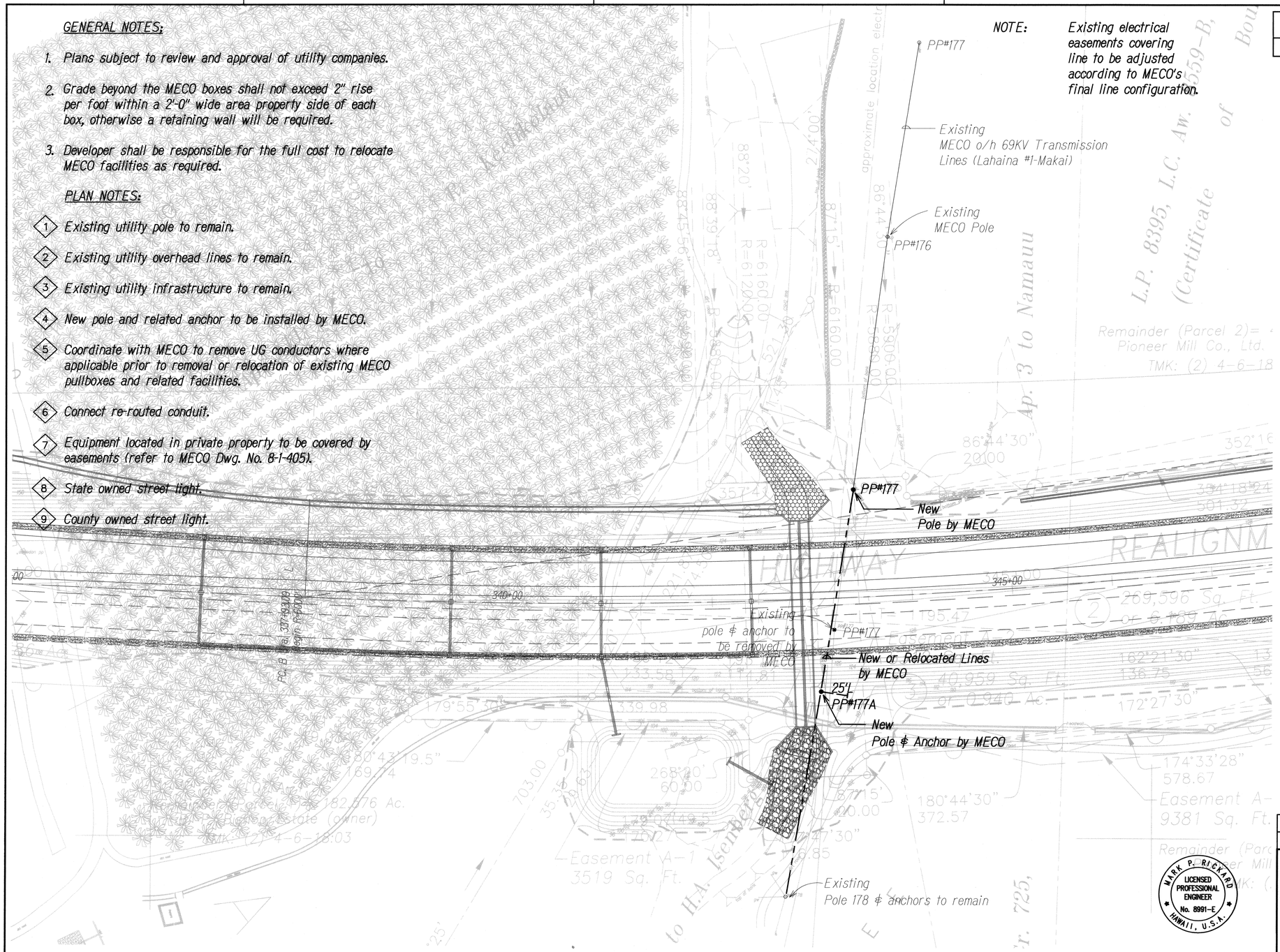
GENERAL NOTES:

1. Plans subject to review and approval of utility companies.
2. Grade beyond the MECO boxes shall not exceed 2" rise per foot within a 2'-0" wide area property side of each box, otherwise a retaining wall will be required.
3. Developer shall be responsible for the full cost to relocate MECO facilities as required.

PLAN NOTES:

1. Existing utility pole to remain.
2. Existing utility overhead lines to remain.
3. Existing utility infrastructure to remain.
4. New pole and related anchor to be installed by MECO.
5. Coordinate with MECO to remove UG conductors where applicable prior to removal or relocation of existing MECO pullboxes and related facilities.
6. Connect re-routed conduit.
7. Equipment located in private property to be covered by easements (refer to MECO Dwg. No. 8-1-405).
8. State owned street light.
9. County owned street light.

