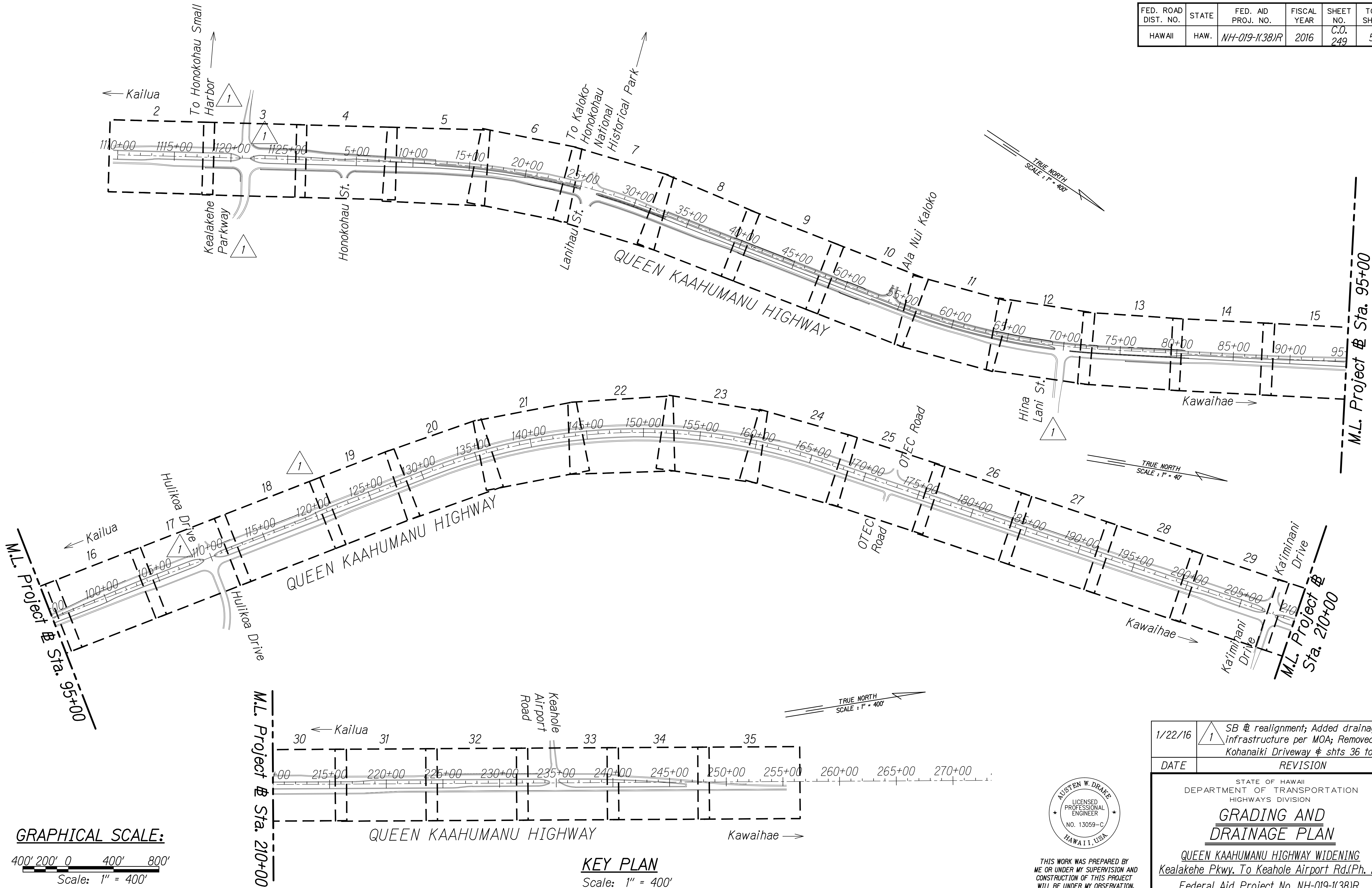
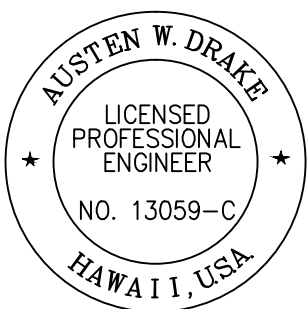


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 249	528



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

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_Hwy_WIDENING\01_CIVIL_DRAWINGS\249_KEY_PLAN_GRADING_AND_DRAINAGE_PLAN.DWG 6/16/2016 10:23 AM

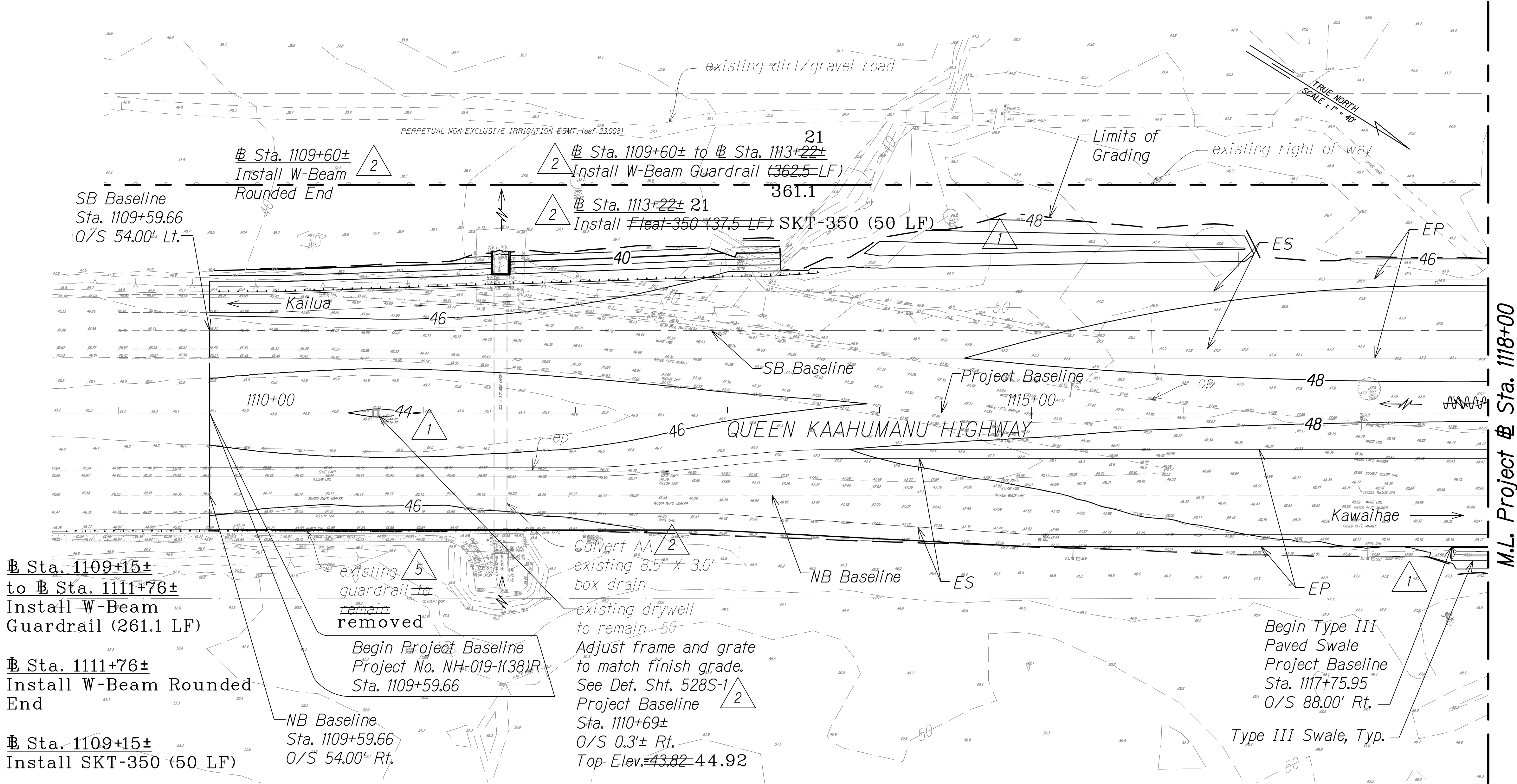


THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.
Austen W. Drake APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

1/22/16	SB @ realignment; Added drainage infrastructure per MOA; Removed Kohanaiki Driveway @ shts 36 to 38
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION GRADING AND DRAINAGE PLAN QUEEN KAAHUMANU HIGHWAY WIDENING Kealahake Pkwy. To Keahole Airport Rd.(Ph. 2) Federal Aid Project No. NH-019-1(38)R Scale: AS NOTED Date: AUGUST 2016	
SHEET No. 1 OF 38 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 250	528

NOTE: 
1. For paved swale sections, see Sht. 13S-1.



SB Baseline
Sta. 1109+59.66
O/S 54.00' Lt.

Sta. 1109+60±
Install W-Beam
Rounded End

Sta. 1109+60± to Sta. 1113+22±
Install W-Beam Guardrail (362.5 LF)

Sta. 1113+22±
Install SKT-350 (50 LF)

Sta. 1111+76±
Install W-Beam
Rounded End

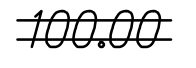
Sta. 1109+15±
Install SKT-350 (50 LF)

LEGEND:

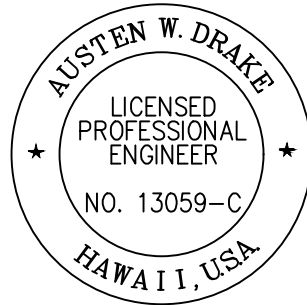
- 50— Finish Grade
- 50— existing ground
- Limits of Grading
- existing spot elevation
- Direction of Flow

PLAN
Scale: 1" = 40'

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

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

DATE	REVISION
4/14/18	5 Mauka guardrail revisions
8/1/16	2 Added ref. to detail, note of culvert ID; Revised guardrail labels
1/22/16	1 Makai slope of median swale grading rev.; Added drainage structure per MOA



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 2 OF 38 SHEETS

"AS-BUILT"

C.O. 250

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 251	528

- NOTES:**
- All inlets shall have inlet filters unless otherwise noted.
 - For Shallow Drywell, see Det. Sht. 287
 - For paved swale sections, see Sht. 13S-1.

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

DATE	REVISION
2/23/18	4 Replaced GDI with drywell and abandoned existing drywell
3/1/17	3 Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2 Revised and added note
1/22/16	1 Revised grading due to SB & realignment; Makai slope rev.; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
GRADING AND DRAINAGE PLAN	
QUEEN KAAHUMANU HIGHWAY WIDENING Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)	
Federal Aid Project No. NH-019-1(38)R	
Scale: AS NOTED	Date: DECEMBER 2016
SHEET No. 3 OF 38 SHEETS	

ORIGINAL PLAN	DATE
NO. _____	_____
DESIGNED BY	_____
CHECKED BY	_____
DATE	_____

W:_CIVIL_3D\PROJECTS\2008_003_001_GBI_QUEEN K HWY WIDENING\01_CIVIL DRAWINGS\251 GRADING PLAN 03.DWG 6/12/2019 7:41 PM

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

LEGEND:	
	Finish Grade
	existing ground
	Limits of Grading
	existing spot elevation
	Direction of Flow
	Grated Drop Inlet (Type 61616P)

PLAN Scale: 1" = 40'	
	Shallow Drywell (Type 61616P)
	Shallow Drywell
	Archaeology Sites
	Arch Site Buffer
	Data Recovery
	Preservation (Avoid During Construction)

AUSTEN W. DRAKE
LICENSED PROFESSIONAL ENGINEER
NO. 13059-C
HAWAII, USA
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Signature: *Austen W. Drake* APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

"AS-BUILT"

C.O. 251

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 252	528

NOTES:

- All inlets shall have inlet filters unless otherwise noted.
- For Shallow Drywell, see Det. Sht. 287.
- For paved swale sections, see Sht. 13S-1.

LEGEND FOR AS-BUILT POSTINGS

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

2/8/18		Removed SDW #2D-2 per latest infiltration report
3/1/17		Added field buffer locations & drywell; Updated arch info based on field survey; Added arch symbol on legend
8/1/16		Added note; Revised guardrail labels
1/22/16		Revised grading due to SB & realignment; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP
DATE	REVISION	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

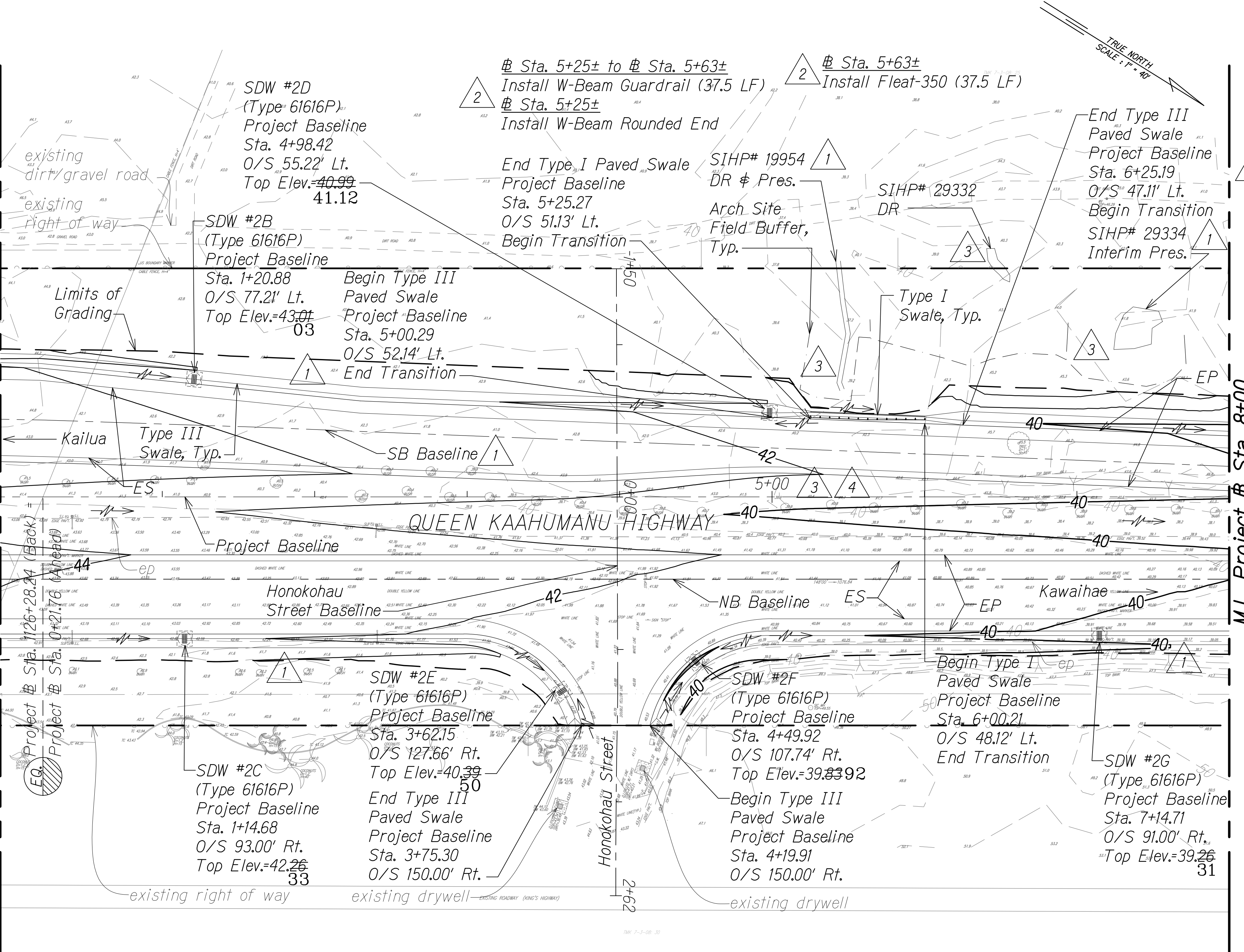
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R

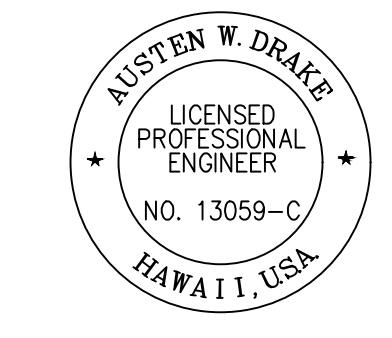
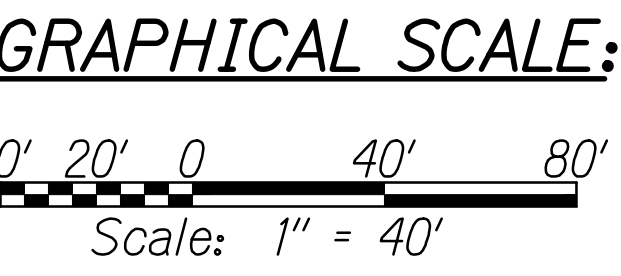
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 4 OF 38 SHEETS



LEGEND:

- 50 ———— Finish Grade
- 50 ———— existing ground
- Limits of Grading
- existing spot elevation
- Direction of Flow
- Grated Drop Inlet (Type 61616P)
- Shallow Drywell (Type 61616P)
- SIHP# XXXXX Archaeology Sites
- Arch Site Buffer
- DR Pres.
- Interim Pres.
- Data Recovery Preservation (Avoid During Construction)
- Interim Preservation (Avoid During Construction)



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

Austen W. Drake
SIGNATURE

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

"AS-BUILT"

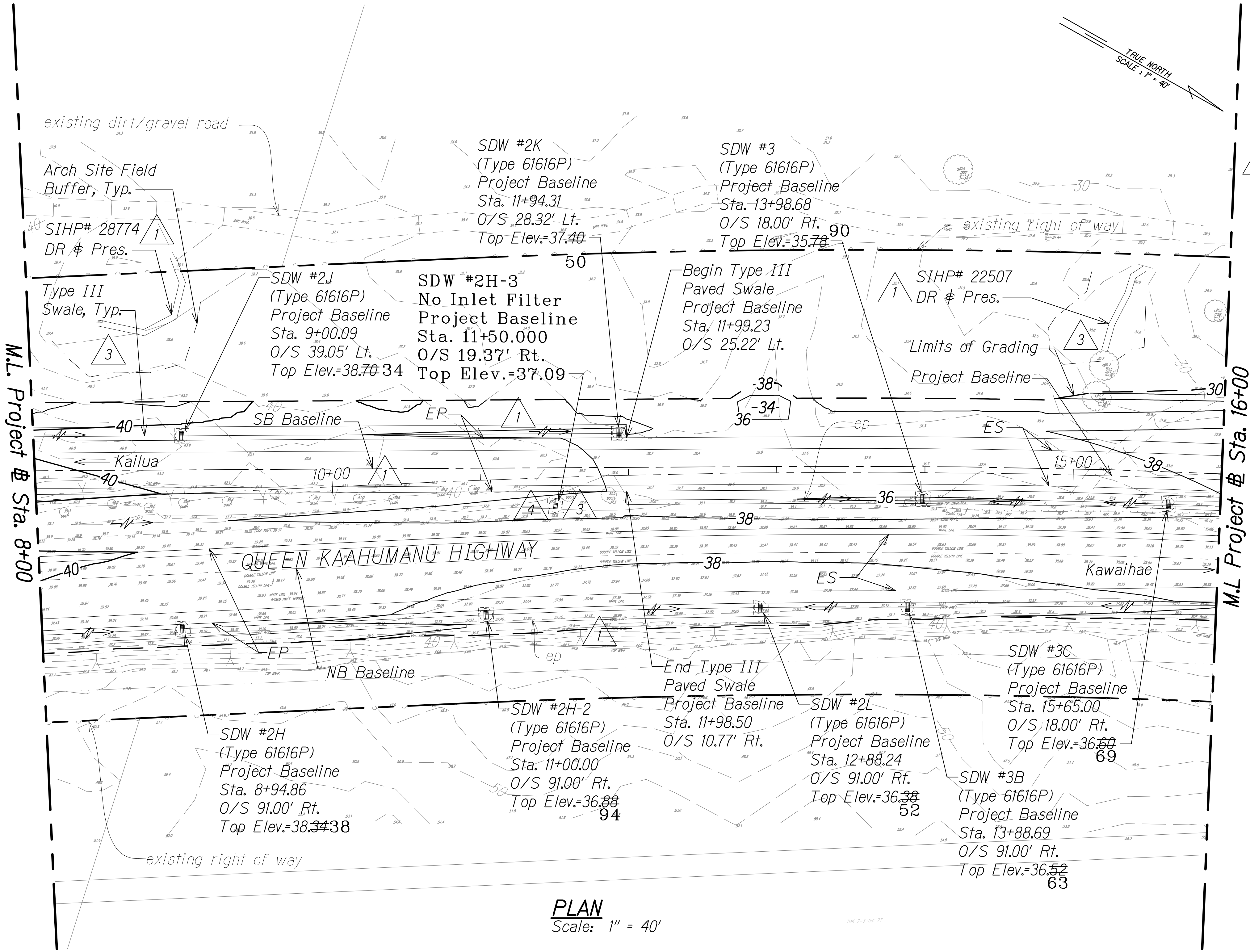
C.O. 252

ORIGINAL PLAN	DATE
NO. 1	6/12/2019 7:17 PM
DESIGNED BY	
CHECKED BY	

W:\L\CIVIL 3D PROJECTS\2008_003_001_GBI_QUEEN K HIGHWAY\DRAWINGS\252 GRADING PLAN 04.DWG 6/12/2019 7:17 PM

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 253	528

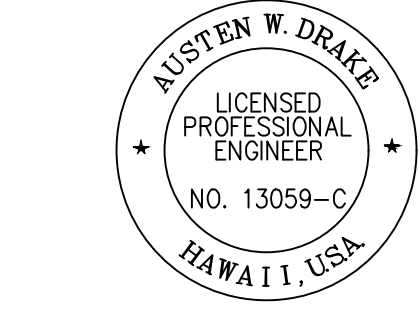
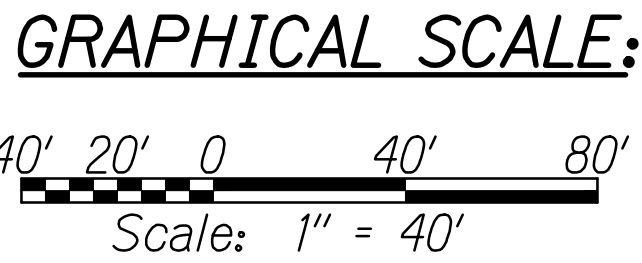
- NOTES:
- All inlets shall have inlet filters unless otherwise noted.
 - For Shallow Drywell, see Det. Sht. 287.
 - For paved swale sections, see Sht. 13S-1.



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

DATE	REVISION
2/8/18	4 Removed SDW #2H-3 per latest infiltration report
3/1/17	3 Added field buffer locations & updated arch info based on field survey; Addition of drywell on median; Added arch symbol on legend
8/1/16	2 Added note
1/22/16	1 Revised grading due to SB @ realignment; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP

LEGEND:	
	Finish Grade
	existing ground
	Limits of Grading
	existing spot elevation
	Direction of Flow
	Shallow Drywell (Type 61616P)
	SIHP# XXXXX Archaeology Sites
	Arch Site Buffer
	Data Recovery
	Preservation (Avoid During Construction)



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

Austen W. Drake
SIGNATURE

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R

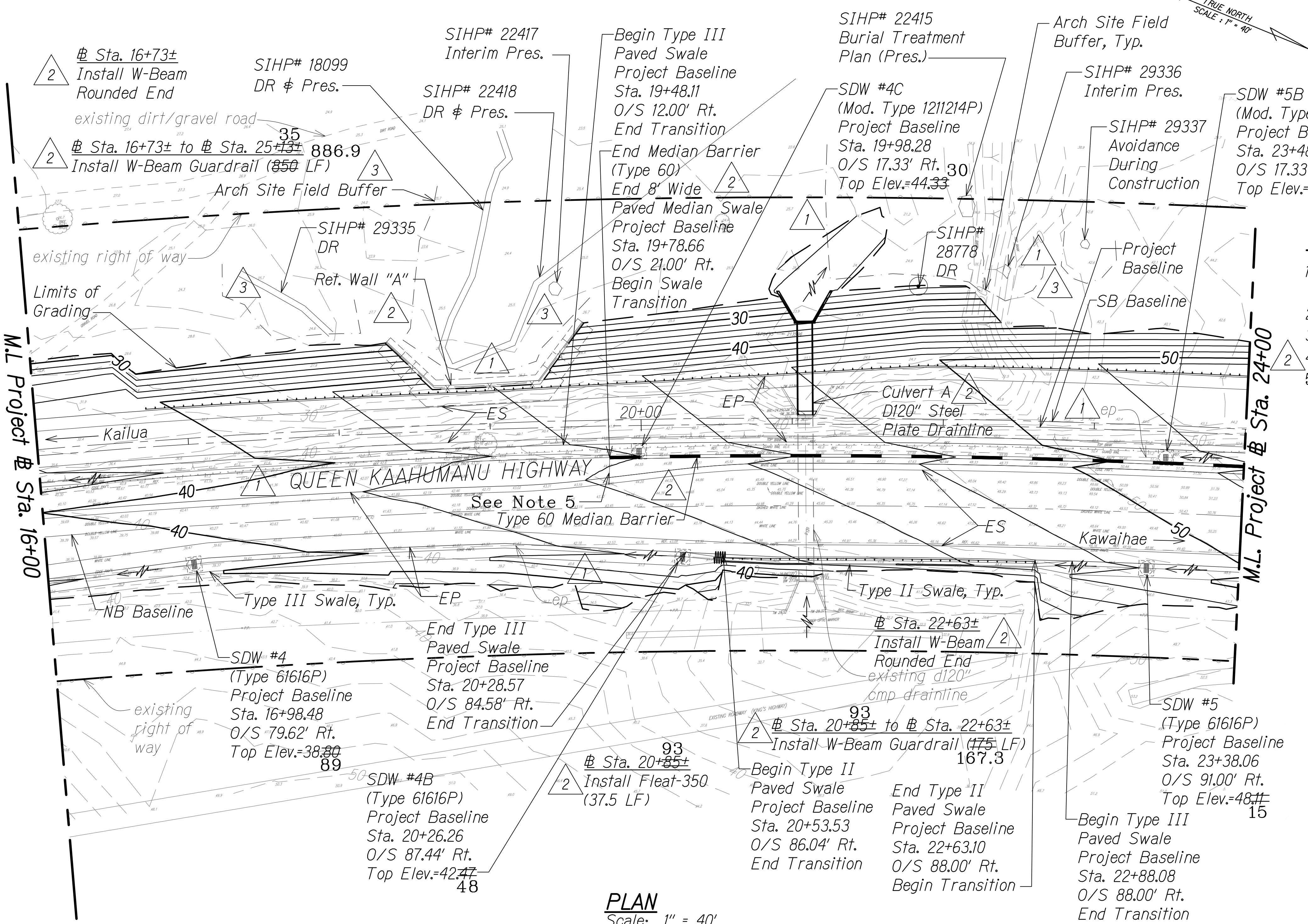
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 5 OF 38 SHEETS

"AS-BUILT"

C.O. 253

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 254	528



- NOTES:**
1. All inlets shall have inlet filters unless otherwise noted.
 2. For Shallow Drywell, see Det. Sht. 287.
 3. For Median Barrier, see Det. Sht 528S-1.
 4. For paved swale sections, see Sht. 13S-1 & 16.
 5. For additional concrete paved area along the median barrier, use Class A Concrete 6" thick with 6x6-W2.9xW2.9 WWF & 4" Aggregate Bedding.