NOTE: Existing electrical easements covering line to be adjusted according to MECO's final line configuration.



PARTIAL ELECTRICAL SITE PLAN
Scale: 1" = 50'-0"

MARK P. RICKARD
LICENSED PROFESSIONAL ENGINEER
No. 8991-E
HAWAII, U.S.A.

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DATE	REVISION
1/18/10	ADD. No. 1 - Revised Text Hts. & Fonts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PARTIAL ELECTRICAL SITE PLAN
SYMBOL LEGEND & NOTES

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted Date: November 23, 2009

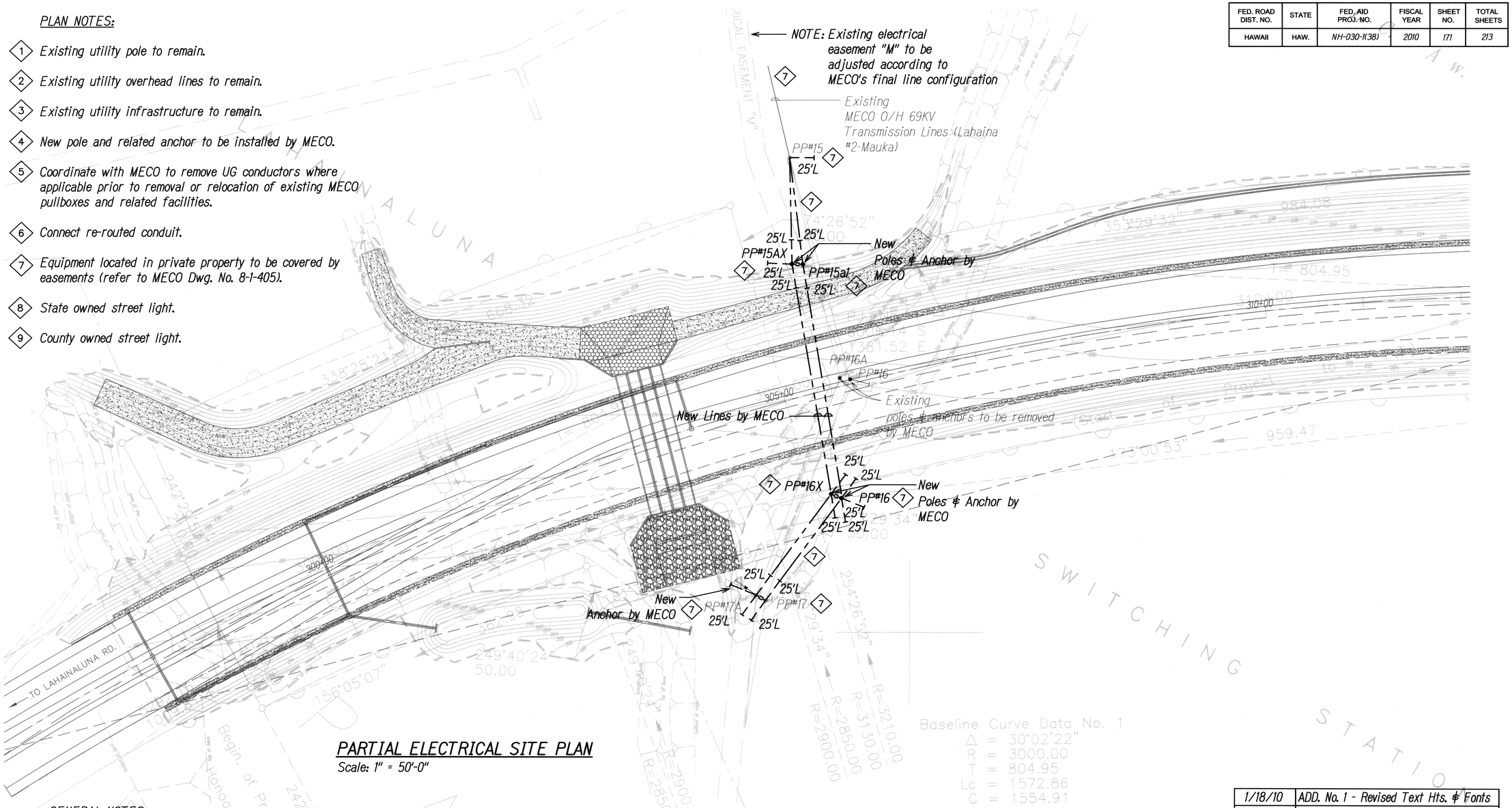
SHEET No. 4 OF 8 SHEETS

ADD. 170

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	171	213

PLAN NOTES:

1. Existing utility pole to remain.
2. Existing utility overhead lines to remain.
3. Existing utility infrastructure to remain.
4. New pole and related anchor to be installed by MECO.
5. Coordinate with MECO to remove UG conductors where applicable prior to removal or relocation of existing MECO pullboxes and related facilities.
6. Connect re-routed conduit.
7. Equipment located in private property to be covered by easements (refer to MECO Dwg. No. 8-1-405).
8. State owned street light.
9. County owned street light.