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

DATE	REVISION
3/1/17	Added field buffer locations & updated arch info based on field survey; Revised retaining wall; Added arch symbol on legend
8/1/16	Changed barrier type; Revised note and guardrail labels; Added note, wall & culvert ID
1/22/16	Revised grading due to SB @ realignment; Added drainage structure & ret. wall per MOA; Revised archaeological site mitigation per Final APMP; Revised culvert outlet grading

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

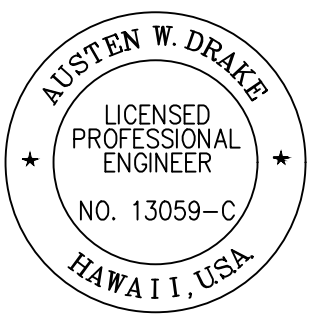
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 6 OF 38 SHEETS

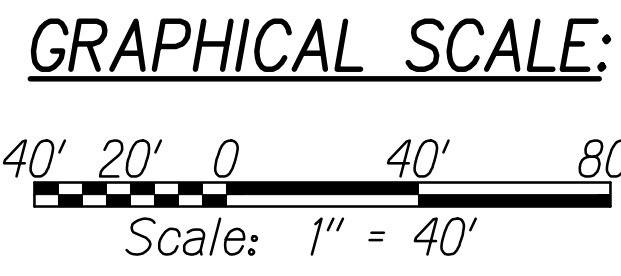


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Austen W. Drake
SIGNATURE

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

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



- LEGEND:**
- 50— Finish Grade
 - 50— existing ground
 - Limits of Grading
 - existing spot elevation
 - Direction of Flow
 - Median Barrier
 - Shallow Drywell (Type 61616P)
 - SIHP# XXXXX Archaeology Sites
 - Arch Site Buffer
 - DR Pres. Data Recovery Preservation (Avoid During Construction)
 - Interim Pres. Interim Preservation (Avoid During Construction)
 - Shallow Drywell

"AS-BUILT"

C.O. 254

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 255	528

NOTES:

1. All inlets shall have inlet filters unless otherwise noted.
2. For Shallow Drywell, see Det. Sht. 287.
3. For Median Barrier, see Det. Sht. 528S-1. 
4. ~~Use TAU-II PCB Backstop Parallel System;~~
~~24" Backstop Width~~
~~10 - Parallel Diaphragm~~
~~20 - Single Slider Panels~~
~~7 - Type B Energy Absorbing Cartridges~~
~~3 - Type A Energy Absorbing Cartridges~~
~~1 - Nose Piece~~
5. For paved swale sections, see Sht. 13S-1, 16 
6. For additional concrete paved area along the median barrier, use Class A Concrete 6" thick with 6x6-W2.9xW2.9 WWF & 4" Aggregate Bedding.

LEGEND FOR AS-BUILT POSTINGS

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

4/20/18	5	Added offsite swale and drywells
3/1/17	3	Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2	Changed barrier type; Added note; Revised guardrail and swale labels
1/22/16	1	Revised grading due to SB @ realignment and Lanihau shift; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP
DATE	REVISION	

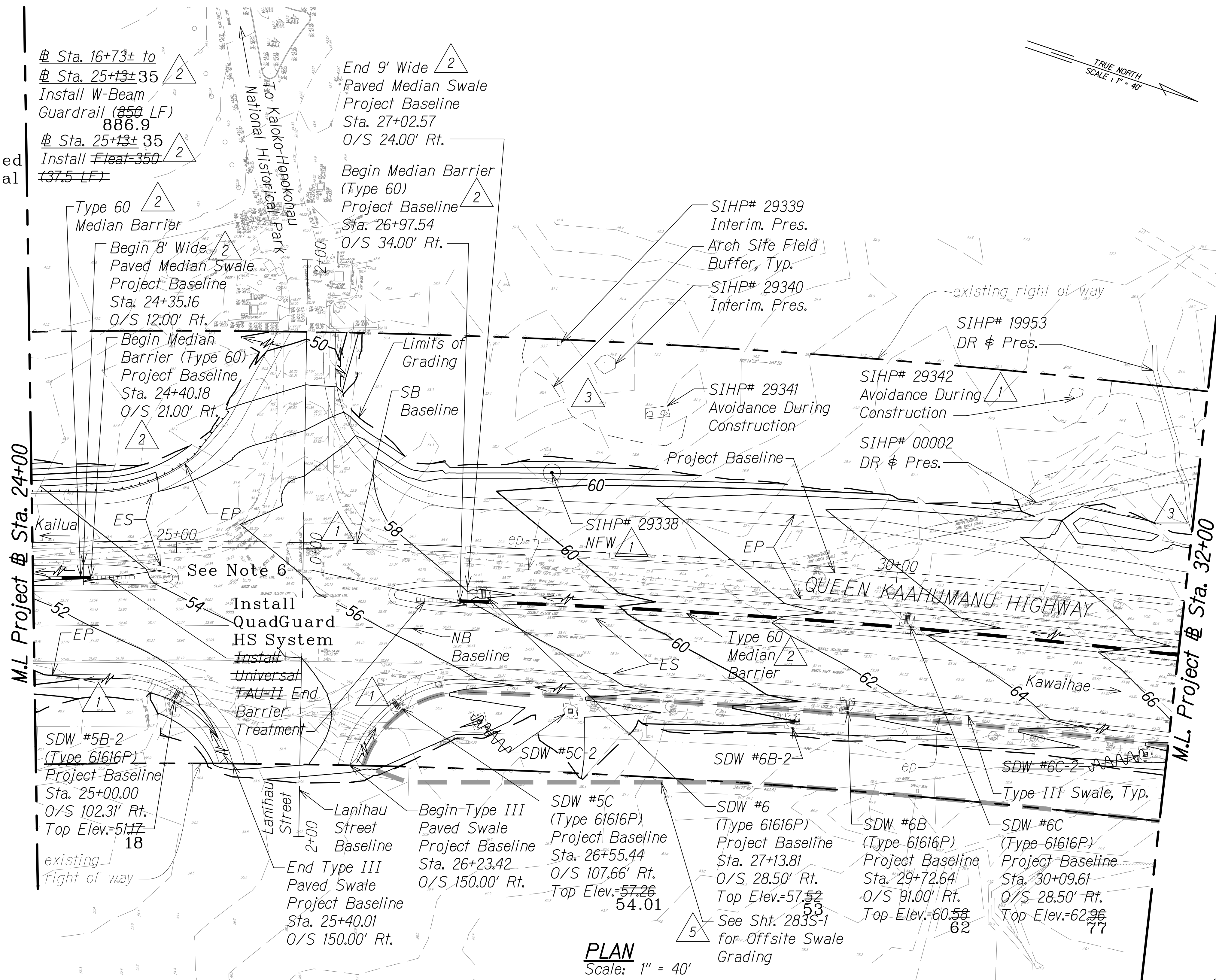
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 7 OF 38 SHEETS

C.O. 255



LEGEND:

	<i>Finish Grade</i>
	<i>existing ground</i>
	<i>Limits of Grading</i>
	<i>existing spot elevation</i>
	<i>Direction of Flow</i>

GRAPHICAL SCALE:

40' 20' 0 40' 80'



Scale: 1" = 40'

PLAN
Scale: 1" = 40'

Median Barrier QuadGuard
HS System
~~Universal TAU-II End Barrier~~
~~Treatment (See Note 4)~~
Shallow Drywell
Shallow Drywell (Type 61616P)
Arch Site Buffer
Archaeology Sites 

$\begin{array}{l} DR \\ Pres. \\ 3 \\ Interim Pres. \\ NFW \end{array}$

Data Recovery
Preservation
(Avoid During Construction)
Interim Preservation
(Avoid During Construction)
No Further Work
(Archaeological and Cultural
Monitoring)



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

Andres W. Drake APRIL 30, 2018
SIGNATURE EXPIRATION DATE
OF THE LICENSE

"AS-BUILT"

6/26/2019 10:01 AM

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 256	528

NOTES:

- All inlets shall have inlet filters unless otherwise noted.
- For Shallow Drywell, see Det. Sht. 287.
- For Median Barrier, see Det. Sht. 528S-1.
- For paved swale sections, see Sht. 13S-1.
- For additional concrete paved area along the median barrier, use Class A Concrete 6" thick with 6x6-W2.9xW2.9 WWF & 4" Aggregate Bedding.

LEGEND FOR AS-BUILT POSTINGS

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

DATE	REVISION
4/20/18	5 Added offsite swale and drywells
11/13/17	4 Added North Access Road; Updated Drywell locations
3/1/17	3 Added field buffer locations & drywell; Updated arch info based on field survey; Added arch symbol on legend
8/1/16	2 Changed barrier type; Added note; Revised guardrail and swale labels
1/22/16	1 Revised grading due to SB @ realignment; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

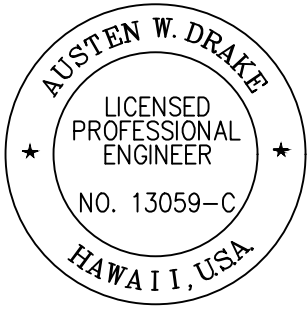
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 8 OF 38 SHEETS



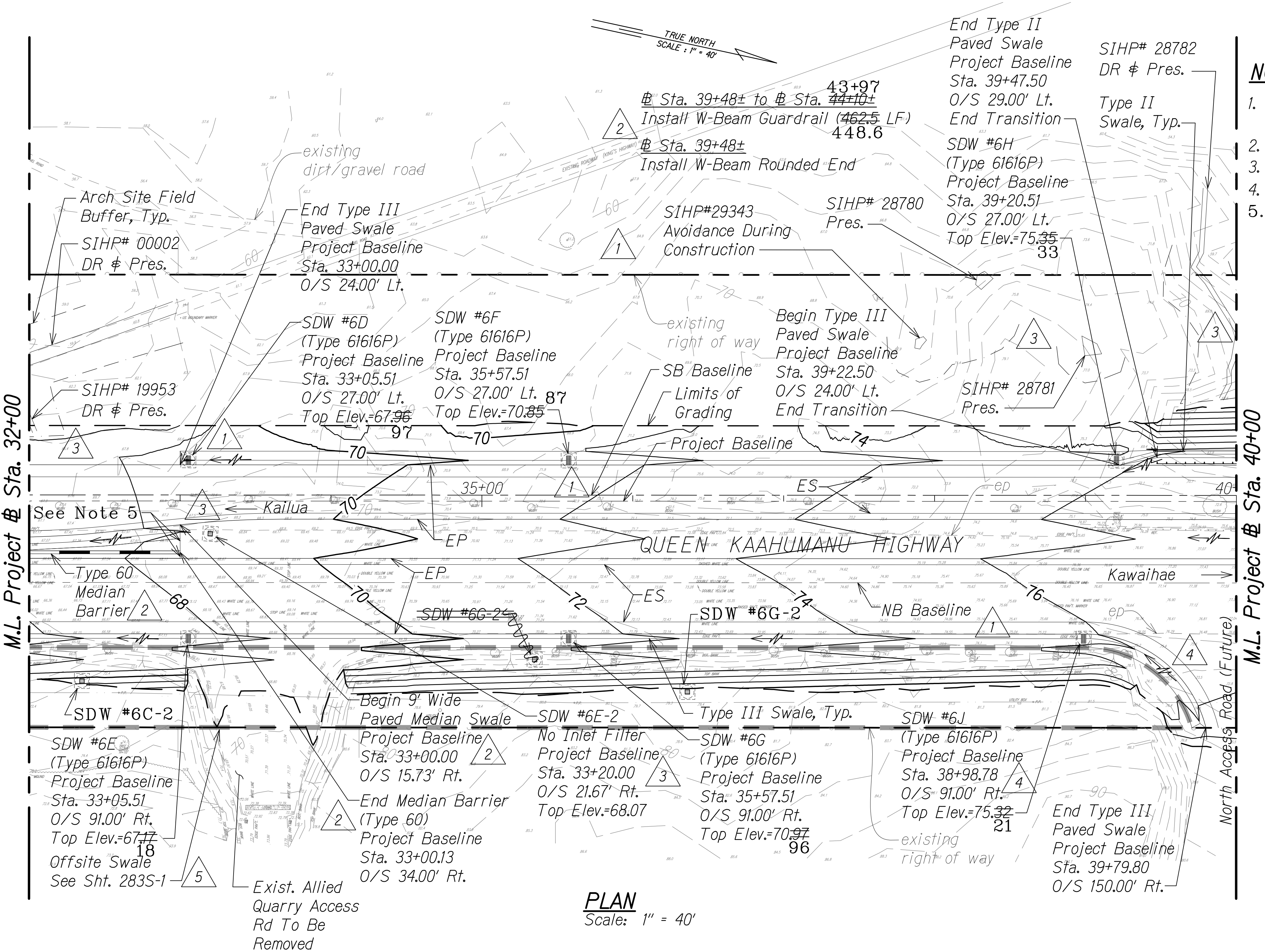
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Austen W. Drake
SIGNATURE

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

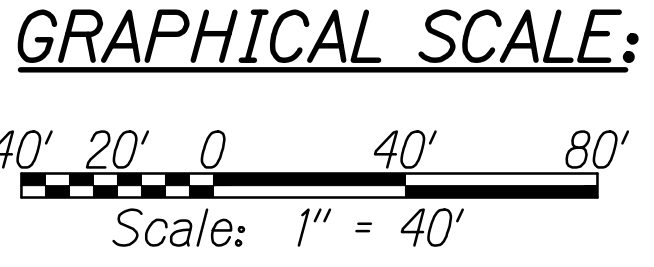
"AS-BUILT"

C.O. 256



LEGEND:

- | | | |
|----|-------------------------|--|
| 50 | Finish Grade | Median Barrier |
| 50 | existing ground | Shallow Drywell (Type 61616P) |
| | Limits of Grading | Shallow Drywell |
| | existing spot elevation | SIHP# XXXXX Archaeology Sites |
| | Direction of Flow | Arch Site Buffer |
| | DR Pres. | Data Recovery Preservation (Avoid During Construction) |

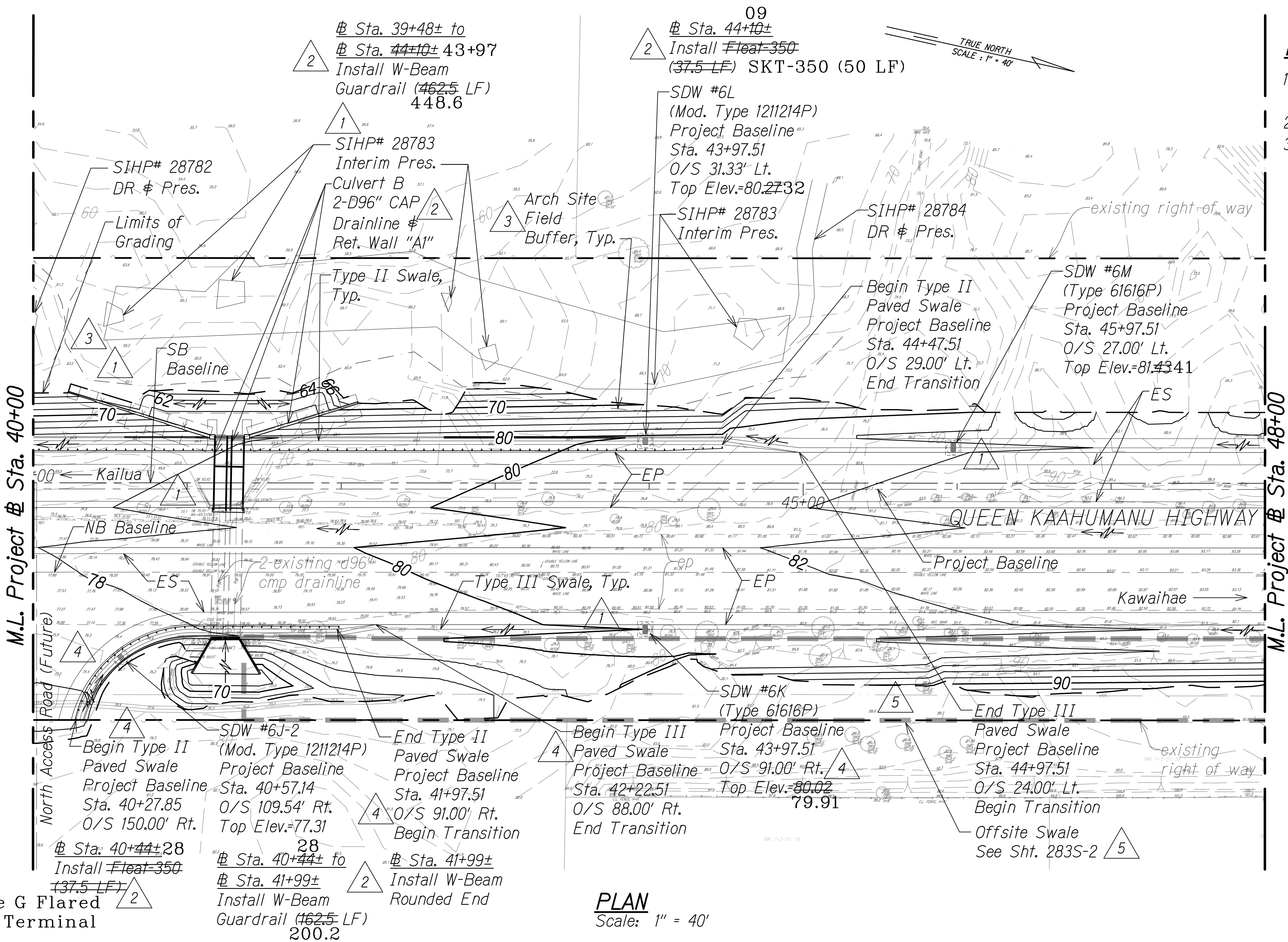


ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

W:\1_Civil_3D_PROJECTS\2008_003_001_GBI_QUEEN K HIGHWAY WIDENING\01-CIVIL DRAWINGS\256 GRADING PLAN 08.DWG 6/26/2019 10:09 AM

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 257	528

- NOTES:**
- All inlets shall have inlet filters unless otherwise noted.
 - For Shallow Drywell, see Det. Sht. 287.
 - For paved swale sections, see Sht. 13S-1.



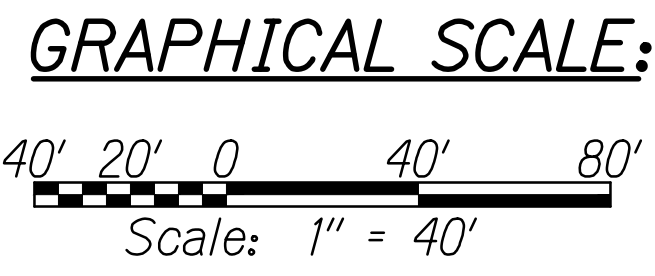
LEGEND FOR AS-BUILT POSTINGS

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

DATE	REVISION
4/20/18	5 Added offsite swale
11/13/17	4 Added North Access Road; Updated Drywell locations
3/1/17	3 Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2 Revised guardrail labels; Added note, wall & culvert ID
1/22/16	1 Revised grading due to SB @ realignment; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP and culvert outlet grading

LEGEND:

	50	Finish Grade
	50	existing ground
		Limits of Grading
		existing spot elevation
		Direction of Flow
		Shallow Drywell (Type 61616P)
		Shallow Drywell
	4	SIHP# XXXXX
	3	DR Pres.
	4	Shallow Drywell (Mod. Type 1211214P)
	3	Archaeology Sites
	3	Arch Site Buffer
	4	Data Recovery Preservation (Avoid During Construction)
	4	Interim Preservation (Avoid During Construction)



PLAN
Scale: 1" = 40'

AUSTEN W. DRAKE
LICENSED PROFESSIONAL ENGINEER
NO. 13059-C
HAWAII, USA

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

Signature: *Austen W. Drake*
Date: APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 9 OF 38 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 258	528

NOTES:

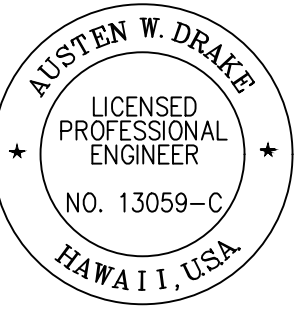
1. All inlets shall have inlet filters unless otherwise noted.
2. For Shallow Drywell, see Det. Sht. 287.
3. For Grated Drop Inlet Type 61616P, See DOT Std. Plan H-13 & H-16.
4. All D24" pipes shall be HDPE.
5. For paved swale sections, see Sht. 13S-1.

LEGEND FOR AS-BUILT POSTINGS

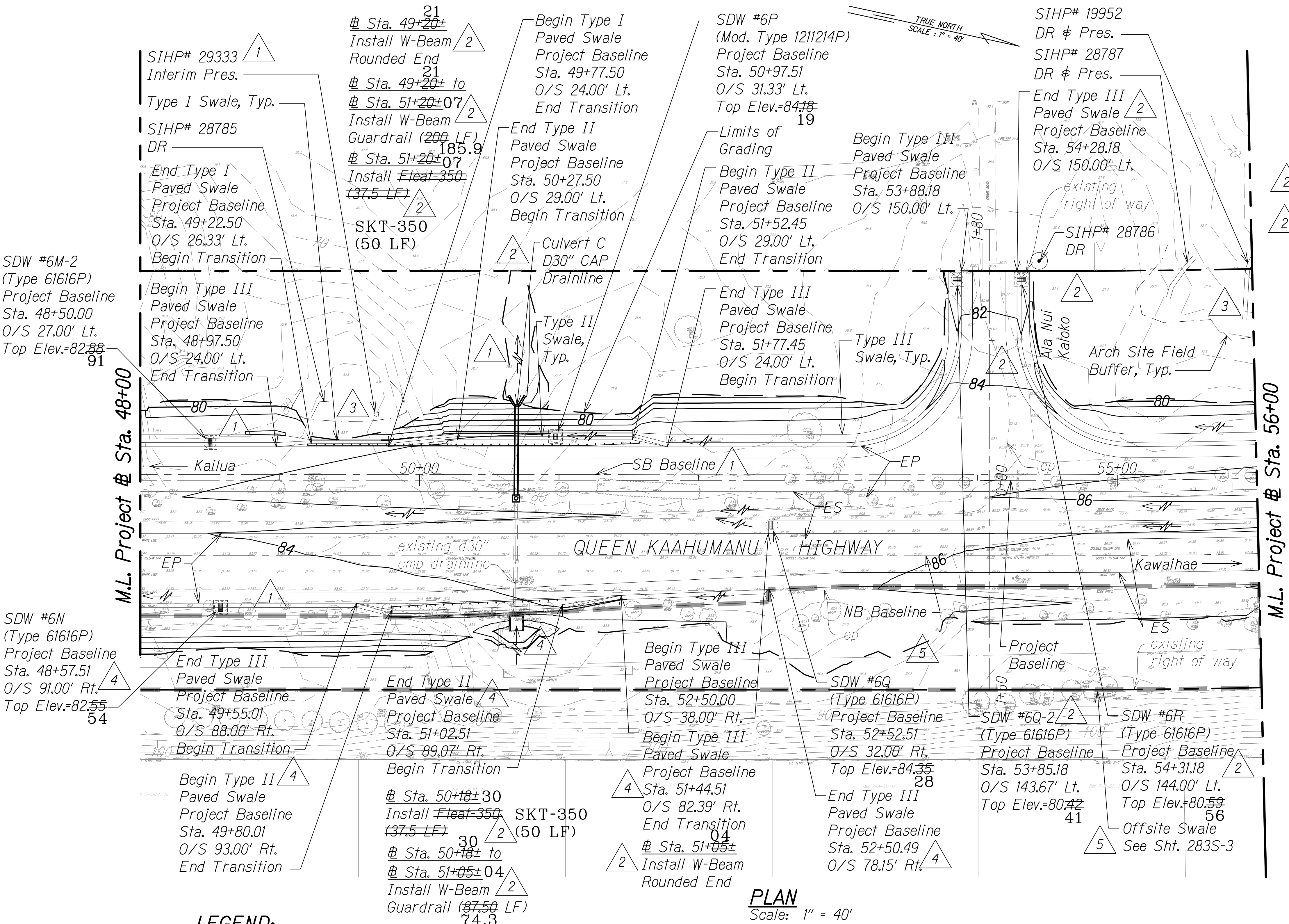
- ~~~~~ Squiggly line for as-built deletion
- ~~100.00~~ Double line for as-built deletion
- Roadway Text for as-built posting

4/20/18	5	Added offsite swale
11/13/17	4	Added North Access Road; Updated Drywell location and Culvert C inlet grading
3/1/17	3	Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2	Shift in Ala Nui Kaloko to match exist. access road; Extended/added drainage infrastructure near ROW; Revised guardrail labels; Added notes & culvert ID
1/22/16	1	Revised grading due to SB @ realignment; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP and culvert outlet grading

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION GRADING AND DRAINAGE PLAN QUEEN KAAHUMANU HIGHWAY WIDENING Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) Federal Aid Project No. NH-019-1(38)R Scale: AS NOTED Date: DECEMBER 2016	
SHEET No. 10 OF 38 SHEETS	



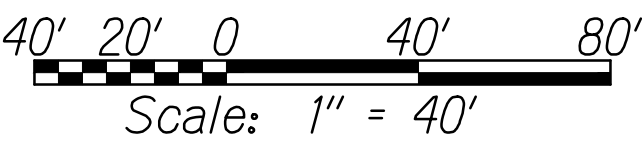
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE



LEGEND:

- 50— Finish Grade
- 50— existing ground
- Limits of Grading
- existing spot elevation
- Direction of Flow
- Shallow Drywell (Type 61616P)
- Shallow Drywell
- SIHP# XXXXX Archaeology Sites
- 3 Arch Site Buffer
- DR Data Recovery
- Pres. Preservation (Avoid During Construction)
- Interim Pres. Interim Preservation (Avoid During Construction)

GRAPHICAL SCALE:



"AS-BUILT"

C.O. 258

ORIGINAL PLAN	DATE
NO. 1	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
TRACED BY	
DRAWN BY	
SURVEY PLOTTED BY	

WA L CIVIL 3D PROJECTS\2008_003_001 GRI QUEEN K HWY WIDENING\01 CIVIL DRAWINGS\258 GRADING PLAN 10.DWG 4/26/2019 1:40 PM

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 259	528

NOTES:

1. All inlets shall have inlet filters unless otherwise noted.
2. For Shallow Drywell, see Det. Sht. 287
3. For Grated Drop Inlet Type 61616P, See DOT Std. Plan H-13 and H-16.
4. For paved swale sections, see Sht. 13S-1.

LEGEND FOR AS-BUILT POSTINGS

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

3/1/17	3	Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2	Added note; Revised guardrail labels
1/22/16	1	Revised grading due to SB & realignment; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP
DATE	REVISION	

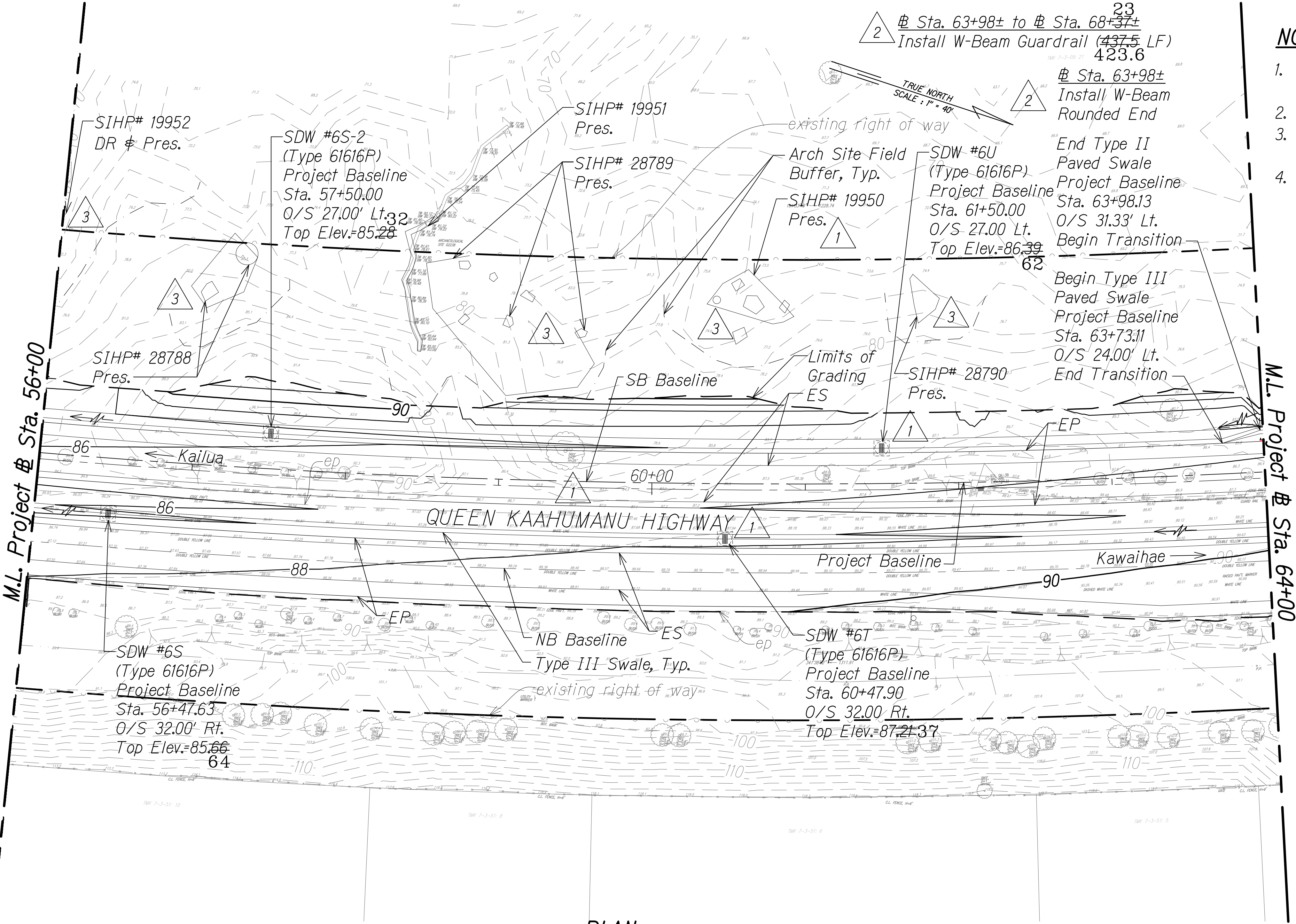
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 11 OF 38 SHEETS

C.O. 259



PLAN
Scale: 1" = 40'

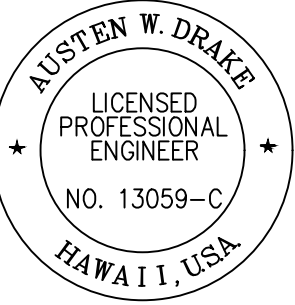
LEGEND:

- 50— Finish Grade
- - -50- - - existing ground
- - - Limits of Grading
- - - existing spot elevation
- - - Direction of Flow
- - - Shallow Drywell (Type 61616P)
- SIHP# XXXXX Archaeology Sites
3 Arch Site Buffer
DR Pres. Data Recovery Preservation (Avoid During Construction)

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

ORIGINAL PLAN	DATE
NO. 1	
DESIGNED BY	
CHECKED BY	
DATE	

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_HWY_WIDENING\01_CIVIL_DRAWINGS\11.DWG 4/26/2019 1:51 PM



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CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Signature: Austen W. Drake
EXPIRATION DATE OF THE LICENSE: APRIL 30, 2018

"AS-BUILT"

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

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_HWAY_WIDENING\01_CIVIL_DRAWINGS\260_GRADING PLAN 12.DWG 6/12/2019 4:15 PM

SDW #6W
(Mod. Type 1211214P)
Project Baseline
Sta. 65+87.26
O/S 31.33 Lt. 96
Top Elev.=87.92
SIHP# 19949
Interim Pres.

Sta. 63+98± to # Sta. 68+37± 23
Install W-Beam Guardrail (437.5 LF)
433.6
Sta. 68+37± 23
Install Flat-350 (37.5 LF)
SIHP# 28792
Pres.
SIHP# 28791
DR # Pres.
Arch Site
Field
Buffer, Typ.

SDW #7
(Type 61616P)
Project Baseline
Sta. 67+98.40
O/S 32.00 Rt.
Top Elev.=90.23
24

End Type III
Paved Swale
Project Baseline
Sta. 68+98.47
O/S 24.00' Lt.
Begin Transition
Begin Type II
Paved Swale
Project Baseline
Sta. 68+73.45
O/S 29.00' Lt.
End Transition

SDW #7F
(Type 61616P)
Project Baseline
Sta. 70+70.00
O/S 27.00 Lt.
Top Elev.=89.98
90.00
D24"
AZ=125°27'48"
S=1.00%
L=32.59'

Sta. 71+64± to # Sta. 72+52± 38
Install W-Beam Guardrail (87.5 LF)
73.5
Sta. 71+64±
Install W-Beam Rounded End
SDW #8C (MH)
Project Baseline
Sta. 71+53.64
O/S 26.00 Rt.
Top Elev.=92.79
Inv.=85.70
Inv.=87.71 (Overflow)

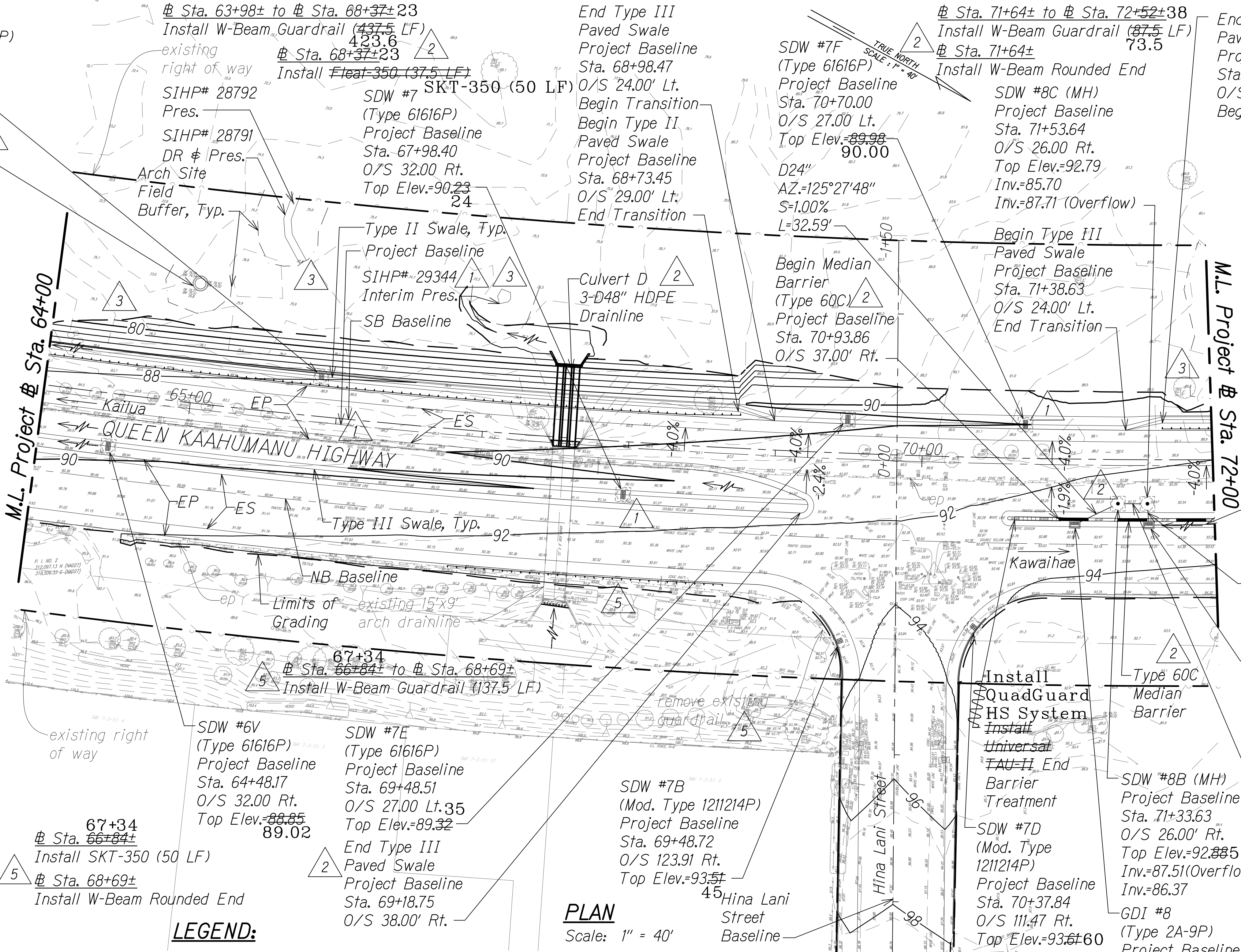
End Type II
Paved Swale
Project Baseline
Sta. 71+63.64
O/S 29.00' Lt. 2
Begin Transition

Begin Type III
Paved Swale
Project Baseline
Sta. 71+38.63
O/S 24.00' Lt.
End Transition

Begin Median
Barrier
(Type 60C) 2
Project Baseline
Sta. 70+93.86
O/S 37.00' Rt.

M.L. Project # Sta. 64+00

M.L. Project # Sta. 72+00



LEGEND:

- 50— Finish Grade
- - -50- - - existing ground
- - - Limits of Grading
- 65.7 existing spot elevation
- - -> Direction of Flow
- Shallow Drywell (Type 61616P)
- Shallow Drywell (Mod. Type 1211214P)
- Shallow Drywell (MH)
- Grated Drop Inlet (Type 2A-9P)

PLAN

Scale: 1" = 40'

- Median Barrier
- Universal TAU-II End Barrier Treatment
- See Note 6.
- SIHP# XXXXX Archaeology Sites
- DR Pres. Data Recovery Preservation (Avoid During Construction)
- Interim Pres. Interim Preservation (Avoid During Construction)

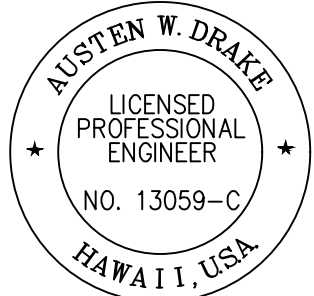
LEGEND FOR AS-BUILT POSTINGS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	260	528

NOTES:

- All inlets shall have inlet filters unless otherwise noted.
- For Shallow Drywell, see Det. Sht. 287.
- For Grated Drop Inlet Type 1A-9P, See DOT Std. Plan H-08, H-10 and H-11.
- For Grated Drop Inlet Type 2A-9P, See DOT Std. Plan H-09, H-10 and H-11.
- For Median Barrier, see Det. Sht. 528S-1
- Use TAU-II PCB Backstop Parallel System:
 - 24" Backstop Width
 - 10 - Parallel Diaphragm
 - 20 - Single Slider Panels
 - 7 - Type B Energy Absorbing Cartridges
 - 3 - Type A Energy Absorbing Cartridges
 - 1 - Nose Piece
- All D24" pipes shall be HDPE. 2
- For paved swale sections, see Sht. 13S-1. 2



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

DATE	REVISION
4/14/18	5 Mauka guardrail revisions
3/1/17	3 Added field buffer locations & updated arch info based on field survey; Removed Walls B & C; Added arch symbol on legend
8/1/16	2 Replaced all D18" by D24"; Changed median barrier type; Added note, wall & culvert ID; Revised guardrail callouts
1/22/16	1 Revised grading due to SB & realignment; Added drainage structure & ret. wall per MOA; Revised archaeological site mitigation per Final APMP and culvert outlet grading