PARTIAL ELECTRICAL SITE PLAN

Scale: 1" = 50'-0"

GENERAL NOTES:

1. Plans subject to review and approval of utility companies.
2. Grade beyond the MECO boxes shall not exceed 2" rise per foot within a 2'-0" wide area property side of each box, otherwise a retaining wall will be required.
3. Developer shall be responsible for the full cost to relocate MECO facilities as required.

MARK P. RICKARD
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1/18/10	ADD. No. 1 - Revised Text Hts. & Fonts
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PARTIAL ELECTRICAL SITE PLAN
SYMBOL LEGEND & NOTES
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted Date: November 23, 2009

SHEET No. 5 OF 8 SHEETS

ADD. 171

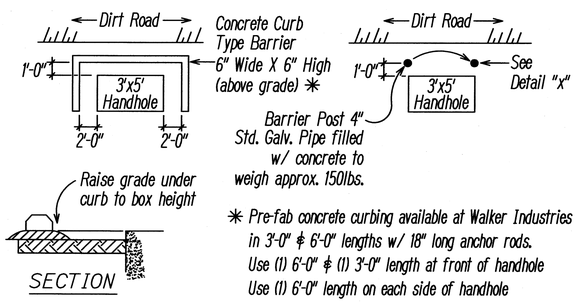
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	172	213

HAWAIIAN TELCOM GENERAL NOTES:

1. Installation of HTCO and communications ductline system shall be in conformance the requirements of HTCO "Standard Specifications for Placing Underground Telecommunications Systems", May 1992, unless otherwise modified in these plans. Check with HTCO prior to ordering material for the ductline system installation work.
2. The Contractor will provide a 5/8" x 8' galvanized ground rod in each handhole and/or pullbox and below a telephone cabinet. Minimum telephone cabinet size is 18" x 24" x 6".
3. All conduits will enter and leave the handhole/pullbox at 90 degrees to the face of the box.
4. The maximum size conduit that may enter the side wall of a handhole/pullbox is 2".
5. All conduits will be terminated with a bell end, grouted around the conduit. The bell end shall be flush with the inside face of the handhole/pullbox wall. No protrusion of the bell end will be permitted. The inside surface shall be finished smooth and flush with the existing wall surface.
6. All conduits shall have an 1800#, polyester mule tape (NEPTCO WP 1800P, HTCO Material Code No. 751154) installed throughout its entire length. All conduits shall be capped with a temporary cap to prevent the entry of foreign material during construction. The temporary caps shall remain installed on each conduit entering a handhole/pull box at the completion of the installation.
7. All conduit handhole/pull box installed by the Contractor for the use by HTCO will be subject to inspection. The inspection shall take place prior to back fill or concrete encasement. Inspections must be scheduled 3 working days in advance.
8. All handhole/pull boxes installed in non-sidewalk areas will require a 10" x 5" thick concrete collar around the entire frame, feathered to finished grade, placed on a compacted 6" base of sand or HTCO Type "B" backfill.
9. After ductline has been completed, a mandrel not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct shall be pulled through each duct.
10. A HTCO Standby Man is required to be at the job site anytime non-utility co. personnel will be breaking into or entering any structures that contain communication facilities. Three working days notice is required for any inspection or Standby Man. Five working days advance notice is required for underground cable locating and marking.
11. All conduits will enter telephone cabinets from the extreme left knockout.
12. The Developer will be responsible for all revisions required on telephone design due to field conditions.
13. One piece 2' x 4' pullboxes are non HTCO standard and will not be accepted.
14. The approval of the subject drawing(s) is good for a period of 180 days. If construction activities have not commenced with the 180 days of HTCO approved date, the approval will be void. Should this occur the Contractor will be notified upon receipt for inspection of underground.