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
GRADING AND DRAINAGE PLAN
QUEEN KAAHUMANU HIGHWAY WIDENING Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 12 OF 38 SHEETS

C.O. 260

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 262	528

NOTES:

1. All inlets shall have inlet filters unless otherwise noted.
2. For Shallow Drywell, see Det. Sht. 287.
3. For Median Barrier, see Det. Sht. 528S-1.
4. For paved swale sections, see Sht. 13S-1.

LEGEND FOR AS-BUILT POSTINGS

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

3/1/17	3	Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2	Changed median barrier type; Revised guardrail & median barrier labels; Added note & culvert ID
1/22/16	1	Revised grading due to SB @ realignment; Added drainage structure per MOA; Revised archaeological site mitigation per Final APMP and culvert outlet grading

DATE

REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

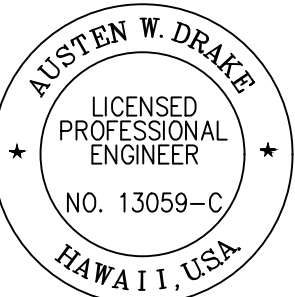
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)

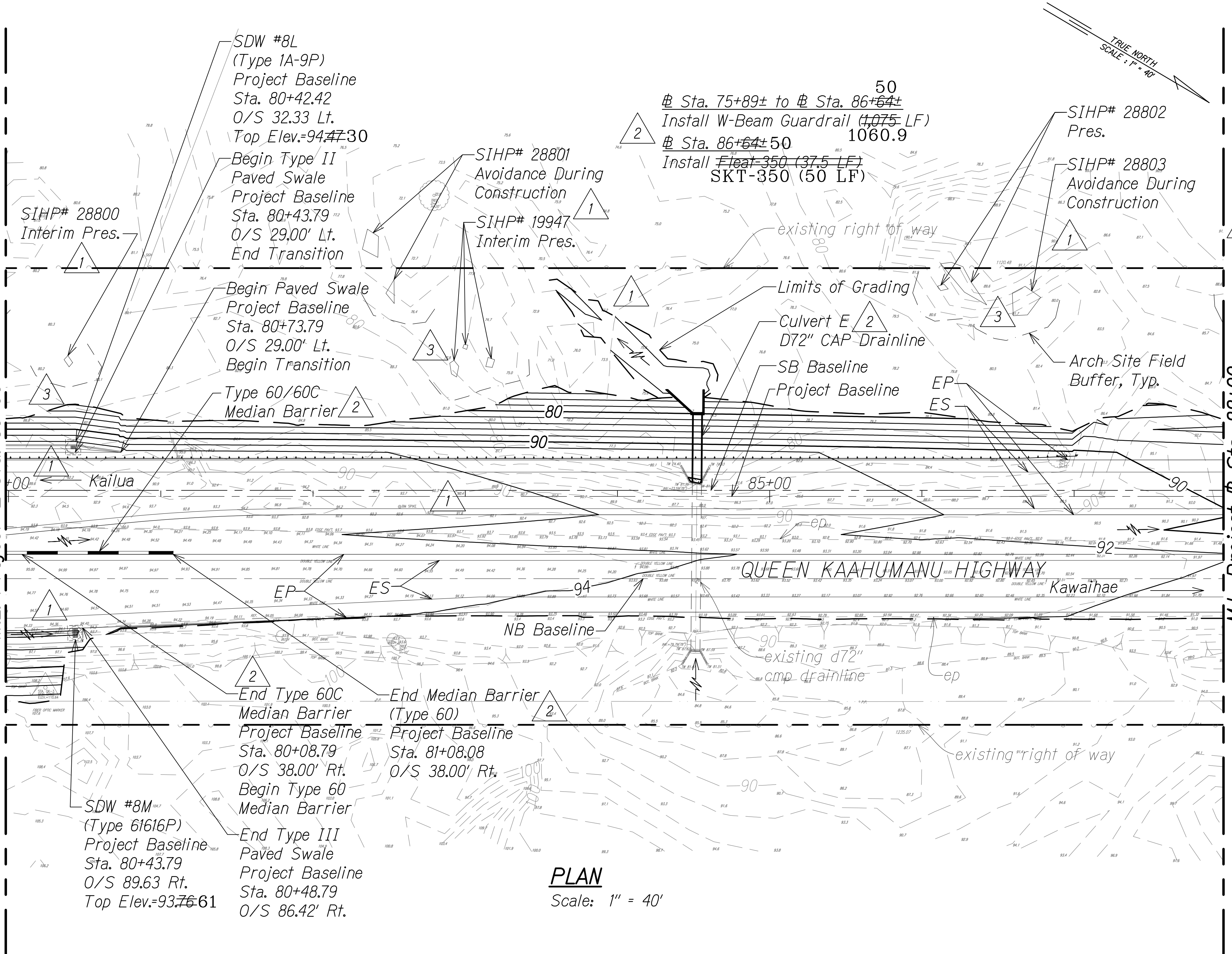
Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 14 OF 38 SHEETS

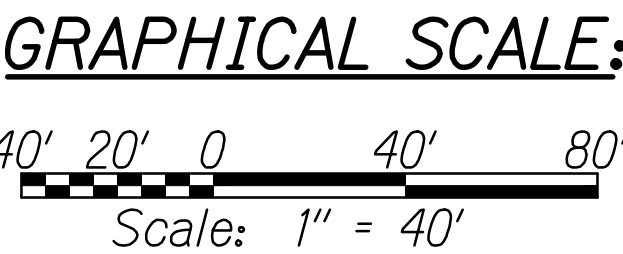


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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE



LEGEND:

- 50— Finish Grade
—50— existing ground
— Limits of Grading
45.7 existing spot elevation
Direction of Flow
Median Barrier
Shallow Drywell (Type 61616P)
Shallow Drywell
SIHP# XXXXX Archaeology Sites
Arch Site Buffer
Pres. Preservation
Interim Pres. Interim Preservation (Avoid During Construction)



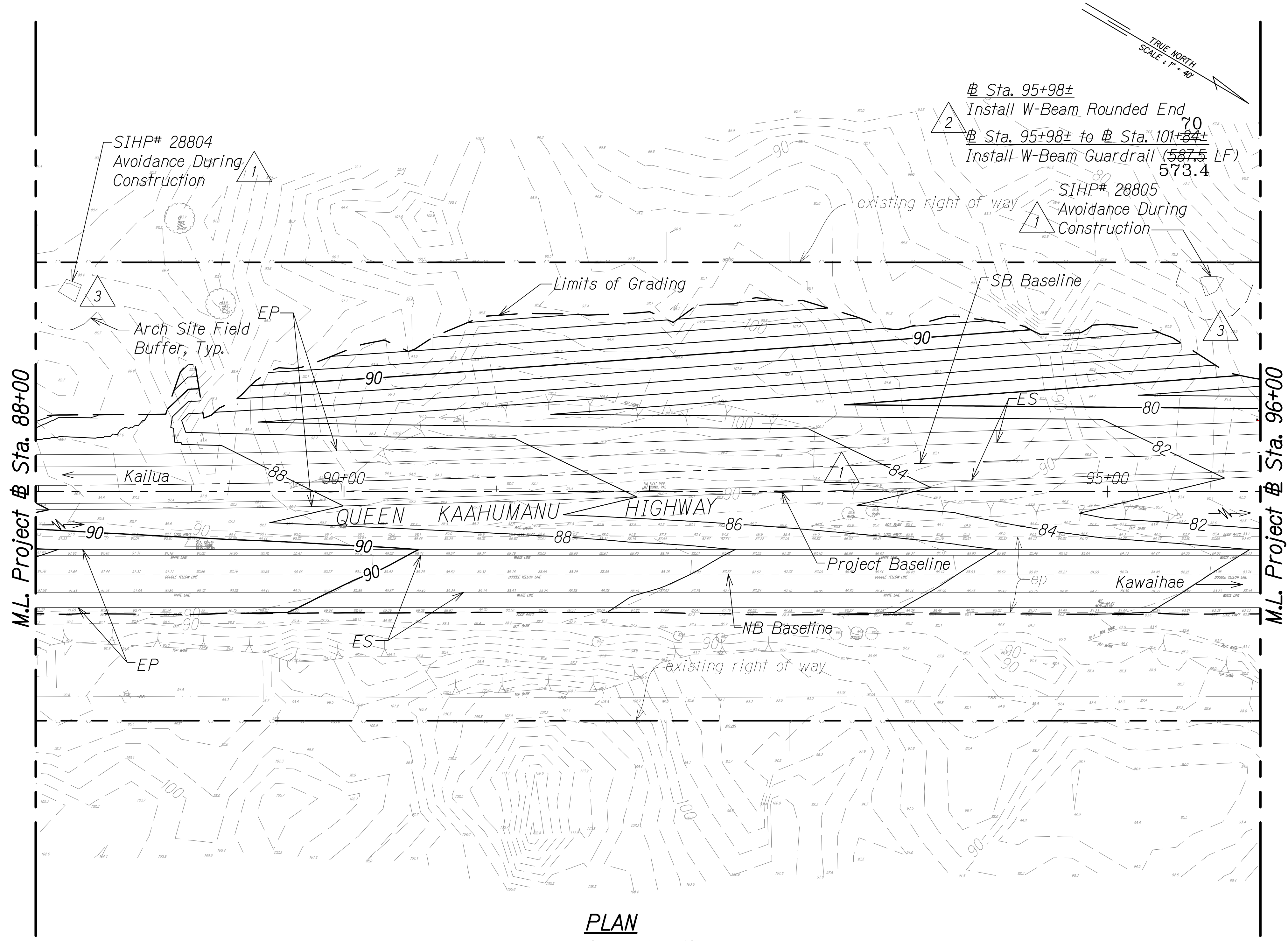
ORIGINAL PLAN	DATE
NO. 1	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NOTED BY	
TRACED BY	
DRAWN BY	
SURVEY PLOTTED BY	

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_Hwy_WIDENING\01_CIVIL_DRAWINGS\262 GRADING PLAN 14.DWG 6/12/2019 3:52 PM

"AS-BUILT"

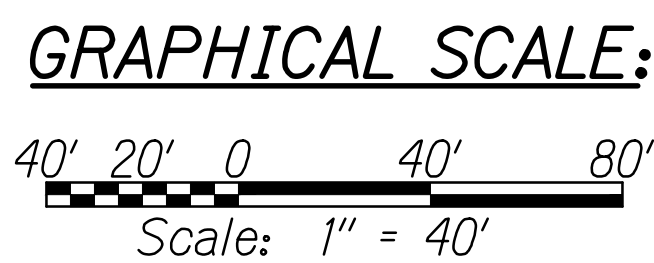
C.O. 262

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 263	528



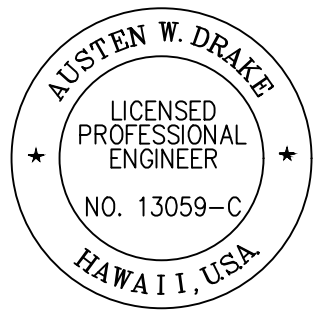
PLAN
Scale: 1" = 40'

- LEGEND:**
- 50— Finish Grade
 - 50— existing ground
 - Limits of Grading
 - existing spot elevation
 - Direction of Flow
 - SIHP# XXXXX Archaeology Sites
 - 3 Arch Site Buffer



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

3/1/17	3 Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2 Revised guardrail labels
1/22/16	1 Revised grading due to SB @ realignment; Revised archaeological site mitigation per Final APMP
DATE	REVISION



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Austen W. Drake
SIGNATURE

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R

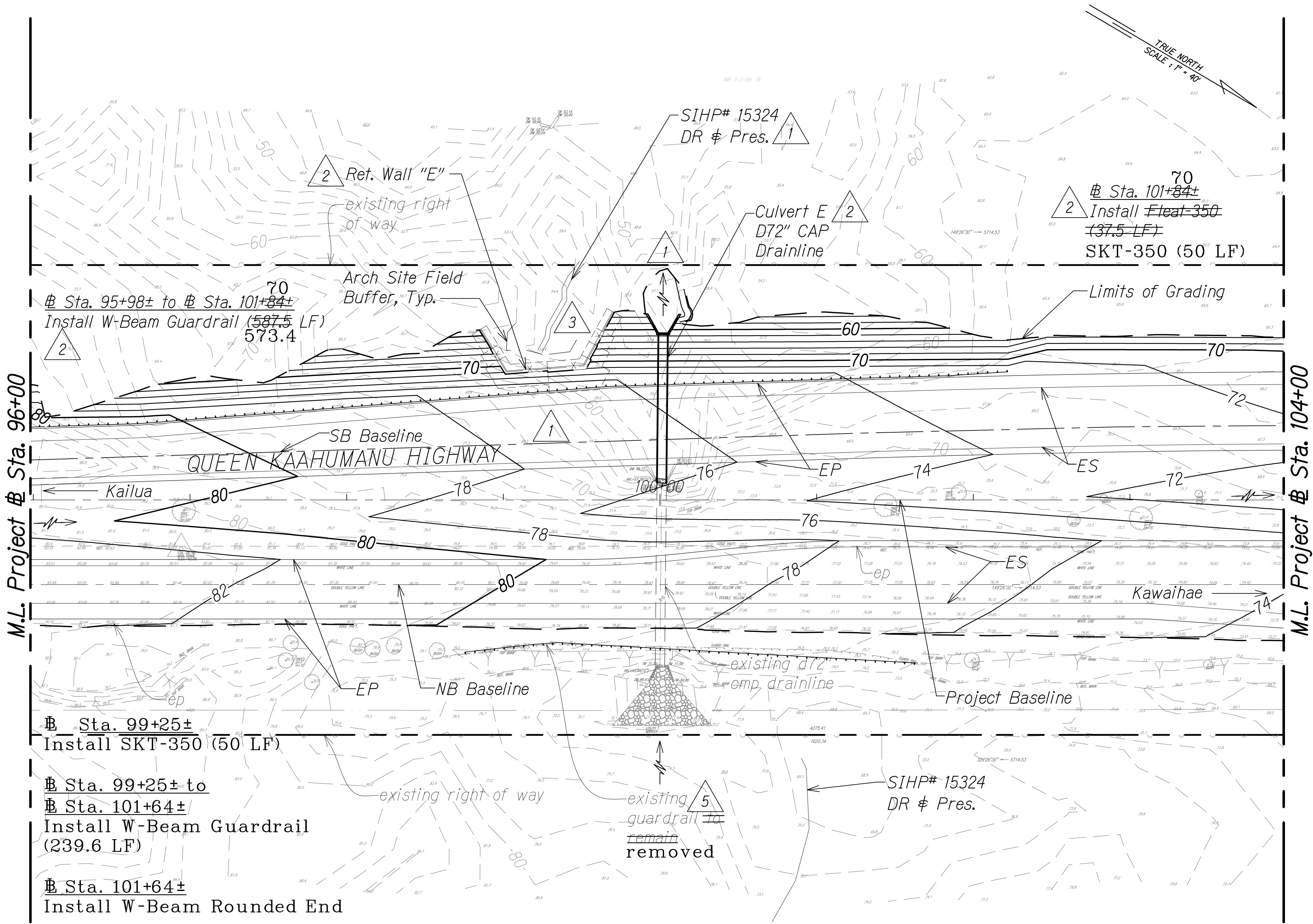
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 15 OF 38 SHEETS

"AS-BUILT"

C.O. 263

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 264	528



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

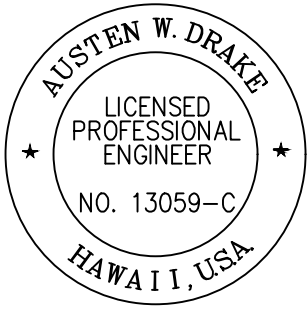
DATE	REVISION
4/14/18	5 Mauka guardrail revisions
3/1/17	3 Added field buffer locations & updated arch info based on field survey; Redesigned wall; Added arch symbol on legend
8/1/16	2 Revised guardrail labels; Added wall & culvert ID
1/22/16	1 Revised grading due to SB & realignment; Added ret. wall per MOA; Revised archaeological site mitigation per Final APMP and culvert outlet grading

ORIGINAL PLAN	DATE
NO. 1	
DESIGNED BY	
CHECKED BY	
DATE	

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

LEGEND:	
	Finish Grade
	existing ground
	Limits of Grading
	existing spot elevation
	Direction of Flow
	Arch Site Buffer
	Archaeology Sites
	Data Recovery Preservation (Avoid During Construction)

PLAN
Scale: 1" = 40'



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GRADING AND DRAINAGE PLAN
QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 16 OF 38 SHEETS

"AS-BUILT"

C.O. 264

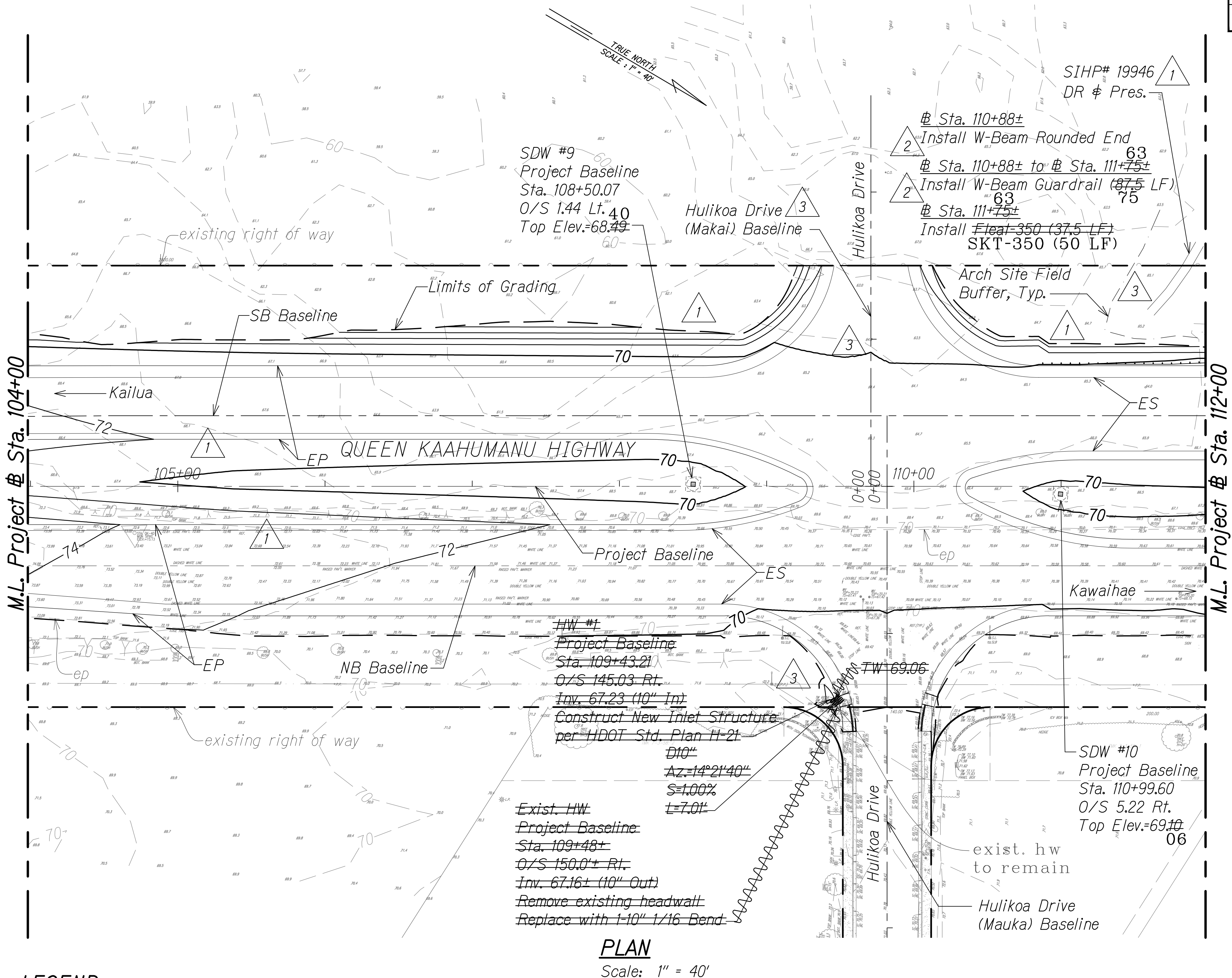
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 265	528

NOTE:
1. For Shallow Drywell, see Det. Sht. 287

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

3/1/17		Added field buffer locations, updated arch info based on field survey & added new headwall and pipe extension; Shifted Hulikoa Drive Makai baseline to match exist; Added arch symbol on legend
8/1/16		Revised guardrail labels
1/22/16		Revised grading due to reduced median shoulder; Revised archaeological site mitigation per Final APMP; Makai slope rev. & added guardrail

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION GRADING AND DRAINAGE PLAN QUEEN KAAHUMANU HIGHWAY WIDENING Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2) Federal Aid Project No. NH-019-1(38)R Scale: AS NOTED Date: DECEMBER 2016	
SHEET No. 17 OF 38 SHEETS	



LEGEND:

	50	Finish Grade
	50	existing ground
		Limits of Grading
		existing spot elevation
		Direction of Flow

PLAN
Scale: 1" = 40'

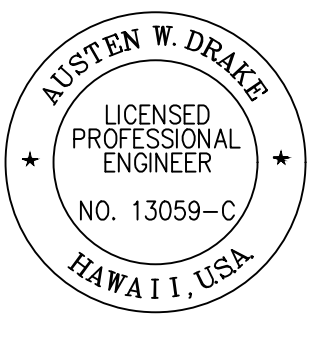
LEGEND FOR AS-BUILT POSTINGS

	SIHP# XXXXX	Archaeology Sites
	DR	Arch Site Buffer
	Pres.	Data Recovery
		Preservation
		(Avoid During Construction)

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

LEGEND:

	50	Finish Grade
	50	existing ground
		Limits of Grading
		existing spot elevation
		Direction of Flow



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Signature: *Austen W. Drake* Date: APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

"AS-BUILT"

C.O. 265

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 266	528

NOTE:
1. For Shallow Drywell, see Det. Sht. 287

LEGEND FOR AS-BUILT POSTINGS

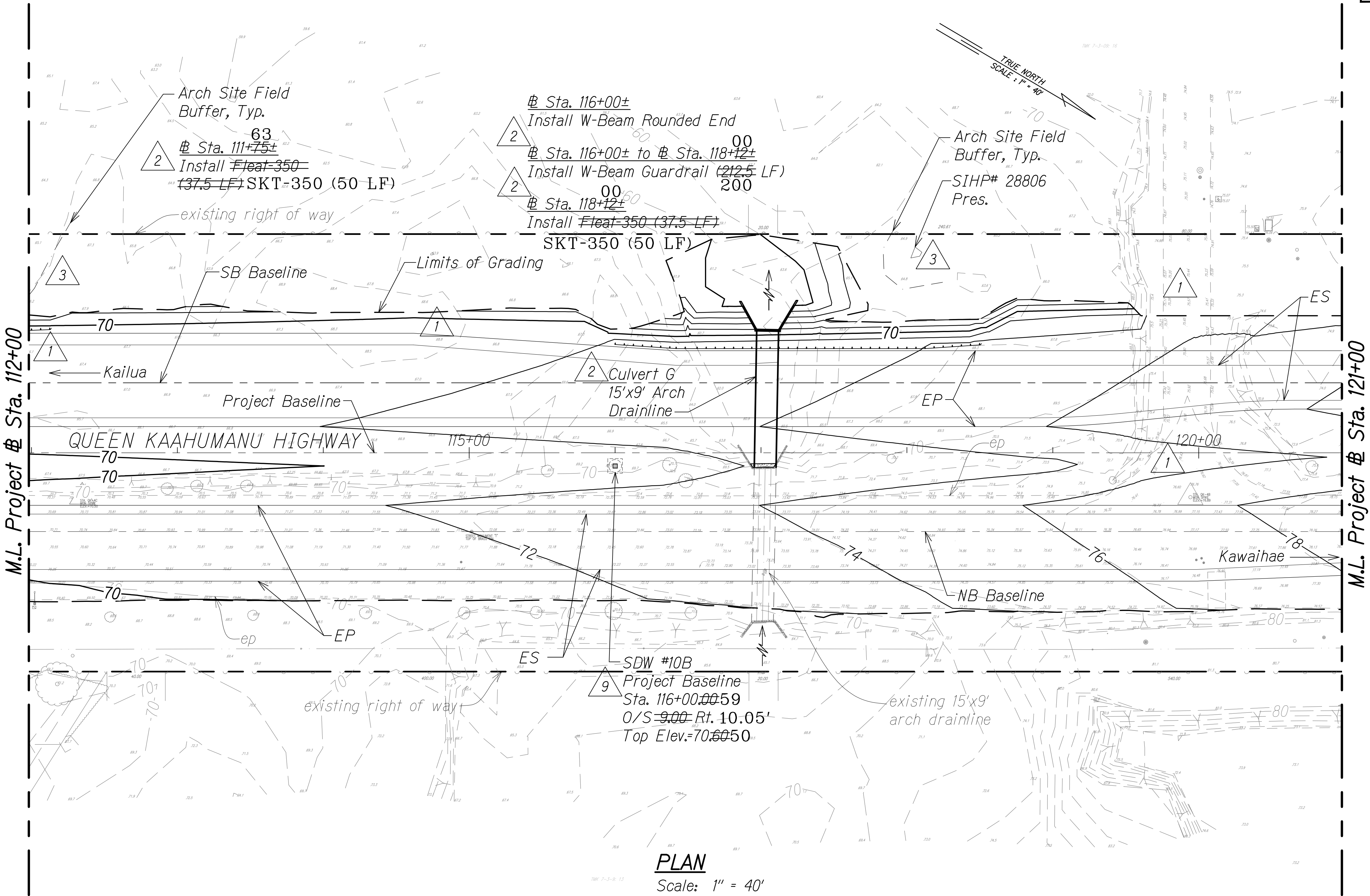
Squiggly line for as-built deletion

Double line for as-built deletion

Roadway Text for as-built posting

9/21/18		Added median drywell
3/1/17		Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16		Revised guardrail labels; Added culvert ID
1/22/16		Revised grading to increase Kohanaiki exist. w/ lateral cover across median swale and removal of Kohanaiki driveway; Revised archaeological site mitigation per Final APMP; Makai slope rev. & added guardrail

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
GRADING AND DRAINAGE PLAN	
QUEEN KAAHUMANU HIGHWAY WIDENING Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)	
Federal Aid Project No. NH-019-1(38)R	
Scale: AS NOTED	Date: DECEMBER 2016
SHEET No. 18 OF 38 SHEETS	



LEGEND:

—50— Finish Grade

—50— existing ground

--- Limits of Grading

--- existing spot elevation

SIHP# XXXXX Archaeology Sites

Arch Site Buffer

Pres. Preservation (Avoid During Construction)

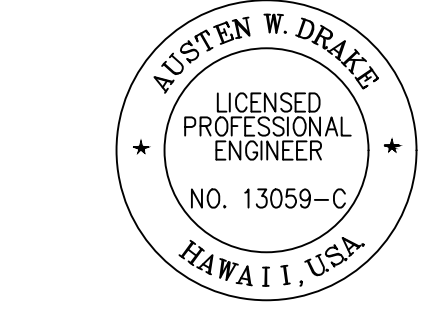
GRAPHICAL SCALE:

40' 20' 0 40' 80'

Scale: 1" = 40'

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

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_HWY_WIDENING\01_CIVIL_DRAWINGS\18.DWG 4/26/2019 3:45 PM



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

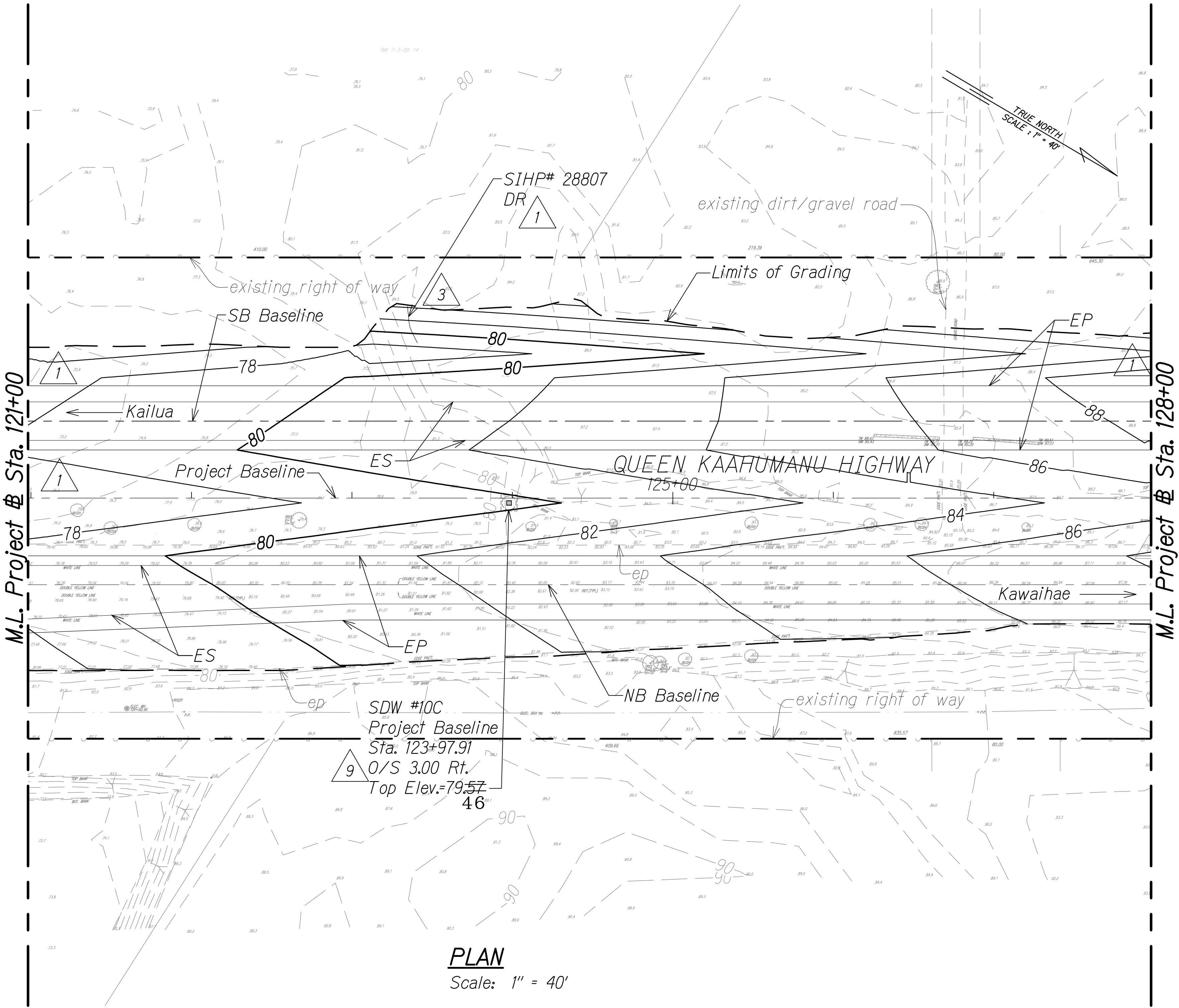
Austen W. Drake APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 267	528

NOTE:

1. For Shallow Drywell, see Det. Sht. 287

9



PLAN
Scale: 1" = 40'

LEGEND:

- 50 ———— Finish Grade
- 50 ———— existing ground
- Limits of Grading
- existing spot elevation
- SIHP# XXXXX Archaeology Sites
- 3 DR Data Recovery

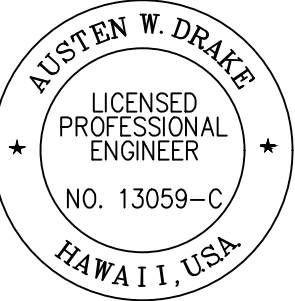
Shallow Drywell 9

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

LEGEND FOR
AS-BUILT POSTINGS

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

9/21/18	9	Added median drywell
3/1/17	3	Updated arch info based on field survey; Added arch symbol on legend
1/22/16	1	Revised grading to increase Kohanaiki exist. w8 lateral cover across median swale and removal of Kohanaiki driveway; Revised archaeological site mitigation per Final APMP; Makai slope rev.
DATE	REVISION	



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

Signature: Austen W. Drake
APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND
DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 19 OF 38 SHEETS

C.O. 267

"AS-BUILT"

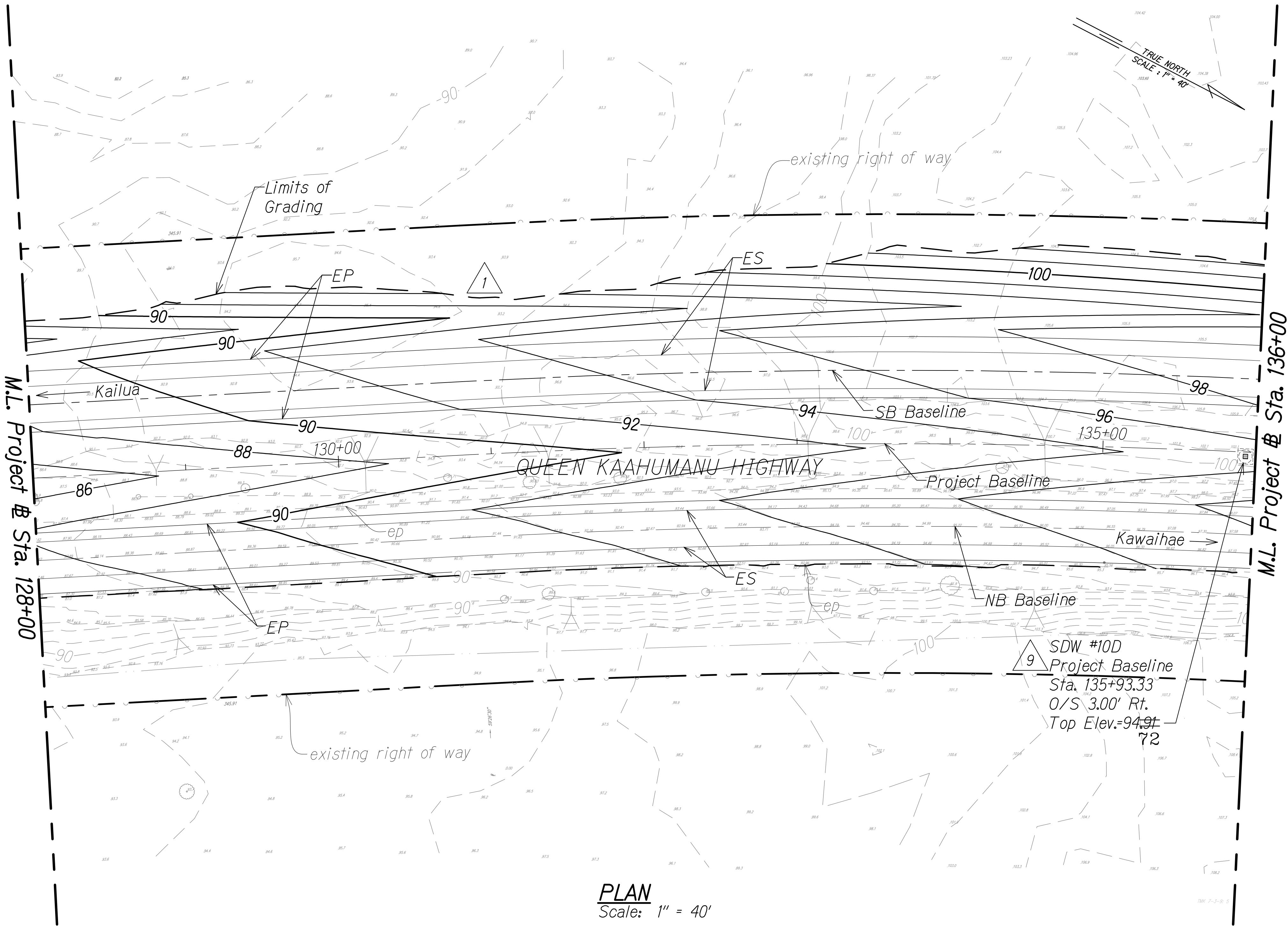
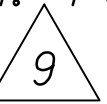
4/26/2019 3:57 PM

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN K HWY WIDENING\01_CIVIL DRAWINGS\267 GRADING PLAN 19.DWG 4/26/2019 3:55 PM

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 268	528

NOTE:
1. For Shallow Drywell, see Det. Sht. 287



LEGEND FOR AS-BUILT POSTINGS

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

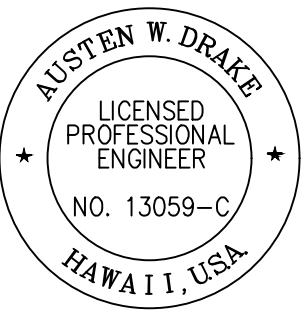
9/21/18	Added median drywell
1/22/16	Makai slope rev.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 20 OF 38 SHEETS



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Austen W. Drake
SIGNATURE APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

- LEGEND:**
- 50 ——— Finish Grade
 - 50 ——— existing ground
 - Limits of Grading
 - existing spot elevation
 - Shallow Drywell 9

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

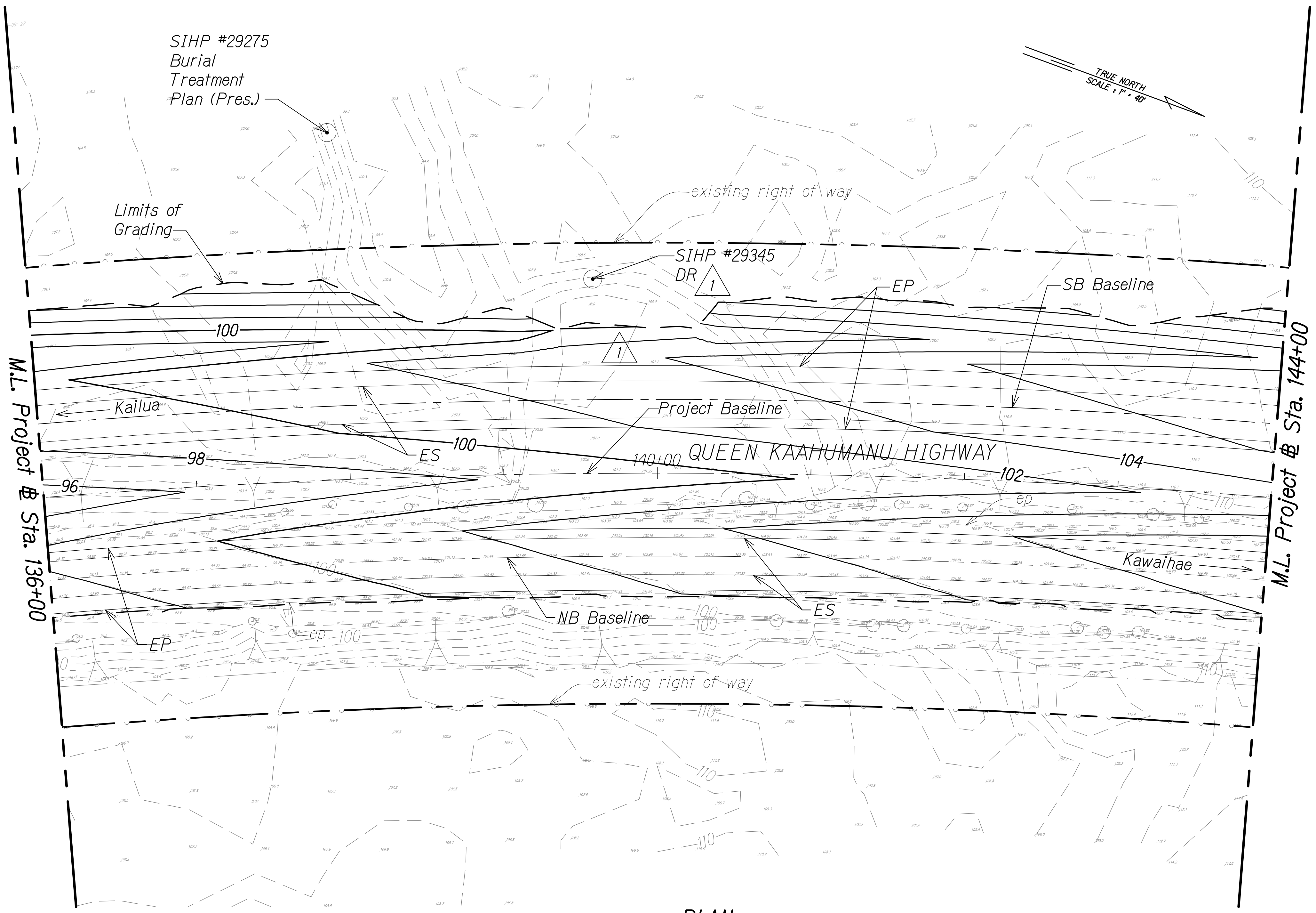
ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
No.	

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"AS-BUILT"

C.O. 268

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 269	528



PLAN
Scale: 1" = 40'

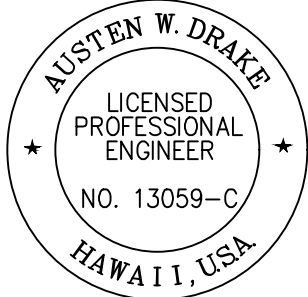
LEGEND:

- 50— Finish Grade
- - -50- - - existing ground
- - - Limits of Grading
- 45.7 existing spot elevation
- △ 3 DR Pres. Archaeology Sites

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

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

W:_CIVIL_3D_PROJECTS\2008_003_001_GEI_QUEEN_K_HWY_WIDENING\01_CIVIL_DRAWINGS\269 GRADING PLAN 21.DWG 3/14/2017 5:51 PM



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Austen W. Drake APRIL 30, 2018
SIGNATURE EXPIRATION DATE
OF THE LICENSE

3/1/17	3	Added arch symbol on legend
1/22/16	1	Revised archaeological site mitigation per Final APMP; Makai slope rev.
DATE	REVISION	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R

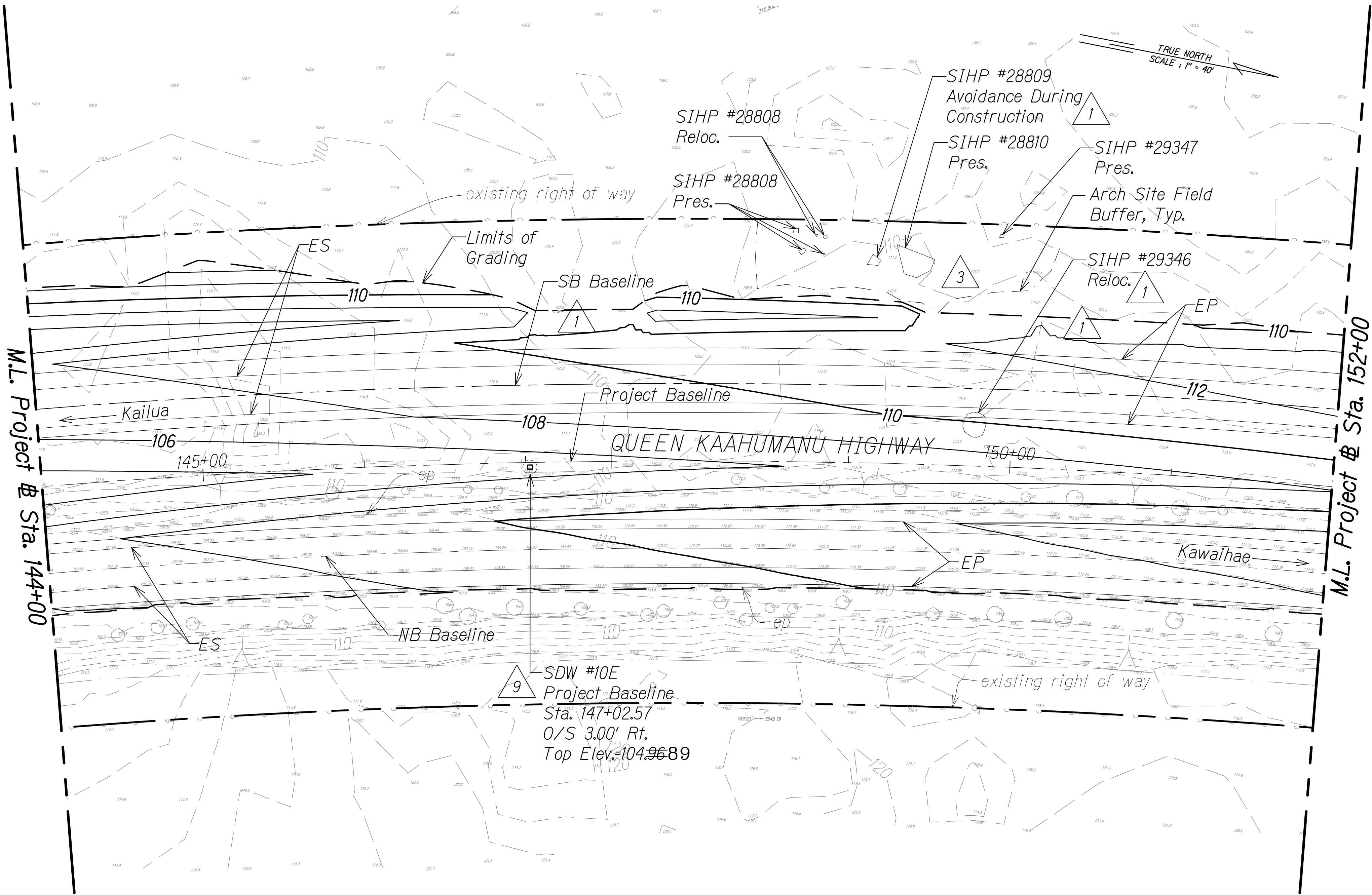
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 21 OF 38 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 270	528

NOTE:

1. For Shallow Drywell, see Det. Sht. 287



PLAN
Scale: 1" = 40'

LEGEND:

- 50 Finish Grade
- 50 existing ground
- Limits of Grading
- existing spot elevation
- SIHP# XXXXX Archaeology Sites
- 3 Pres. Arch Site Buffer
- Reloc. Preservation (Avoid During Construction)
- Relocation



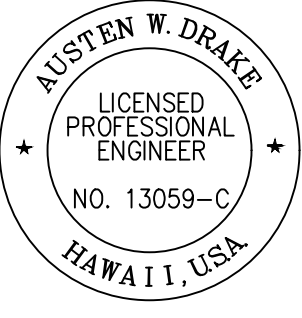
Shallow Drywell

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

LEGEND FOR
AS-BUILT POSTINGS

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

9/21/18	9	Added median drywell
3/1/17	3	Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
1/22/16	1	Revised archaeological site mitigation per Final APMP; Makai slope rev.
DATE	REVISION	



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

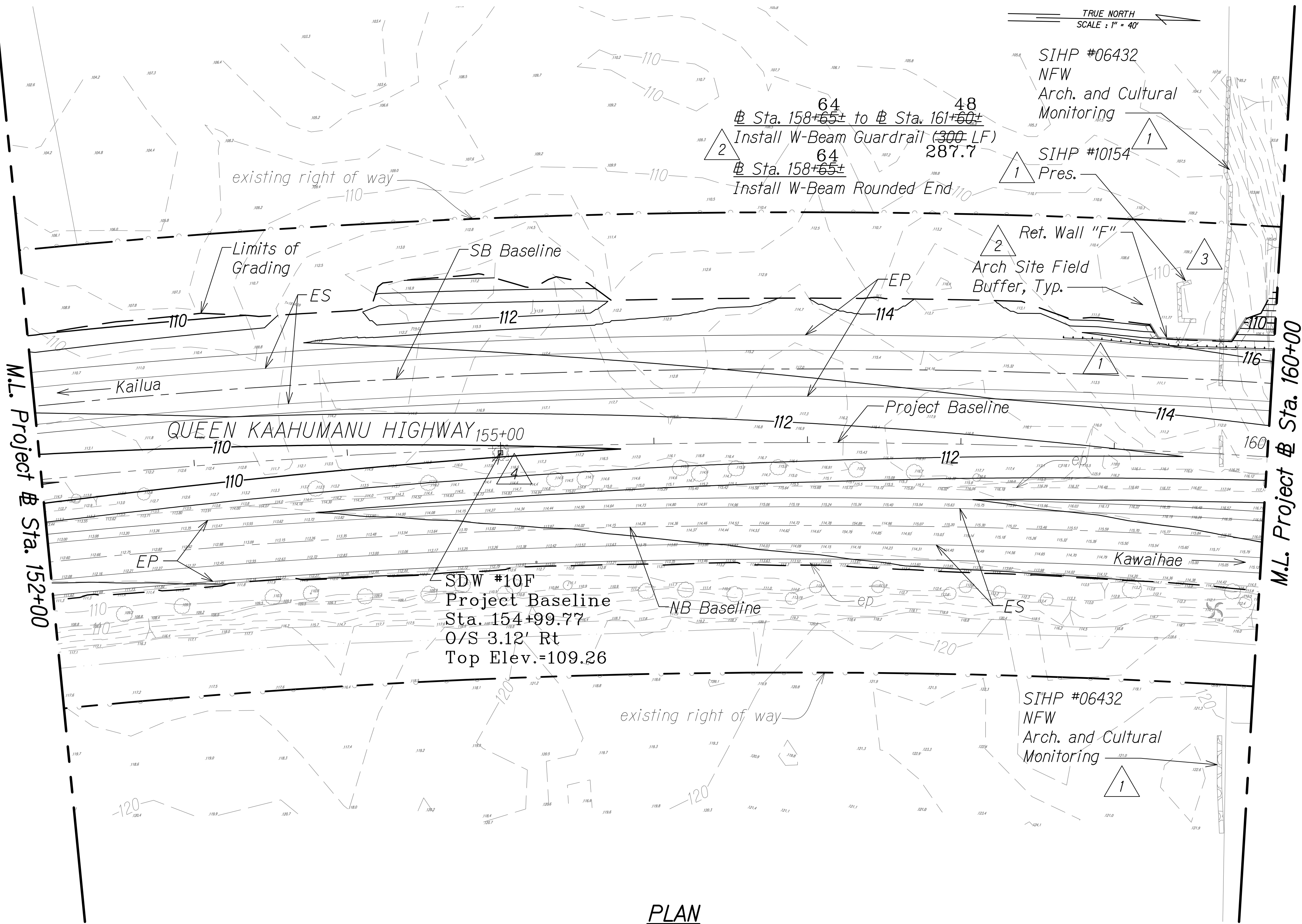
QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahake Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 22 OF 38 SHEETS

"AS-BUILT"

C.O. 270

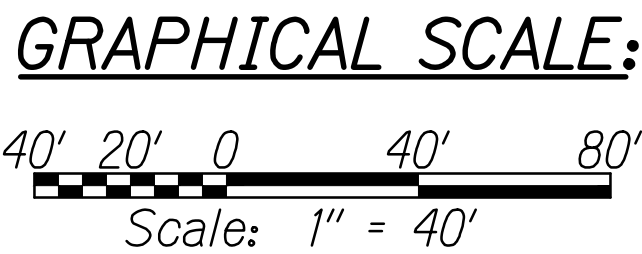
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 271	528



PLAN
Scale: 1" = 40'

LEGEND:

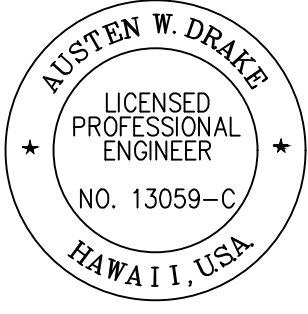
- | | | | | | |
|-------------|-------------------------|-----------|------------------|-----------|---|
| —50— | Finish Grade | —50— | existing ground | △ 3 Pres. | Arch Site Buffer |
| —50— | Limits of Grading | △ 3 Pres. | Arch Site Buffer | NFW | Preservation |
| —50.7 | existing spot elevation | NFW | No Further Work | | (Archeological and Cultural Monitoring) |
| SIHP# XXXXX | Archaeology Sites | | | | |



LEGEND FOR
AS-BUILT POSTINGS

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

DATE	REVISION
2/8/18	4 Relocated SDW #11 near OTEC
3/1/17	3 Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2 Revised guardrail labels; Added wall ID
1/22/16	1 Added ret. wall per MOA; Revised makai slope and shoulder transition near archaeological site; Revised archaeological site mitigation per Final APMP



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

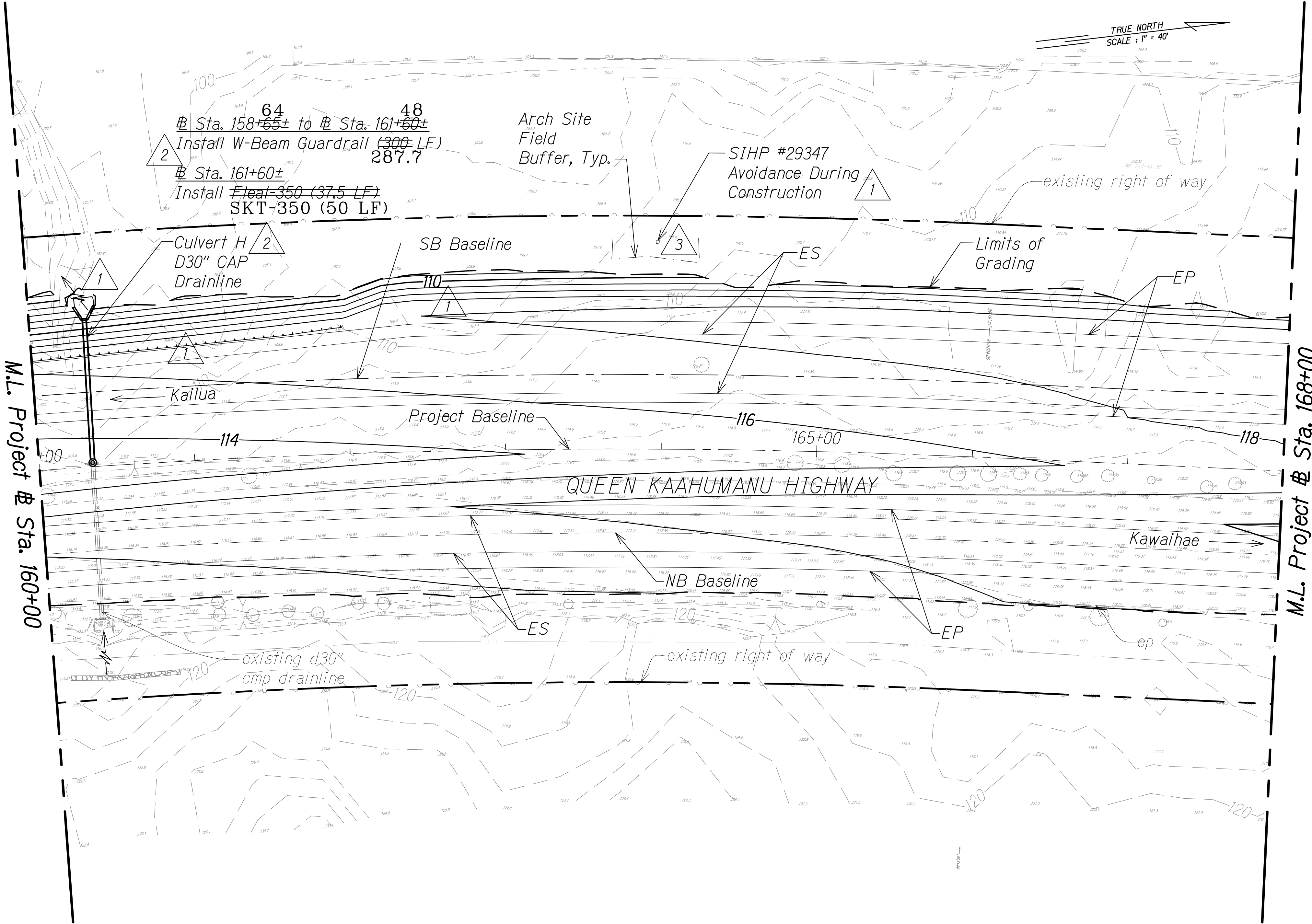
QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 23 OF 38 SHEETS

"AS-BUILT"

C.O. 271

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 272	528



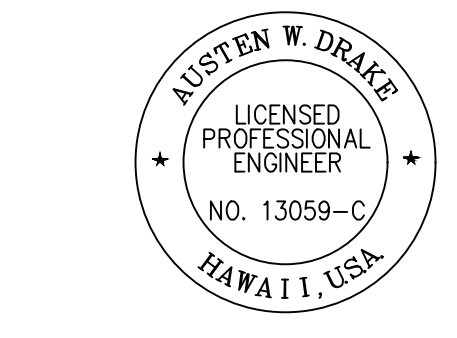
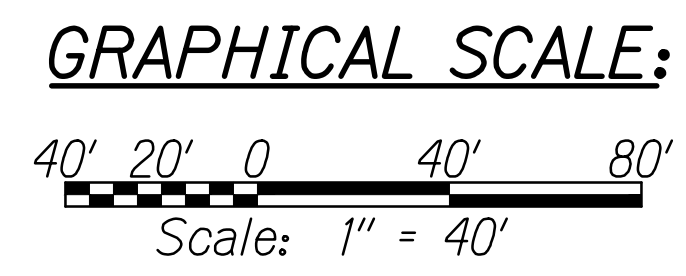
LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

3/1/17		Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16		Revised guardrail labels; Added culvert ID
1/22/16		Revised makai slope and shoulder transition near archaeological site, archaeological site mitigation per Final APMP and culvert outlet grading

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