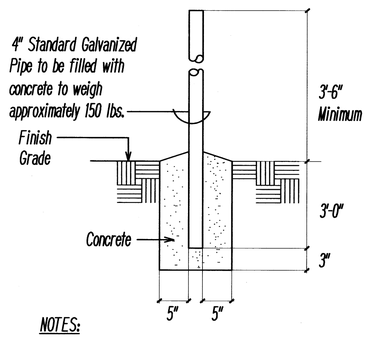
ELECTRICAL NOTES

1. For the construction of the utility companies' pull boxes or handholes, refer to their appropriate standard drawings.
2. The utility companies' standard drawings, specifications and construction practices indicated or referred to in the drawings and specifications shall be applicable to this project.
3. The Contractor shall be responsible for coordinating and detailed scheduling of the site inspection work by utility companies and all other concerned parties and agencies.
4. The Contractor shall familiarize himself with the project's construction plans and shall coordinate his work with that of the General Contractor.
5. Work under this contract shall include that of the electrical distribution system.
6. Install a polyolefin pull line in all ductlines.
7. Comply with the latest applicable rules, regulations, requirements, and specifications of the local laws and ordinances, State and Federal laws, National Electrical Code, County of Maui Electrical Ordinance, State Fire Marshall, Underwriter's Laboratory, Electrical Safety Code, and Life Safety Code.
8. Contractor to obtain and pay for the electrical permit as required by local ordinances and arrange for periodic inspection by local authorities as work progresses.
9. Provide protection for material and equipment from loss, damage, corrosion and effects of moisture. Repair or replace damaged items at no additional cost to the Owner.
10. Visit project site prior to bid submittal to ascertain conditions and cost allowances that affect the proposed work.
11. Install materials and equipment in workmanlike manner and in strict accordance with manufacturer's recommendations, unless otherwise specified or directed by the Engineer.
12. Materials and workmanship subject to inspection at any time by the owner or his representative; correct any work or materials not in accordance with drawings or found to be deficient or defective in a manner satisfactory to the Owner at no additional cost.
13. Provide all first quality, new materials, free from defects suitable for space provided and approved by UL where standards have been provided by that agency.
14. Provide standard materials and equipment of manufacturer's regularly engaged in the production of these products. Provide products of a single manufacturer where two or more units of the same call are required.



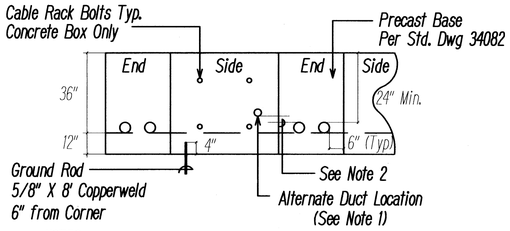
✳ Pre-fab concrete curbing available at Walker Industries in 3'-0" ∉ 6'-0" lengths w/ 18" long anchor rods.
Use (1) 6'-0" ∉ (1) 3'-0" length at front of handhole
Use (1) 6'-0" length on each side of handhole

HANDHOLE PROTECTION DETAILS
Not to Scale



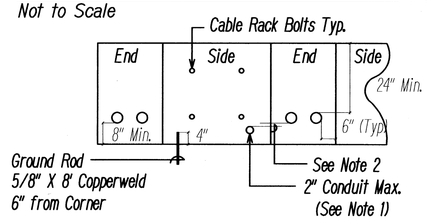
NOTES:
Barrier posts are to be painted yellow according to ANSI Spec. Z531 to comply with OSHA Standards for Coloring Code.

PIPE STANCHION DETAIL
Not to Scale



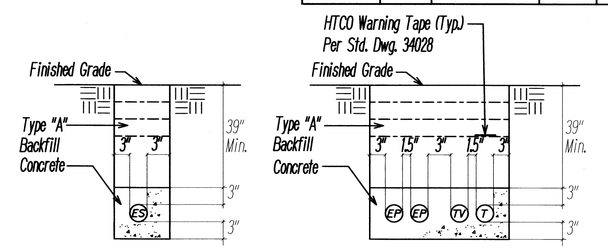
NOTES:
1. A maximum of one 4"C. per quadrant will be permitted to enter the side wall of a pullbox. When 2"C. is used for service laterals two conduits may be permitted per Engineer specifications.
2. When a conduit enters the sidewall of a pullbox the conduit will be installed such that the difference in elevation between the outside surface of the conduit entering the end wall is 1".
3. A maximum of 2-4"C. shall enter the wall end of a 3' x 5' pullbox. No conduit will be permitted to enter the pullbox at locations other than those specified by the Engineer.
4. Conduits will enter the pullbox perpendicular to the wall at which they enter. No exceptions will be permitted.
5. All conduits will be terminated with a bell end. The bell end shall be installed flush with the inside surface of the of the pullbox. No protrusion into the pullbox will be permitted.
6. All openings made in the pullbox for the purpose of installing conduit will be securely sealed with concrete grout. The grout will be a minimum of 4" thick and in no case less than the thickness of the pullbox wall. The inside of the box will be finished smooth and flush with existing surface.
7. One 5/8" x 8' coppercland ground rod will be installed in the pullbox as per the detail attached.

3' x 5' TEL. PULLBOX FOLD OUT DETAIL
Not to Scale



NOTES:
1. A maximum of one 2"C. per quadrant will be permitted to enter the side wall of a pullbox. When 2"C. is used for service laterals two conduits may be permitted per Engineer specifications.
2. When a conduit enters the sidewall of a pullbox the conduit will be installed such that the difference in elevation between the outside surface of the conduit entering the end wall is 1".
3. A maximum of 2-4"C. shall enter the wall end of a 2' x 4' pullbox. No conduit will be permitted to enter the pullbox at locations other than those specified by the Engineer.
4. Conduits will enter the pullbox perpendicular to the wall at which they enter. No exceptions will be permitted.
5. All conduits will be terminated with a bell end. The bell end shall be installed flush with the inside surface of the of the pullbox. No protrusion into the pullbox will be permitted.
6. All openings made in the pullbox for the purpose of installing conduit will be securely sealed with concrete grout. The grout will be a minimum of 4" thick and in no case less than the thickness of the pullbox wall. The inside of the box will be finished smooth and flush with existing surface.
7. One 5/8" x 8' coppercland ground rod will be installed in the pullbox as per the detail attached.

2' x 4' TEL. PULLBOX FOLD OUT DETAIL
Not to Scale



TYPICAL SECONDARY ALONG OR WITHIN ROAD

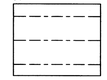
TYPICAL MAIN SECTION ALONG OR WITHIN ROAD

DUCTLINE NOTES:

1. Refer to electrical plan for duct sizes and quantities.
2. Concrete encased conduits shall be PVC Type 'EB' or Sched. 40 PVC. ABS Type 'DB' pipes are also acceptable.
3. Direct buried conduits shall be PVC Sch. 40 pipes.
4. Concrete encased conduits of like use may be separated by 1 1/2". A minimum of 3" separation must be maintained between electrical ducts and tel/tv ducts.
5. Direct buried conduits of like use shall be separated by a minimum of 3". A minimum separation of 12" must be maintained between direct buried electrical conduits and tel/tv conduits.
6. Concrete comprehensive strength shall be 2,500 psi in 28 days.
7. Ductline trenches may be backfilled 24 hours after concrete is poured.
8. Contractor shall coordinate ductline and trenching details with utility company's project plan.
9. Reference specification: MECO Spec. CS7001 with latest revision.

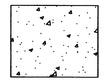
BACKFILL TYPES:

Type "A" - Beach sand, earth, or earth and gravel.



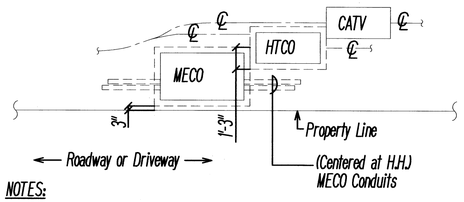
If earth and gravel, the maximum rock size shall be 1" ∉ the mixture shall contain not more than 50% by volume of rock particles.

TYPE "B" BACKFILL:



Beach sand, earth or earth and gravel. If and gravel, the mixture must pass a 1/2" mesh screen and contain not more than 20 of rocks particles