GRADING AND DRAINAGE PLAN	
QUEEN KAAHUMANU HIGHWAY WIDENING Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)	
Federal Aid Project No. NH-019-1(38)R	
Scale: AS NOTED	Date: DECEMBER 2016
SHEET No. 24 OF 38 SHEETS	

LEGEND:	
	Finish Grade
	existing ground
	Limits of Grading
	existing spot elevation
SIHP# XXXXX	Archaeology Sites
	Arch Site Buffer

PLAN
Scale: 1" = 40'



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

ORIGINAL PLAN	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_HWY_WIDENING\01_CIVIL_DRAWINGS\222 GRADING PLAN 24.DWG 1/28/2019 5:34 PM

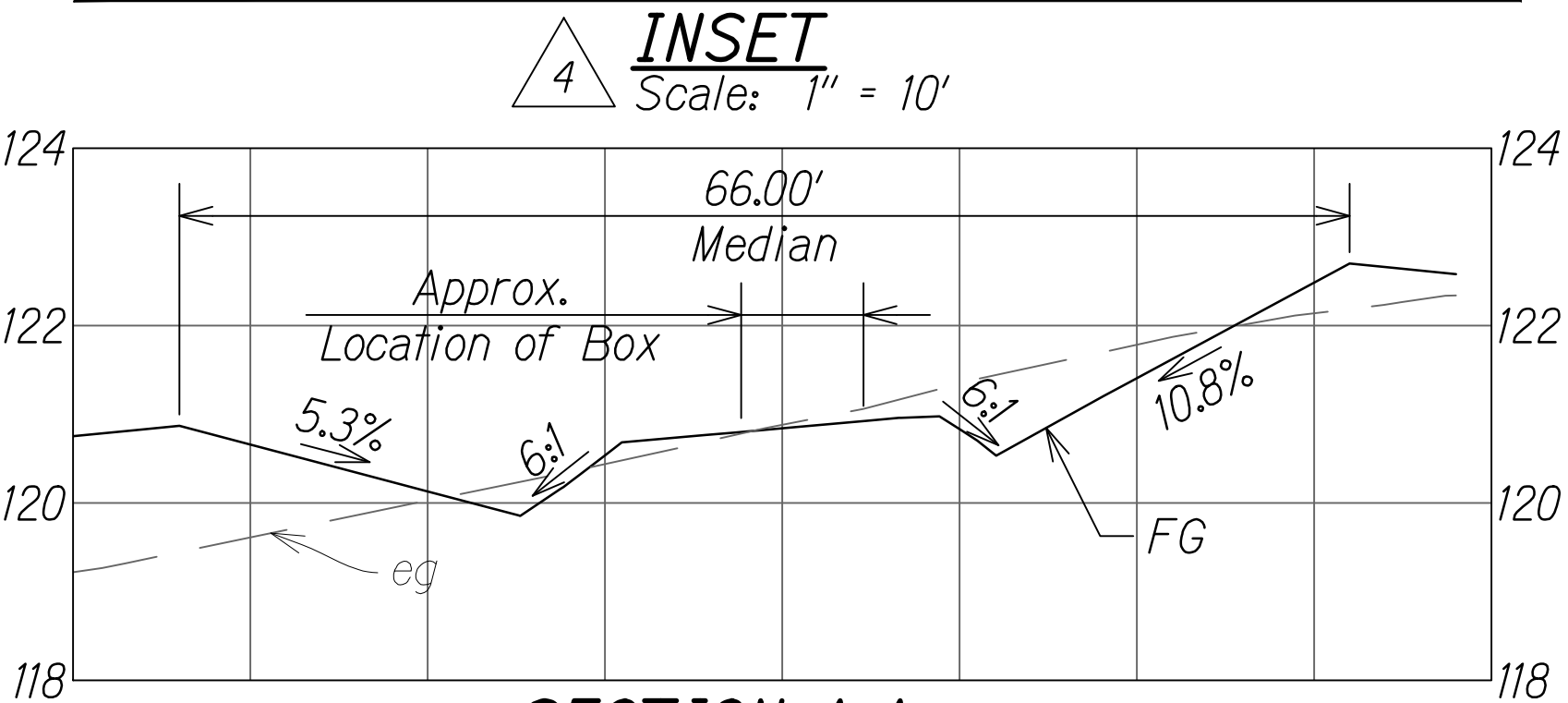
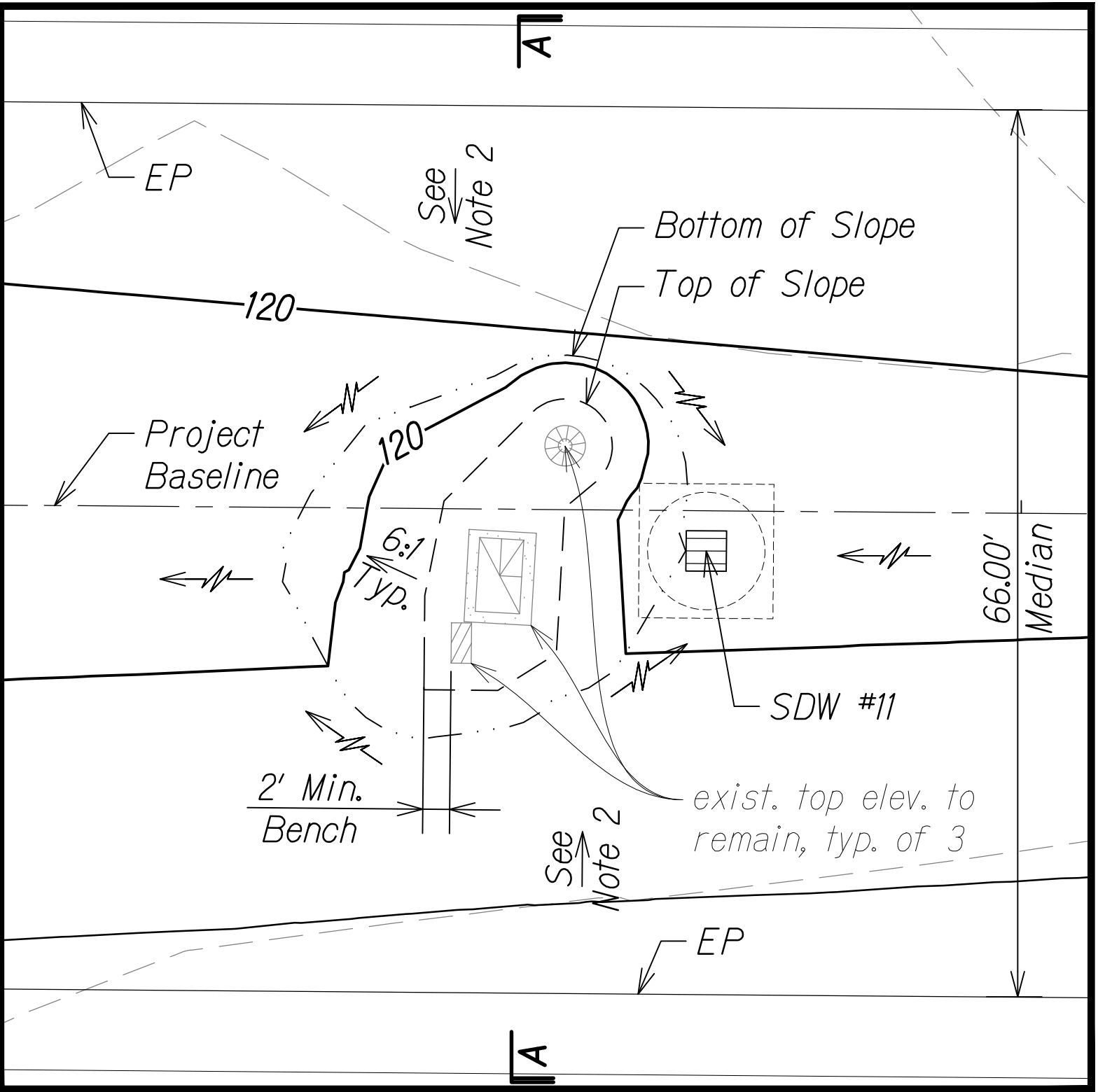
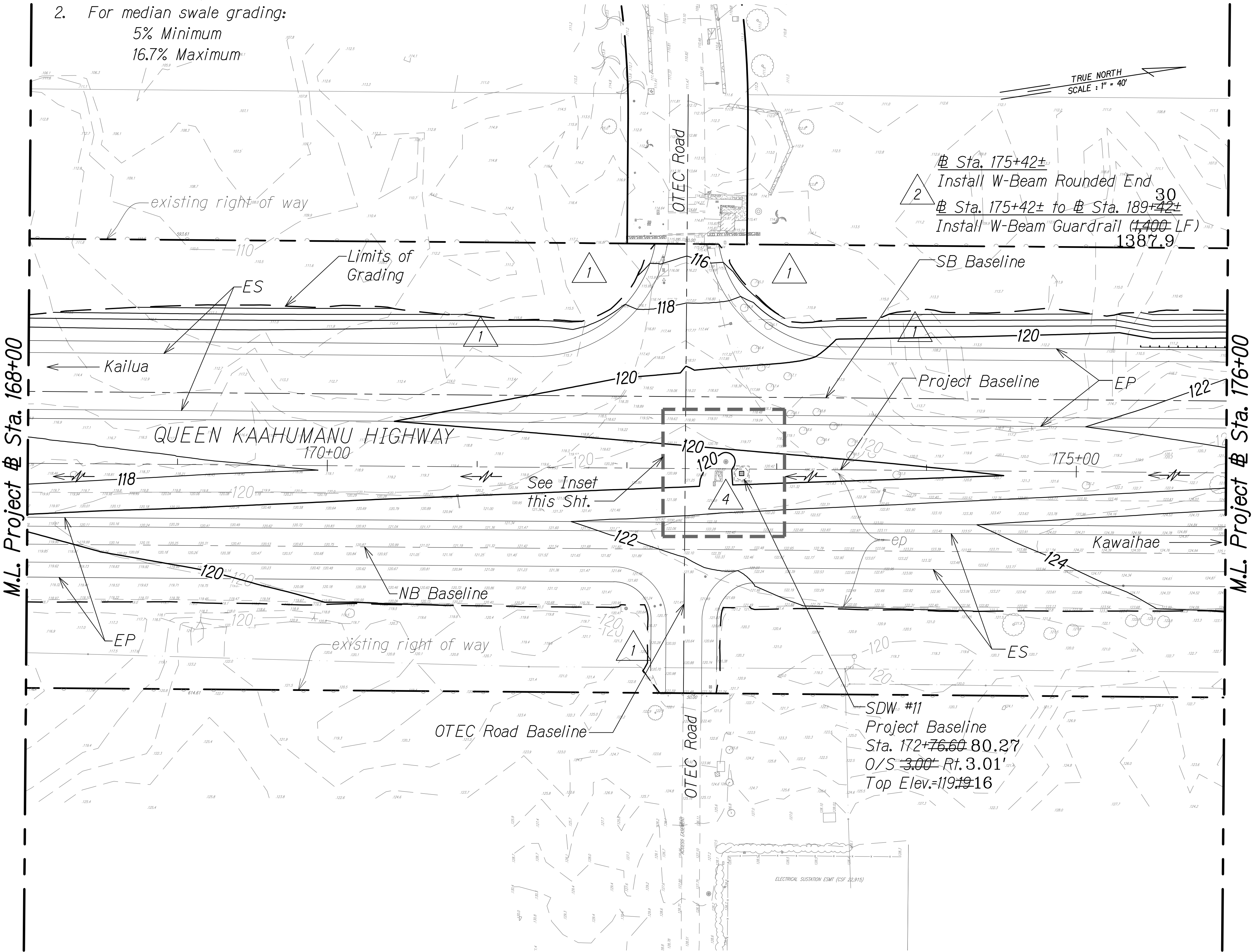
"AS-BUILT"

C.O. 272

NOTES: 4

1. For Shallow Drywell, see Det. Sht. 287
2. For median swale grading:
5% Minimum
16.7% Maximum

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 273	528



SECTION A-A
Scale: Horiz. 1" = 10'
Vert. 1" = 2'

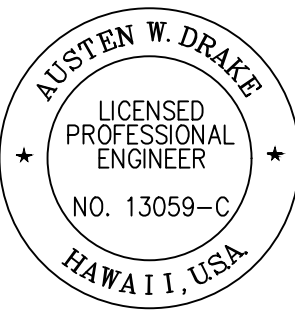
2/8/18	4	Relocated SDW #11; Exist. top elev. of structures to remain and median grading revised
8/1/16	2	Revised guardrail labels
1/22/16	1	Revised makai slope and OTEC mauka
DATE		REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 25 OF 38 SHEETS



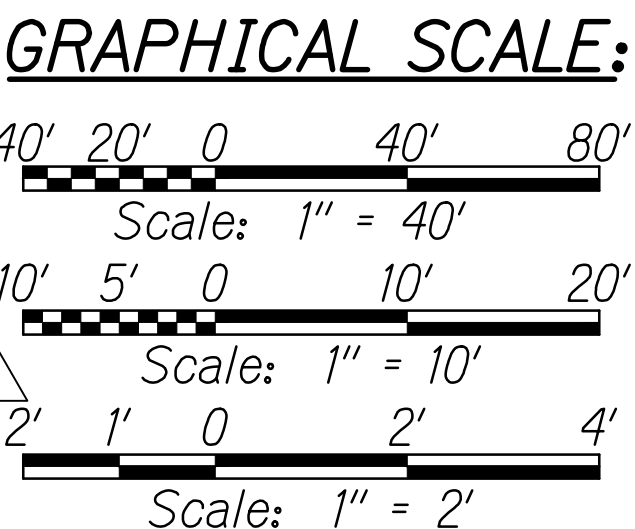
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Signature: Austin W. Drake
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

LEGEND FOR AS-BUILT POSTINGS

Squiggly line for as-built deletion

Double line for as-built deletion

Roadway Text for as-built posting



LEGEND:

- 50— Finish Grade
—50— existing ground
— Limits of Grading
existing spot elevation
Shallow Drywell
Direction of Flow

PLAN
Scale: 1" = 40'

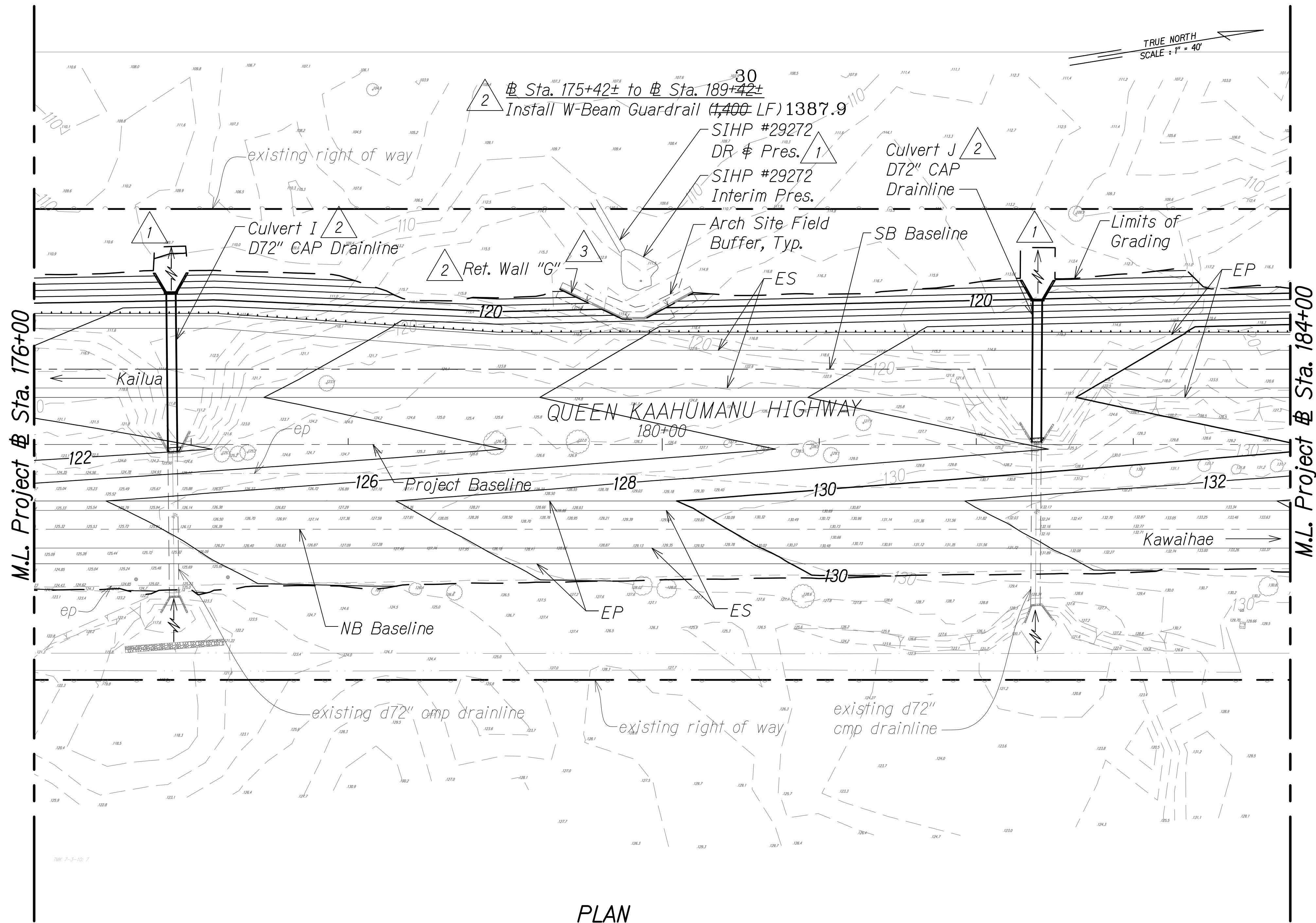
ORIGINAL PLAN	DATE
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN K HWY WIDENING\01_CIVIL DRAWINGS\23 GRADING PLAN 25.DWG 4/26/2019 4:35 PM

"AS-BUILT"

C.O. 273

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 274	528



PLAN
Scale: 1" = 40'

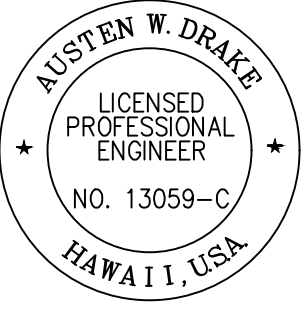
LEGEND:

- | | | | |
|-------------|-------------------|---------------|--|
| — 50 — | Finish Grade | △ 3 | Arch Site Buffer |
| — 50 — | existing ground | DR Pres. | Data Recovery Preservation (Avoid During Construction) |
| — — — | Limits of Grading | Interim Pres. | Interim Preservation (Avoid During Construction) |
| SIHP# XXXXX | Archaeology Sites | | |

LEGEND FOR
AS-BUILT POSTINGS

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

3/1/17	△ 3	Added field buffer locations & updated arch info based on field survey; Redesigned wall; Added arch symbol on legend
8/1/16	△ 2	Revised guardrail labels; Added wall & culvert ID
1/22/16	△ 1	Revised archaeological site mitigation per Final APMP & culvert outlet grading
DATE	REVISION	



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 26 OF 38 SHEETS

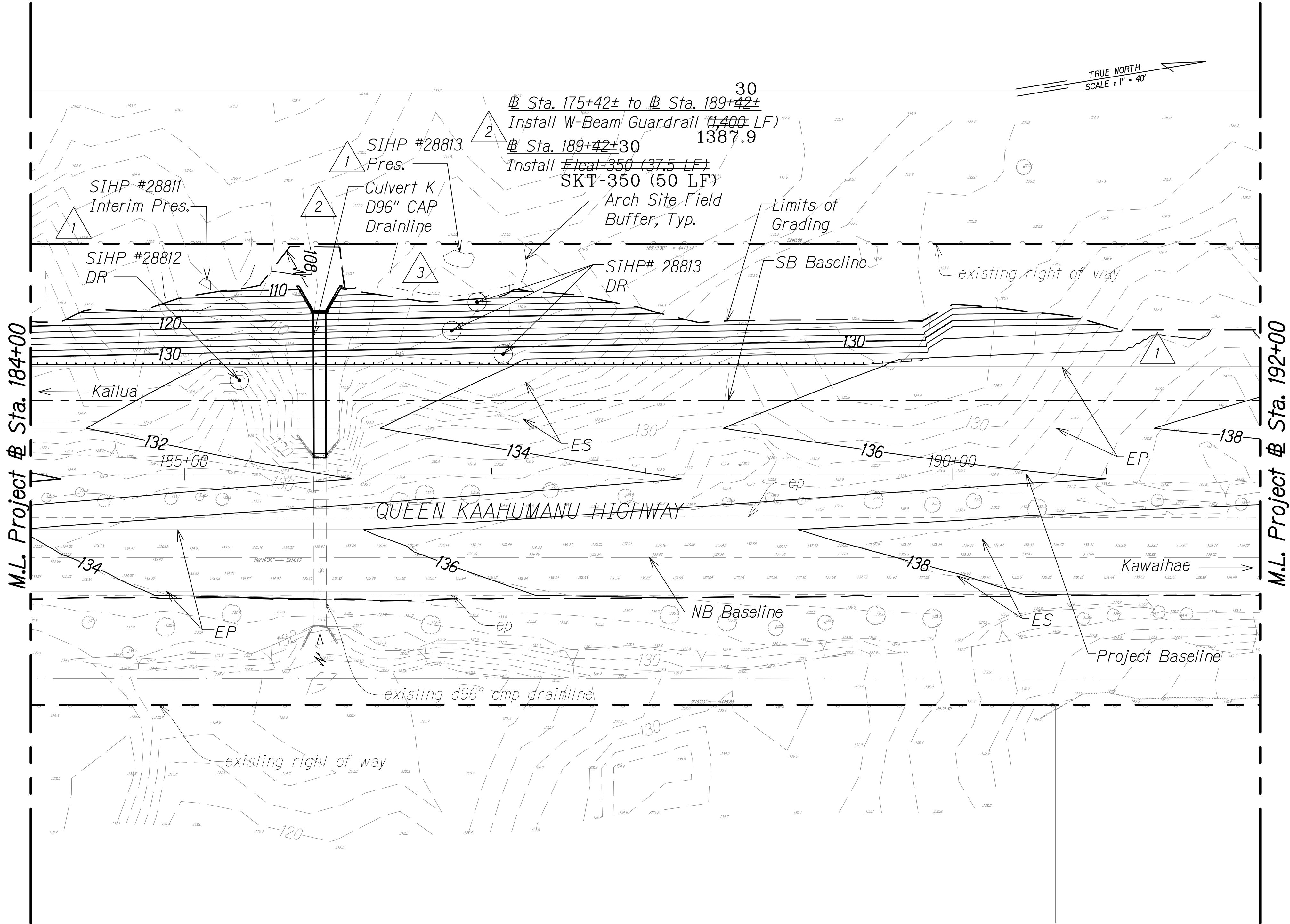
"AS-BUILT"

C.O. 274

ORIGINAL PLAN	DATE
DESIGNED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN K HWY WIDENING\01_CIVIL DRAWINGS\274 GRADING PLAN 26.DWG 6/12/2019 3:16 PM

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 275	528



PLAN
Scale: 1" = 40'

LEGEND:

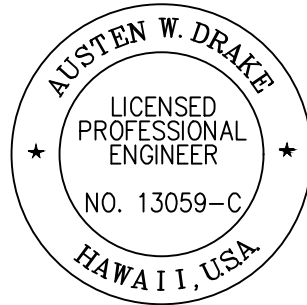
- | | | | |
|---------------|-------------------------|-------|-----------------------------|
| —50— | Finish Grade | 3 | Arch Site Buffer |
| - - -50 - - - | existing ground | DR | Data Recovery |
| - - - - - | Limits of Grading | Pres. | Preservation |
| 45.7 | existing spot elevation | | (Avoid During Construction) |
| SIHP# XXXXX | Archaeology Sites | | Interim Pres. |
| | | | Interim Preservation |
| | | | (Avoid During Construction) |

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

LEGEND FOR
AS-BUILT POSTINGS

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

3/1/17	3	Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
8/1/16	2	Revised guardrail labels; Added culvert ID
1/22/16	1	Revised archaeological site mitigation per Final APMP, makai slope & culvert outlet grading
DATE	REVISION	



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

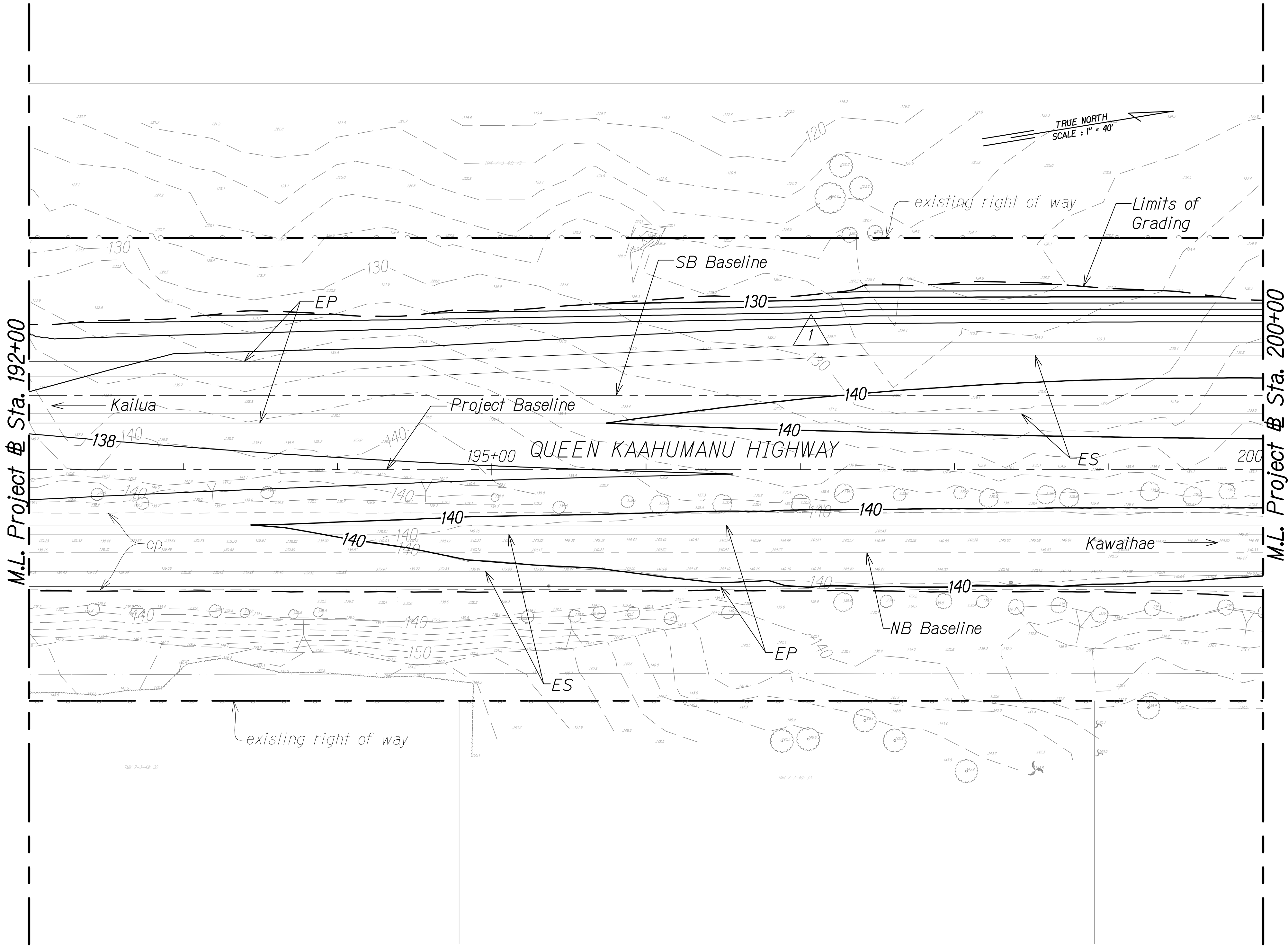
QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 27 OF 38 SHEETS

"AS-BUILT"

C.O. 275

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 276	528



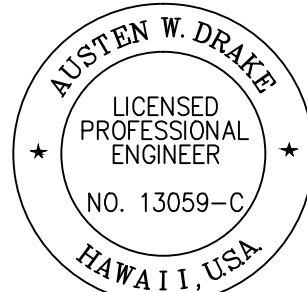
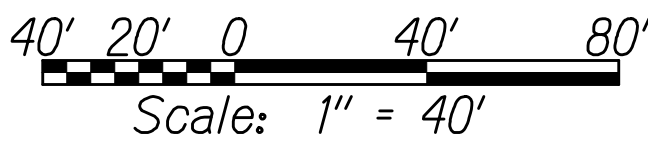
LEGEND:

- 50— Finish Grade
- 50- existing ground
- - - Limits of Grading
- existing spot elevation

PLAN

Scale: 1" = 40'

GRAPHICAL SCALE:



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WILL BE UNDER MY OBSERVATION.

Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE
OF THE LICENSE

1/22/16	1 Makai slope rev.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: AUGUST 2016

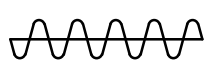
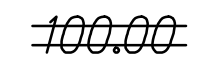
SHEET No. 28 OF 38 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 277	528

NOTE:

1. For Shallow Drywell, see Det. Sht. 287

LEGEND FOR AS-BUILT POSTINGS

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

DATE	REVISION
4/14/18	5 Mauka guardrail revisions
1/31/17	3 Revised Ka'imīnani mauka shoulder, guardrail location & grading
8/1/16	2 Revised Ka'imīnani mauka grading & guardrail labels; Added culvert ID
1/22/16	1 Makai slope rev.; Revised grading due to Ka'imīnani ROW and makai layout extension

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

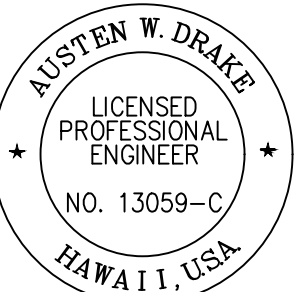
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahē Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: DECEMBER 2016

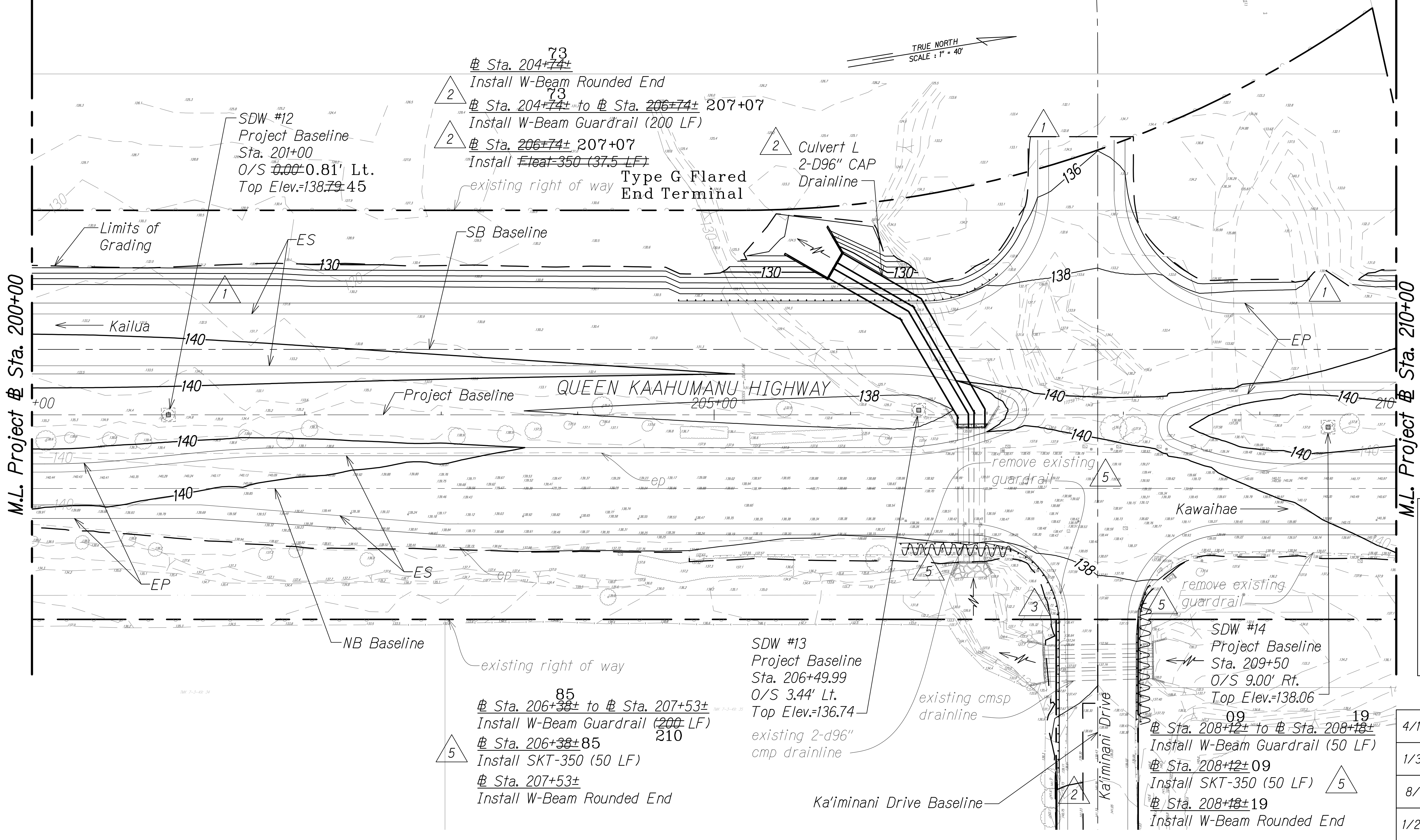
SHEET No. 29 OF 38 SHEETS



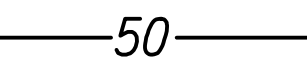
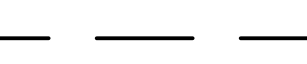
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

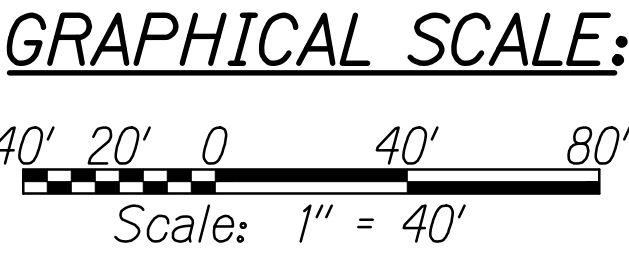
Austen W. Drake
SIGNATURE

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE



LEGEND:

-  50 Finish Grade
-  50 existing ground
-  Limits of Grading
-  existing spot elevation
-  Shallow Drywell



PLAN

Scale: 1" = 40'

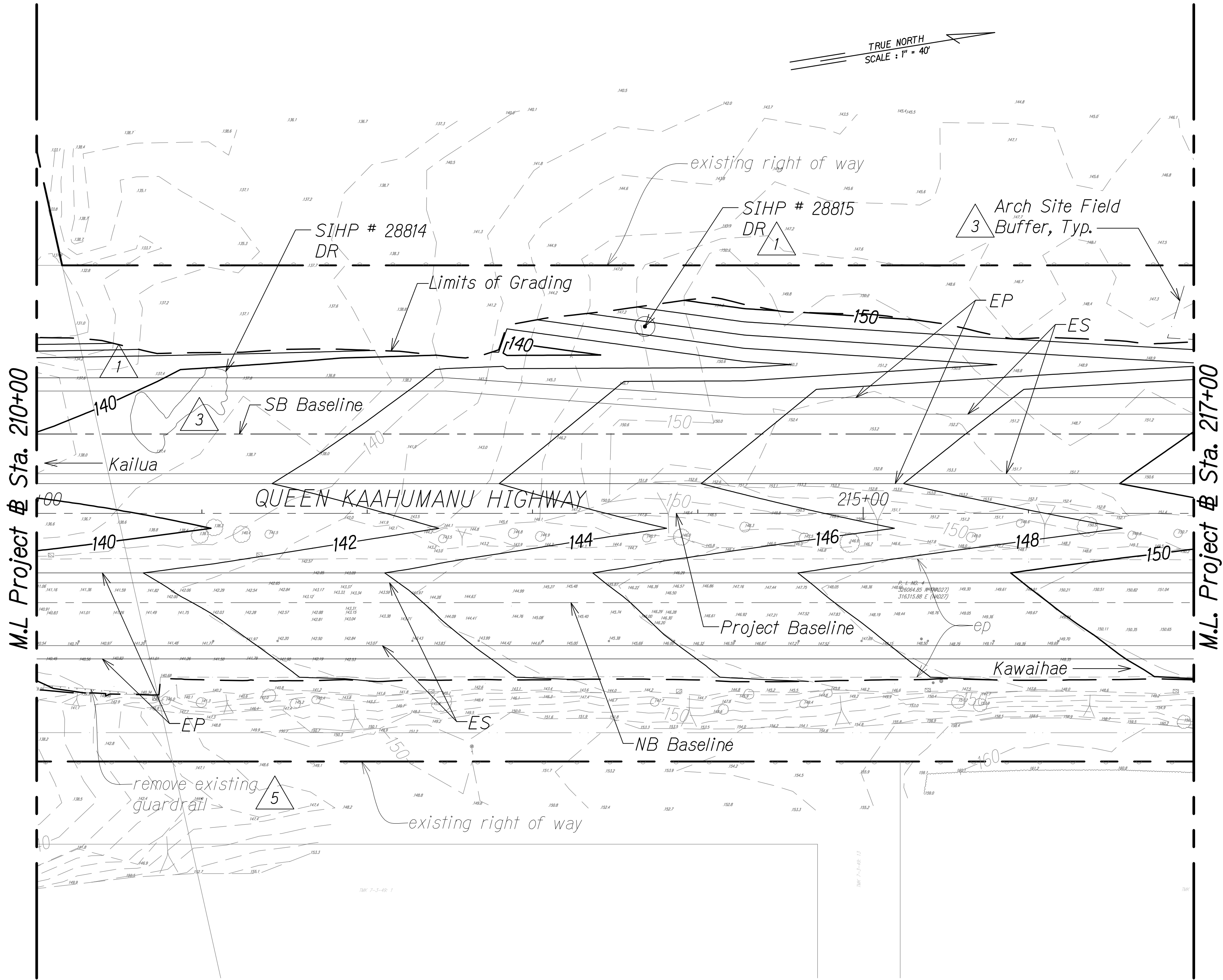
"AS-BUILT"

C.O. 277

ORIGINAL PLAN	DATE
DESIGNED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_Hwy_WIDENING\01_CIVIL_DRAWINGS\277 GRADING PLAN 29.DWG 6/12/2019 2:48 PM

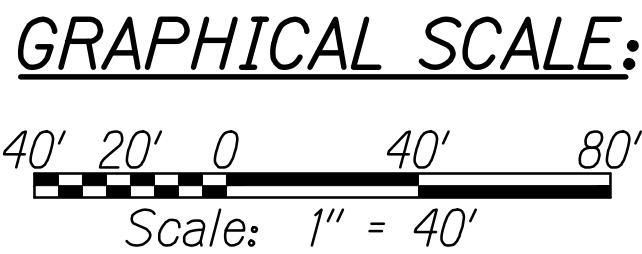
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 278	528