TYPICAL DUCTLINE AND TRENCHING DETAILS
Not to Scale



NOTES:
1. Handhole sizes per plan

TYPICAL HANDHOLE GROUPING
Not to Scale

DATE	REVISION
1/18/10	ADD. No. 1 - Revised Text Hts. ∉ Fonts

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

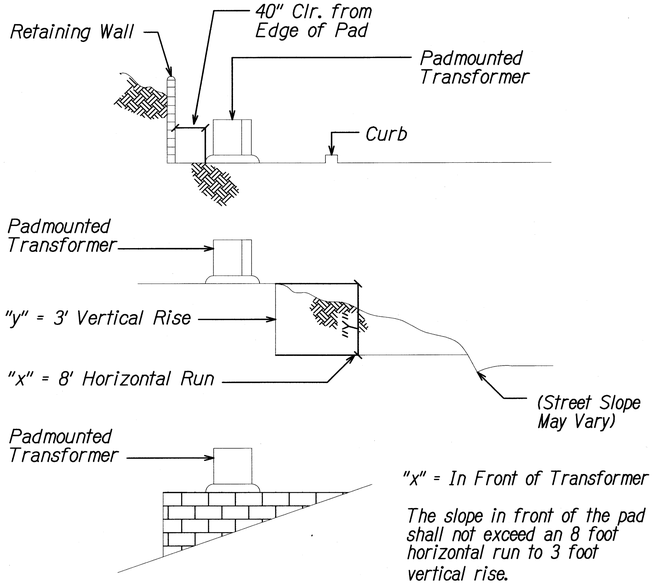
DETAILS ∉ NOTES

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted Date: November 23, 2009

SHEET No. 6 OF 8 SHEETS

ADD. 172



"x" = In Front of Transformer Pad

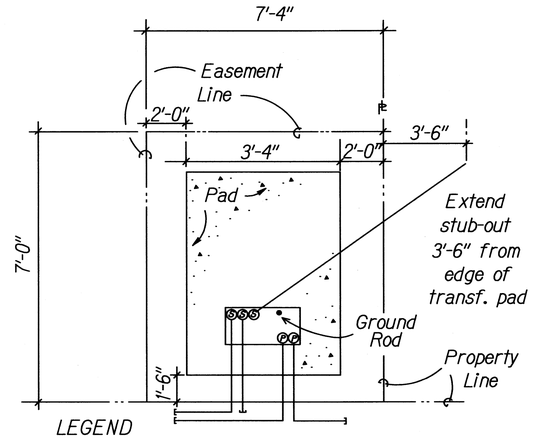
The slope in front of the pad shall not exceed an 8 foot horizontal run to 3 foot vertical rise.

NOTES:

1. Retaining walls to be install as needed-verify requirements with Civil Engineer.

TRANSFORMER MOUNTING DETAILS

Not to Scale



LEGEND

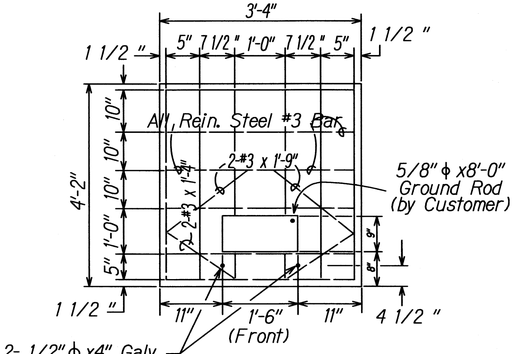
S - Secondary Ducts

P - Primary Ducts

REFERENCE STD.: 30-5001

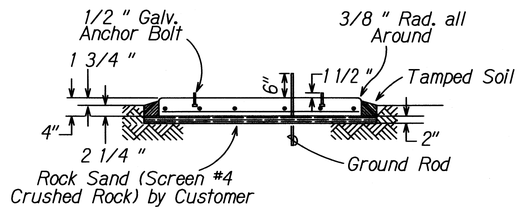
1 Φ TRANSFORMER PAD/CONDUIT LAYOUT

N.T.S.



PLAN PRECAST PAD

N.T.S.



ELEVATION

N.T.S.

CONCRETE PAD FOR PADMOUNT TRANSFORMER

Not to Scale

CONTRACTOR NOTES:

1. The Contractor is to furnish materials and construct the facilities for the padmount transformer including the concrete pad, primary and secondary ducts and anchor bolts. Concrete curb and rock fill around the pad, when required, shall also be furnished and installed by the Contractor.
2. Grade sufficiently around the lot site to prevent future filling in of the lot. When required, the Contractor shall construct a retaining wall of suitable material to prevent future filling in of the lot. Ref. 3/E-3.4
3. Compact by rolling the site in accordance with City and County Standard Specifications for Compacting Sidewalk Areas.
4. MECO shall have 24-hour access to the transformer without going through locked areas.
5. MECO shall have a minimum of 10 feet wide vehicular access to the transformer installation.
6. Bends due to changes of grade are to have minimum radius of 20 feet. The duct is to be PVC schedule 40 pipe. The Contractor is to install duct from the pad to the riser pole or handhole as designated on the plan.
7. One copperweld ground rod 5/8 inch diam. X 8 feet long is to be provided and installed by the Contractor. The rod is to extend 6 inches above the finished pad. Tie the rod to a water pipe with #1/0 copper wire. This tie may be eliminated where the water pipe is more than 25 feet away.
8. No permanent or temporary structure or object shall be erected or placed within two feet of the edge of the concrete pad and 8 feet in front.
9. When the concrete pad is located in the vicinity of existing or future combustible material, combustible buildings, the Contractor shall provide safeguards a outlined in the NEC latest revision subject to the approval of the City ϕ County building inspectors.
10. The front side of the concrete pad shall always be located to face the vehicular access and shall be free of any obstructions at all times.
11. When parts of building structures are located directly over the concrete pad, a minimum clearance of 9 feet from the pad grade is required. The customer shall provide adequate safeguards as outlined in the NEC, latest revision, and is subject to approval of the City ϕ County building inspectors.
12. All ductlines shall contain a "Mule Tape" Pull Line (WESCO Cat. #072592000 or equivalent).
13. After the conduits are installed, the Contractor shall pass a smooth bullet-shaped wooden test mandrel through the entire length of each conduit to test for freedom of burrs and obstructions.
14. Select Backfill: As specified in this manual.
15. Inspection: Three working days advance notice required by MECO for any inspection service.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	173	213

NOTES:

1. Compressive strength of concrete shall be 3,000 P.S.I. at 28 days
2. Top of pad shall be smooth, true, level and other exposed surfaces shall be smooth and free from defects.
3. Concrete shall be cured by approved method (ASTM A15).
4. Reinf. bars shall be clean deformed bars.
5. Precast pad made by Ameron, Maui.
6. All items shall be furnished in place complete by customer.
7. Pad site shall be graded and compacted. Compaction shall meet the requirements of the County of Maui "Standard Specifications for Compacting Sidewalk Area." The higher front or sidewalk corner shall match the adjacent sidewalk grade. Slope shall be towards the sidewalk or road, not exceeding 1/2" per foot.
8. Area surrounding the transformer site shall be sufficiently graded or a suitable retaining wall built to prevent future filling in of the lot.
9. An area 3'-8" x 4'-6" and 2" deep shall be excavated after compaction. This area shall be filled with the 2" base material and compacted (see elevation).
10. After the conduits are installed, the customer shall pass a smooth bullet-shaped wooden test mandrel through the entire length of each conduit to test for freedom of burrs and obstructions.

MARK P. RICKARD LICENSED PROFESSIONAL ENGINEER No. 8991-E HAWAII, U.S.A.

EXP. 4/30/10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

DATE	REVISION
1/18/10	ADD. No. 1 - Revised Text Hts. ϕ Fonts

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS ϕ NOTES

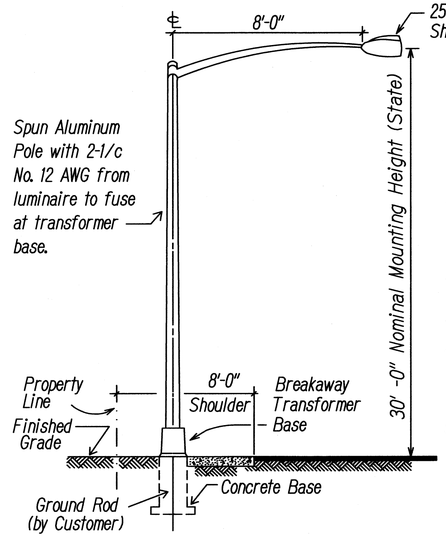
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted Date: November 23, 2009

SHEET No. 7 OF 8 SHEETS

ADD. 173

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(38)	2010	174	213

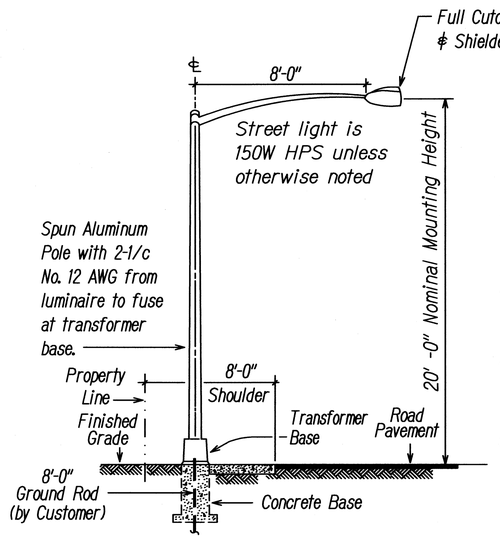


TYPICAL LIGHT STANDARD INSTALLATION

Not to Scale

STREET LIGHT NOTES:

1. Developer shall construct ⊄ install concrete street light footing ⊄ provide necessary materials.
2. MECO Shall provide the 1" ∅ x 36" galv. anchor bolts to be installed by Developer.
3. MECO shall provide ⊄ install all necessary electrical wires, alum. poles and fixtures.
4. Concrete shall have compressive strength of 3,000 P.S.I. at 28 days.
5. Other trades shall be allowed ample time to perform their work.