PLAN
Scale: 1" = 40'

LEGEND:

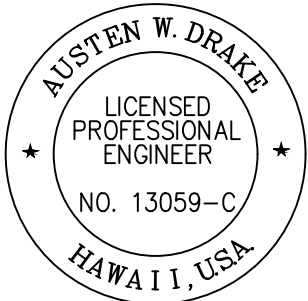
- | | | | |
|---------------|-------------------------|-------------|---|
| —50— | Finish Grade | SIHP# XXXXX | Archaeology Sites |
| - - -50 - - - | existing ground | △ 3 | Arch Site Buffer |
| - - - - - | Limits of Grading | DR | Data Recovery (Avoid During Construction) |
| • 45.7 | existing spot elevation | | |



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

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_HWY_WIDENING\01_CIVIL_DRAWINGS\278 GRADING PLAN 30.DWG 4/16/2018 9:22 AM

4/14/18	△ 5	Mauka guardrail revisions
3/1/17	△ 3	Added field buffer location & updated arch info based on field survey; Added arch symbol on legend
1/22/16	△ 1	Revised archaeological site mitigation per Final APMP and makai slope
DATE	REVISION	



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

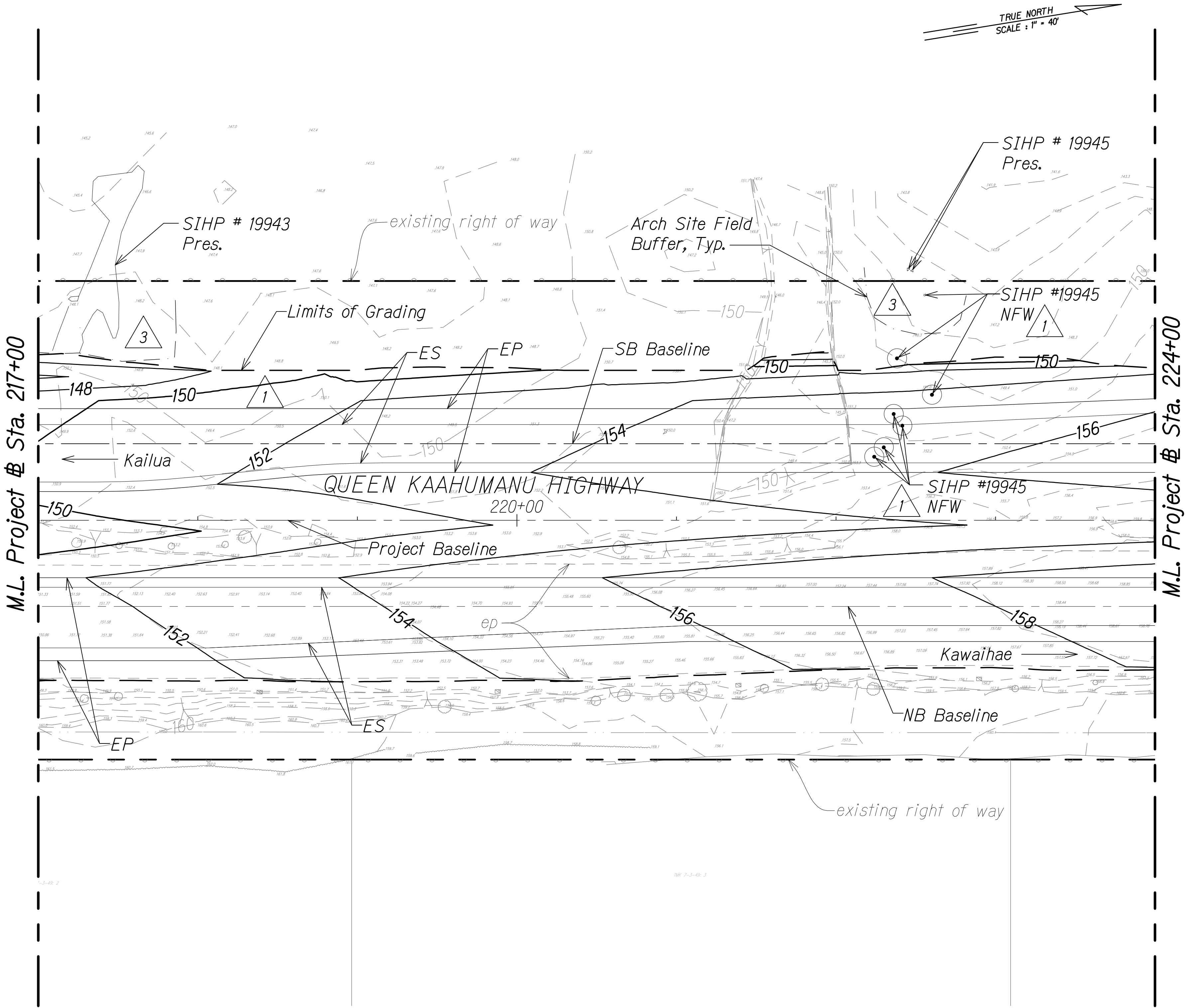
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 30 OF 38 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 279	528



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

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN K HWY WIDENING\01_CIVIL DRAWINGS\279 GRADING PLAN_31.DWG 3/15/2017 9:49 AM

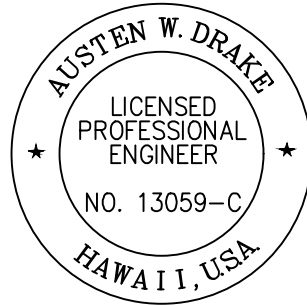
GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

LEGEND:

- 50— Finish Grade
- - -50- - - existing ground
- - - Limits of Grading
- - - existing spot elevation

- SIHP# XXXXX Archaeology Sites
- △ 3 Arch Site Buffer
- △ Pres. Preservation (Avoid During Construction)
- △ NFW No Further Work (Archeological and Cultural Monitoring)

PLAN
Scale: 1" = 40'



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Austen W. Drake APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

3/1/17	△ 3	Added field buffer locations & updated arch info based on field survey; Added arch symbol on legend
1/22/16	△ 1	Revised archaeological site mitigation per Final APMP; Makai slope rev.
DATE	REVISION	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

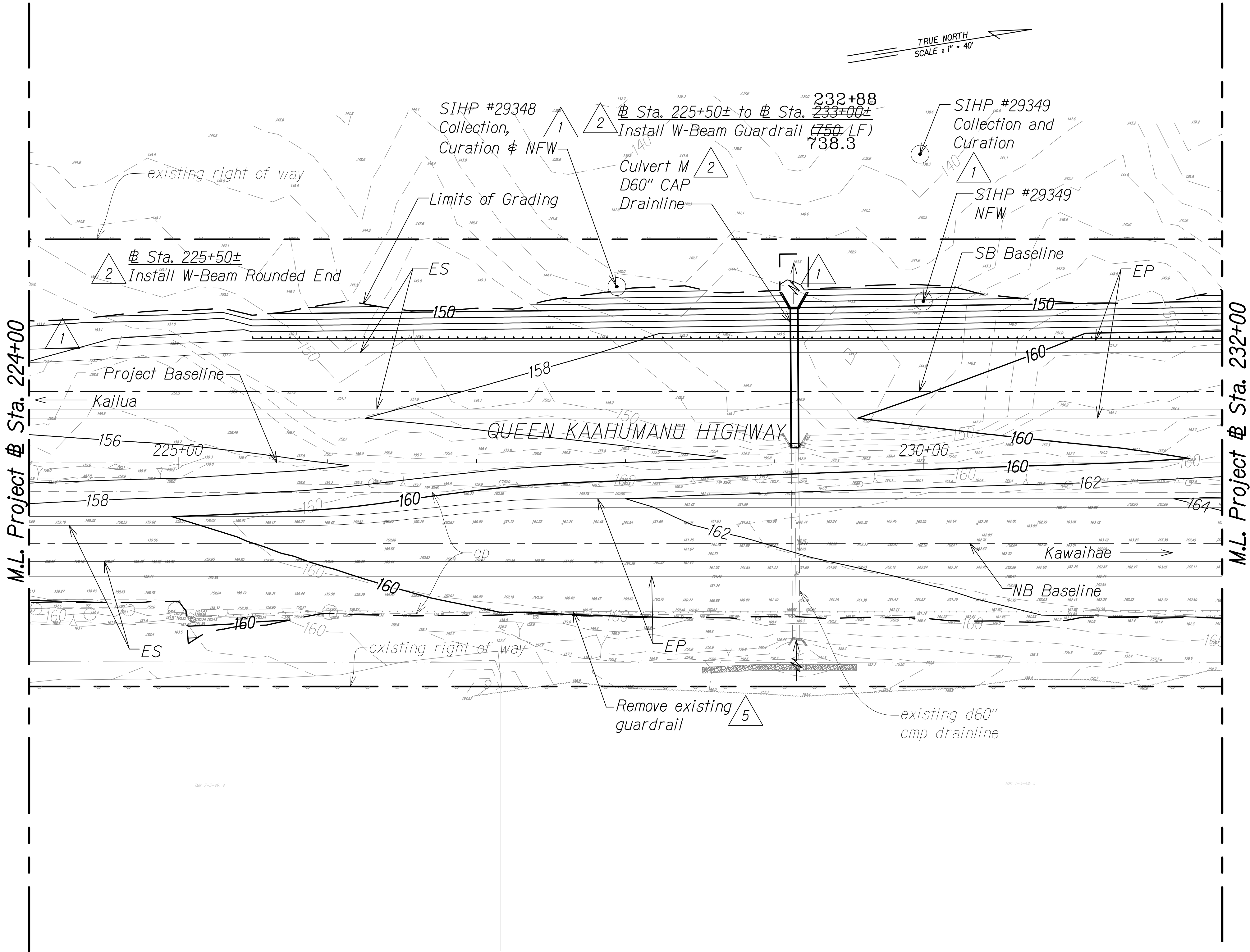
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 31 OF 38 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 280	528



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

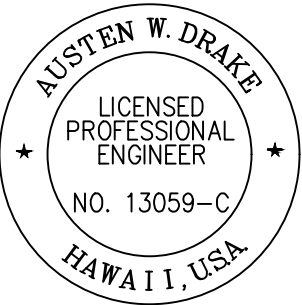
DATE	REVISION
4/14/18	5 Mauka guardrail revisions
3/1/17	3 Added arch symbol on legend
8/1/16	2 Revised guardrail labels; Added culvert ID
1/22/16	1 Revised archaeological site mitigation per Final APMP; Revised makai slope and culvert outlet grading

LEGEND:

- 50 Finish Grade
- 50 existing ground
- Limits of Grading
- existing spot elevation

- SIHP# XXXXX Archaeology Sites
- 3 NFW No Further Work (Archeological and Cultural Monitoring)

PLAN
Scale: 1" = 40'



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Signature: Austen W. Drake
Date: APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

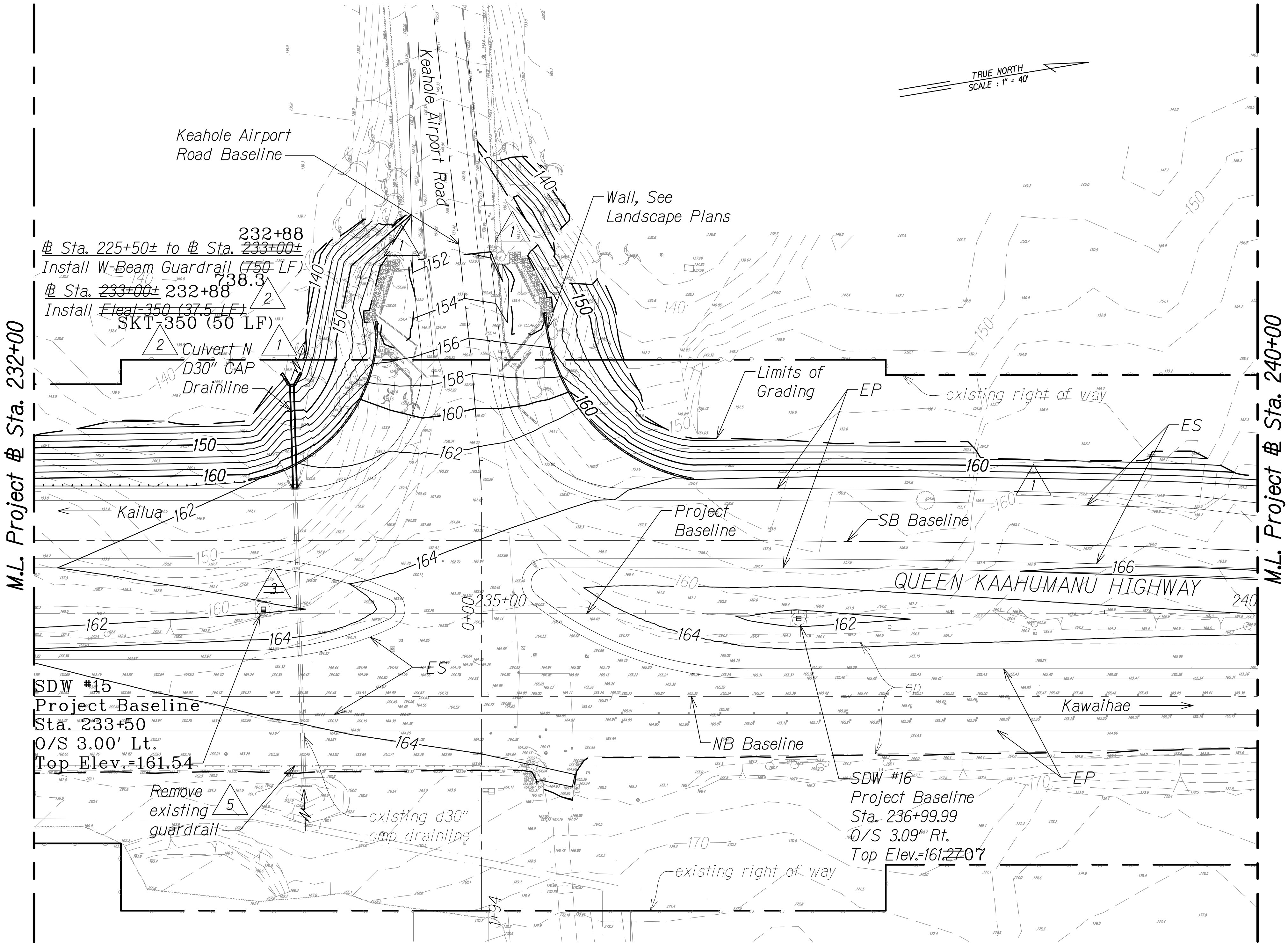
SHEET No. 32 OF 38 SHEETS

"AS-BUILT"

C.O. 280

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 281	528

NOTE:
1. For Shallow Drywell, see Det. Sht. 287



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

DATE	REVISION
4/14/18	5 Added mauka guardrail scope of work
1/31/17	3 Removed SDW#15
8/1/16	2 Revised guardrail labels; Added culvert ID
1/22/16	1 Revised makai slope, and culvert outlet grading; Added grading maintenance foot path

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

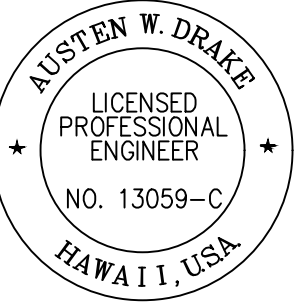
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 33 OF 38 SHEETS



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

ORIGINAL PLAN	DATE
NO. 1	6/12/2019
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NOTED BY	
DATE	

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'

	50	Finish Grade
	50	existing ground
		Limits of Grading
		existing spot elevation
		Shallow Drywell

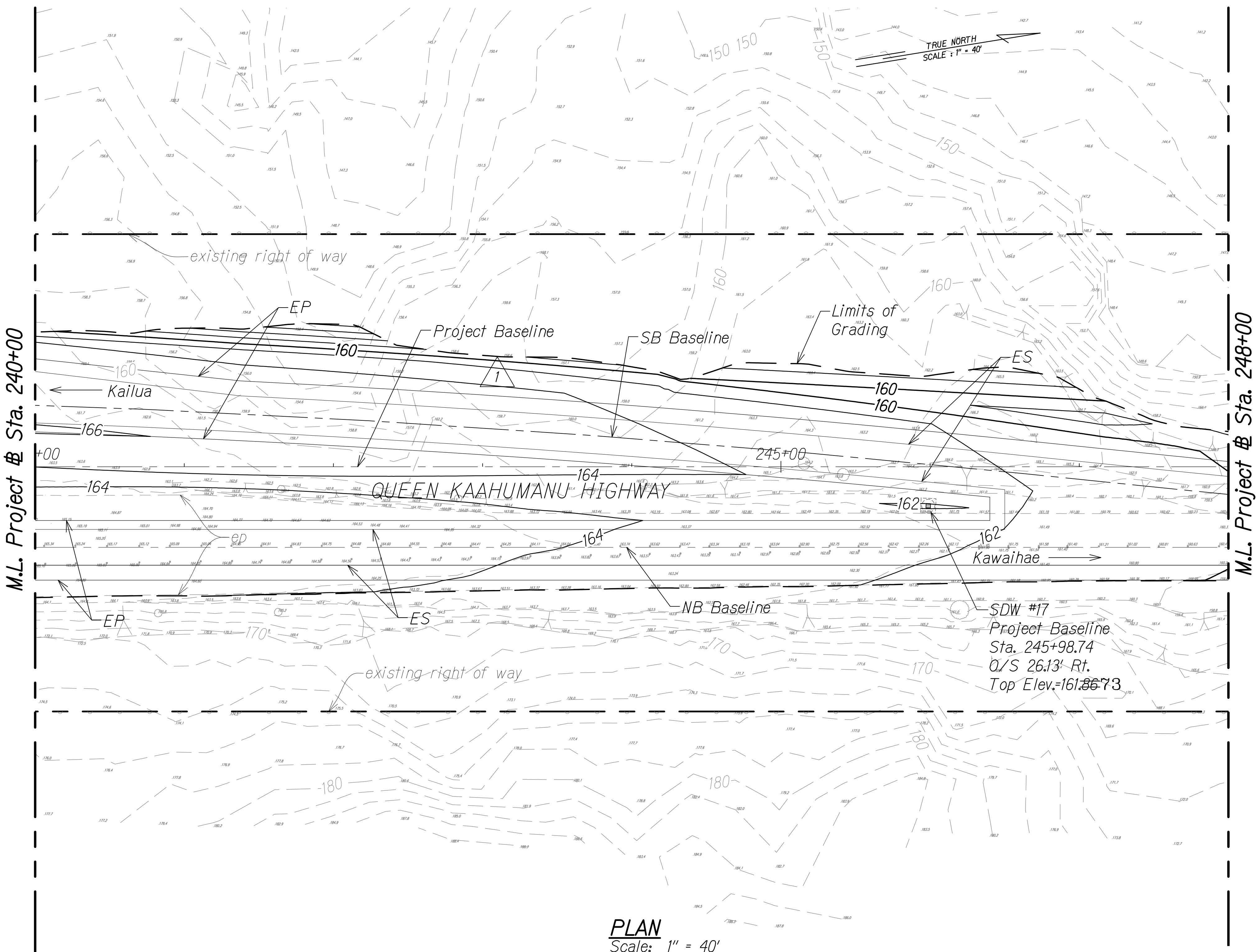
PLAN
Scale: 1" = 40'

"AS-BUILT"

C.O. 281

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 282	528

NOTE:
1. For Shallow Drywell, see Det. Sht. 287



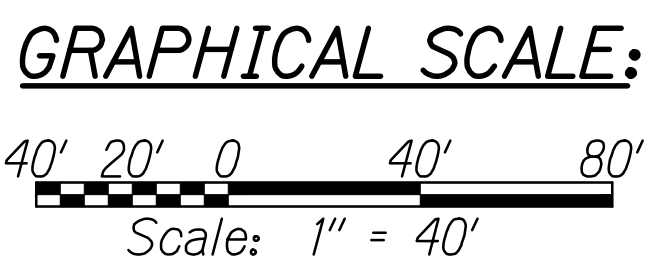
LEGEND FOR AS-BUILT POSTINGS

Squiggly line for as-built deletion

Double line for as-built deletion

Text for as-built posting

ORIGINAL PLAN	DATE
NOTE BOOK	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	



- LEGEND:**
- 50— Finish Grade
 - 50- existing ground
 - - - Limits of Grading
 - 45.7 existing spot elevation
 - Shallow Drywell

PLAN
Scale: 1" = 40'

AUSTEN W. DRAKE
LICENSED PROFESSIONAL ENGINEER
NO. 13059-C
HAWAII, USA

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Austen W. Drake
SIGNATURE

APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

1/22/16 Makai slope rev.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R

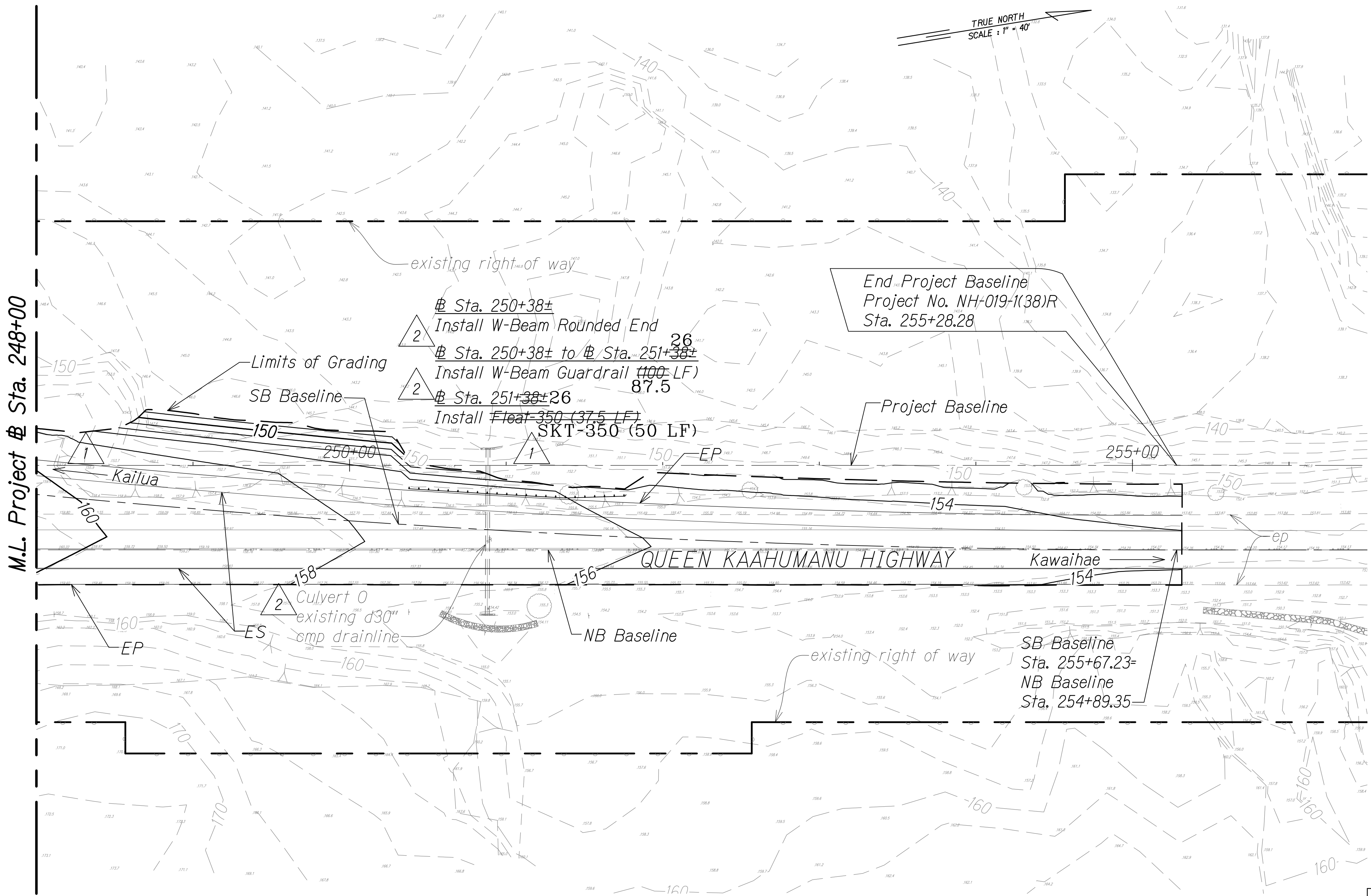
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 34 OF 38 SHEETS

"AS-BUILT"

C.O. 282

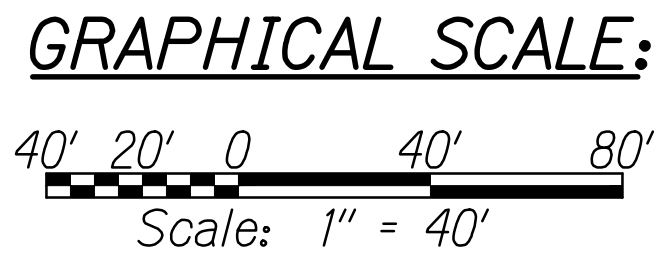
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 283	528



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

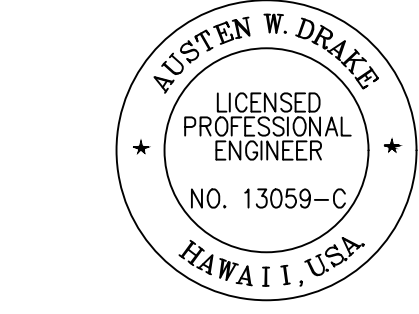
ORIGINAL PLAN	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	

W:_CIVIL_3D\PROJECTS\2008_003_001_GBI_QUEEN_K_HWY_WIDENING\01_CIVIL_DRAWINGS\283 GRADING PLAN 35.DWG 1/29/2019 2:34 PM



LEGEND:	
	Finish Grade
	existing ground
	Limits of Grading
	existing spot elevation

PLAN
Scale: 1" = 40'



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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE
OF THE LICENSE

8/1/16	Revised guardrail labels; Added culvert ID
1/22/16	Makai slope rev; Added guardrail
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION GRADING AND DRAINAGE PLAN QUEEN KAAHUMANU HIGHWAY WIDENING Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2) Federal Aid Project No. NH-019-1(38)R Scale: AS NOTED Date: DECEMBER 2016	
SHEET No. 35 OF 38 SHEETS	

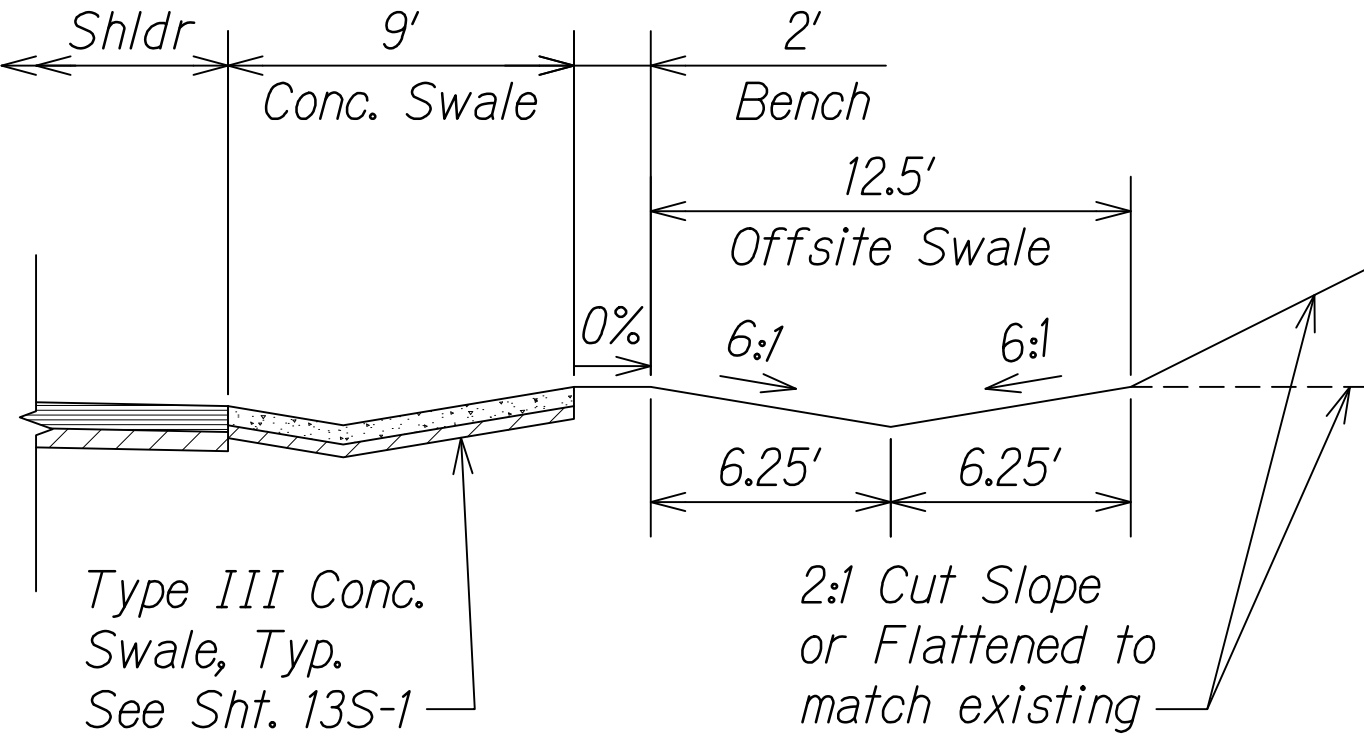
"AS-BUILT"

C.O. 283

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 283S-1	528

NOTES:

1. All inlets shall have inlet filters unless otherwise noted.
2. For Shallow Drywell, see Det. Sht. 287.
3. For onsite grading and drainage, see Sht. 255 and 256.



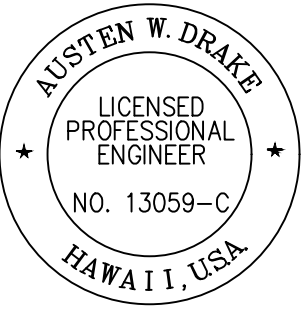
Project # Sta. 32+50 to Sta. 34+50

OFFSITE SWALE SECTION
Not to Scale

LEGEND FOR
AS-BUILT POSTINGS