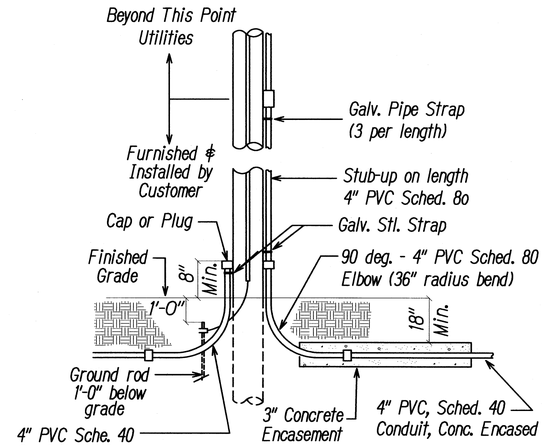


TYPICAL LIGHT STANDARD SINGLE FIXTURE INSTALLATION

Not to Scale

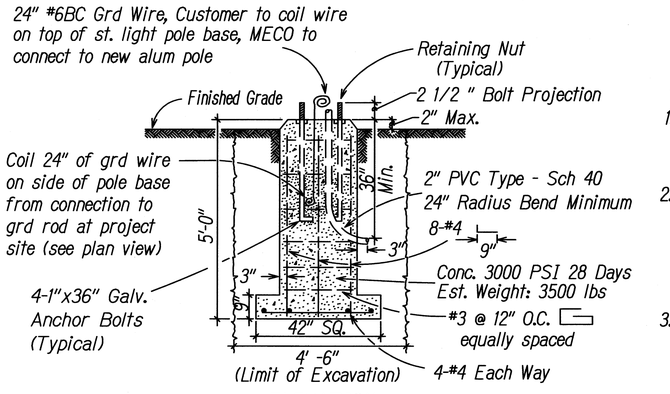
STREET LIGHT NOTES:

1. Developer shall construct ⊄ install concrete street light footing ⊄ provide necessary materials.
2. MECO Shall provide the 1" ∅ x 36" galv. anchor bolts to be installed by Developer.
3. MECO shall provide ⊄ install all necessary electrical wires, alum. poles and fixtures.
4. Concrete shall have compressive strength of 3,000 P.S.I. at 28 days.
5. Other trades shall be allowed ample time to perform their work.



RISER POLE DETAIL

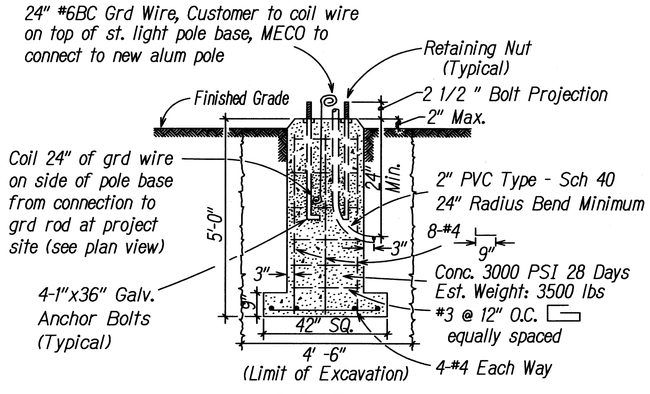
Not to scale



PRECAST CONCRETE FOOTING STREET LIGHT POLE BASE TRANSFORMER TYPE-WITH BREAKAWAY COUPLING (STATE HIGHWAY)

NOTES:

1. This item prefabricated by Walker Industries at Ameron Maui, ph: 877-5068
2. MECO shall provide 1" dia. X 36" anchor bolts (4 each) as furnished by Manufacturer. Pick-up by Customer at MECO's Kahului warehouse.
3. Inspection by MECO inspector required prior to fabrication of footing, contact MECO inspector (ph: 871-8461)



PRECAST CONCRETE FOOTING STREET LIGHT POLE BASE TRANSFORMER TYPE (COUNTY ROADWAY)

NOTES:

1. This item prefabricated by Walker Industries at Ameron Maui, ph: 877-5068
2. MECO shall provide 1" dia. X 36" anchor bolts (4 each) as furnished by Manufacturer. Pick-up by Customer at MECO's Kahului warehouse.
3. Inspection by MECO inspector required prior to fabrication of footing, contact MECO inspector (ph: 871-8461)

MARK P. RICKARD LICENSED PROFESSIONAL ENGINEER No. 8991-E HAWAII, U.S.A.

EXP. 4/30/10

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1/18/10	ADD. No. 1 - Revised Text Hts. ⊄ Fonts
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS ⊄ NOTES

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1B-1
Lahainaluna Rd. to Hokiokio Pl.
Federal Aid Project NO. NH-030-1(38)

Scale: As Noted Date: November 23, 2009

SHEET No. 8 OF 8 SHEETS

ADD. 174