- ~~~~~ Squiggly line for as-built deletion
~~100.00~~ Double line for as-built deletion
Roadway Text for as-built posting

4/20/18	5	Added sheet; Added offsite swale and drywells
DATE	REVISION	



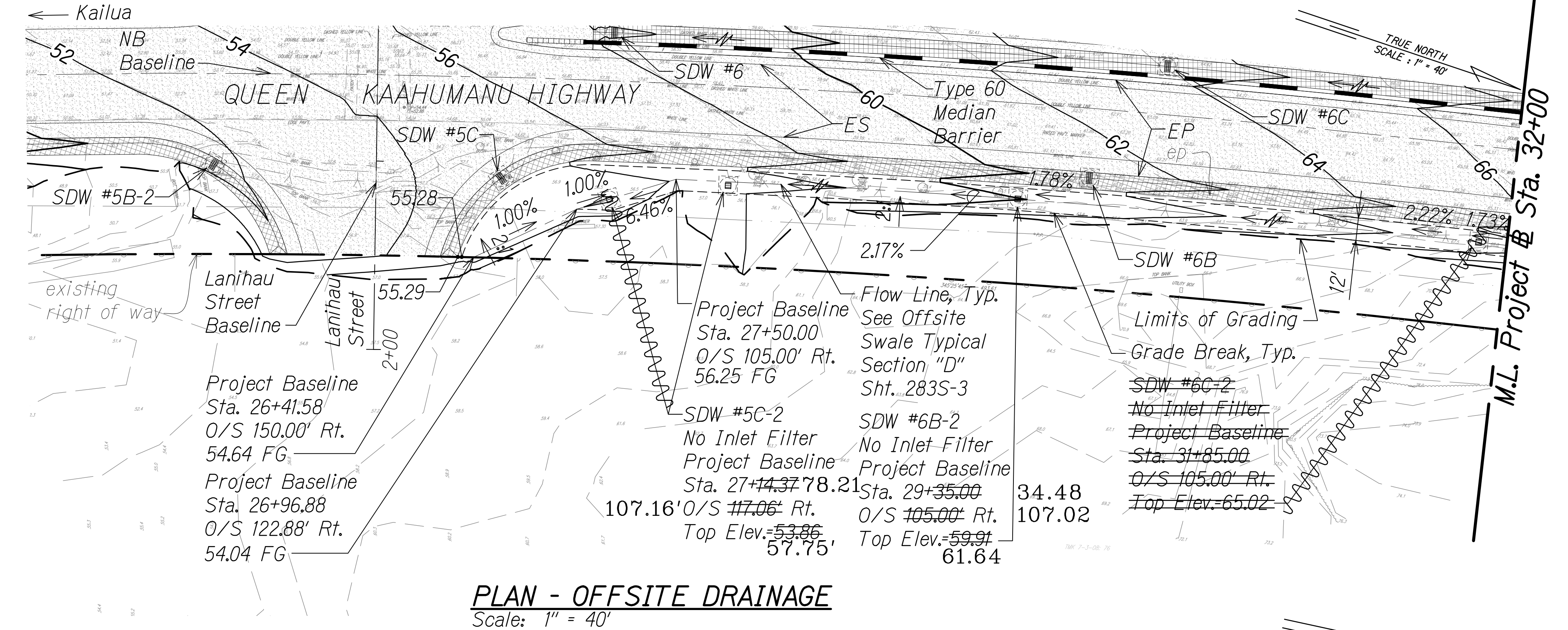
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

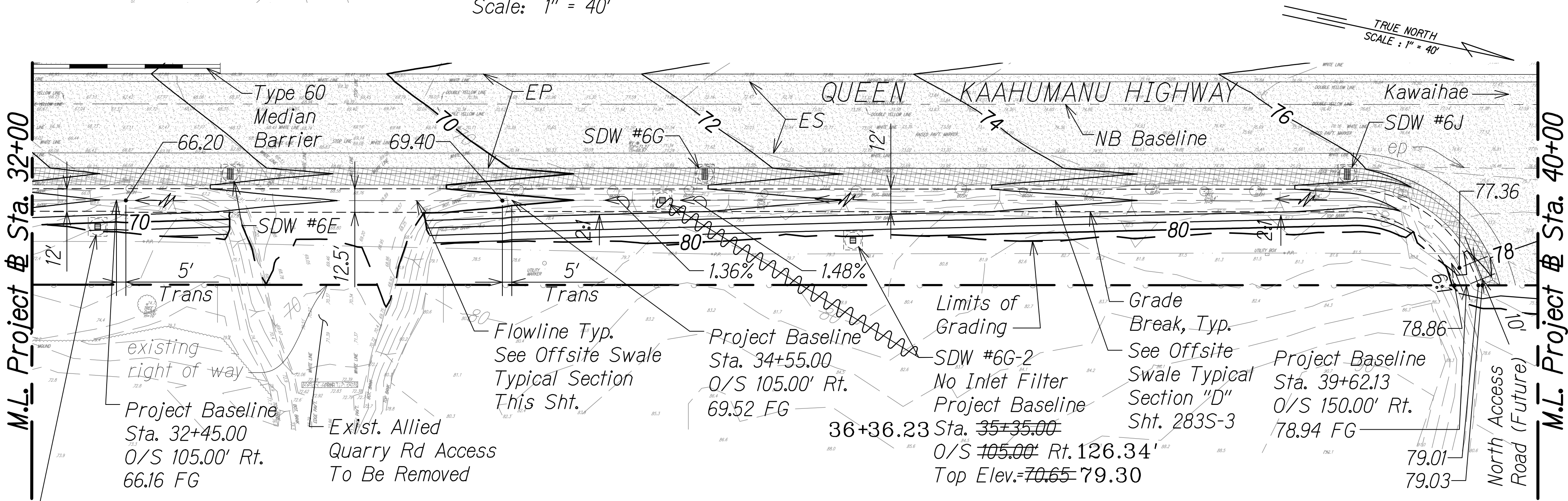
GRADING AND DRAINAGE PLAN

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: DECEMBER 2016

SHEET No. 35A OF 38 SHEETS



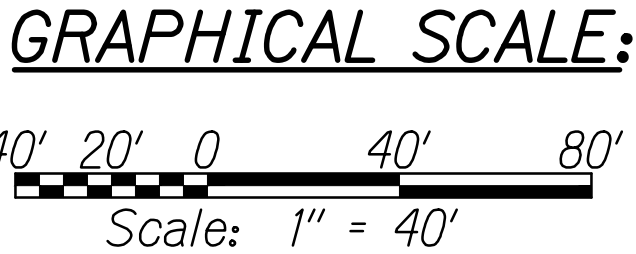
PLAN - OFFSITE DRAINAGE
Scale: 1" = 40'



PLAN - OFFSITE DRAINAGE
Scale: 1" = 40'

LEGEND:

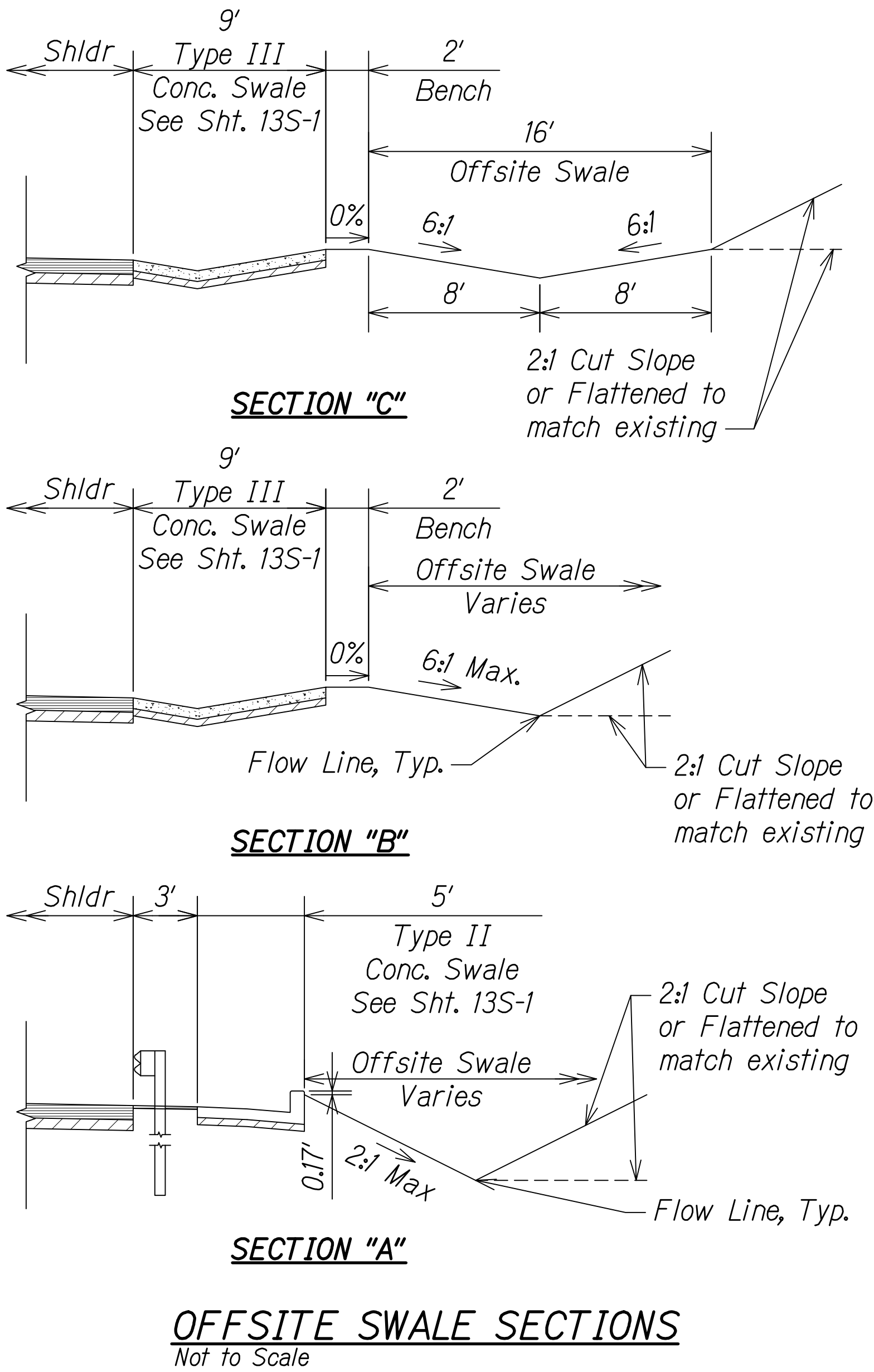
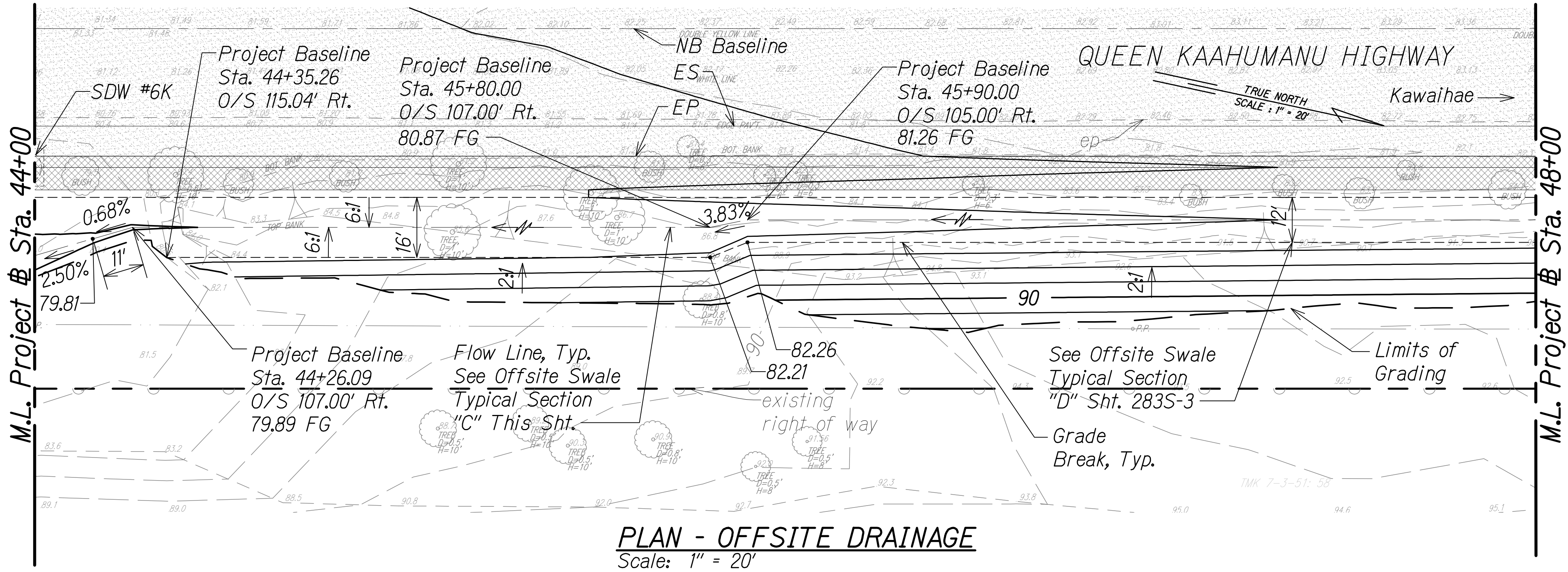
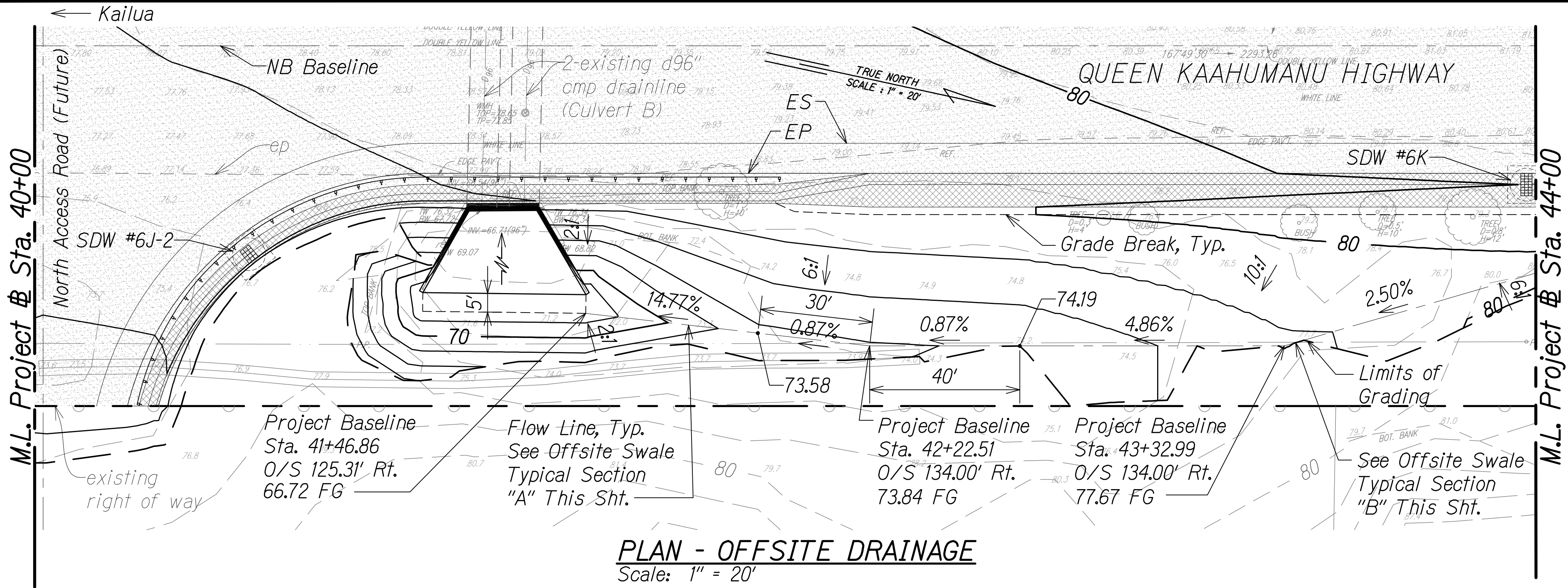
- 50— Finish Grade
—50— existing ground
— Limits of Grading
existing spot elevation
Direction of Flow
- Median Barrier
Universal TAU-II End Barrier
Treatment QuadGuard HS System
Shallow Drywell (Type 61616P)
Shallow Drywell



"AS-BUILT"

C.O. 283S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 283S-2	528

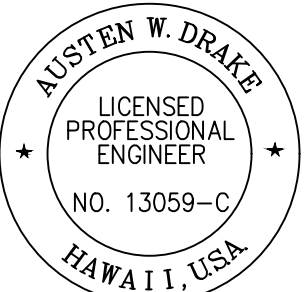
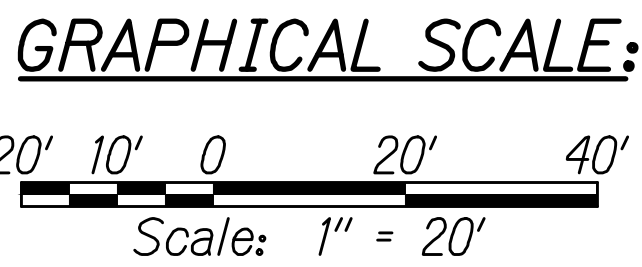


NOTES:

- For onsite grading and drainage, see Sht. 257.

LEGEND:

—50—	Finish Grade		Shallow Drywell (Type 61616P)
—50—	existing ground		Shallow Drywell (Mod. Type 1211214P)
---	Limits of Grading		AC Pav't
---	existing spot elevation		Conc. Swale
---	Direction of Flow		Grade Break

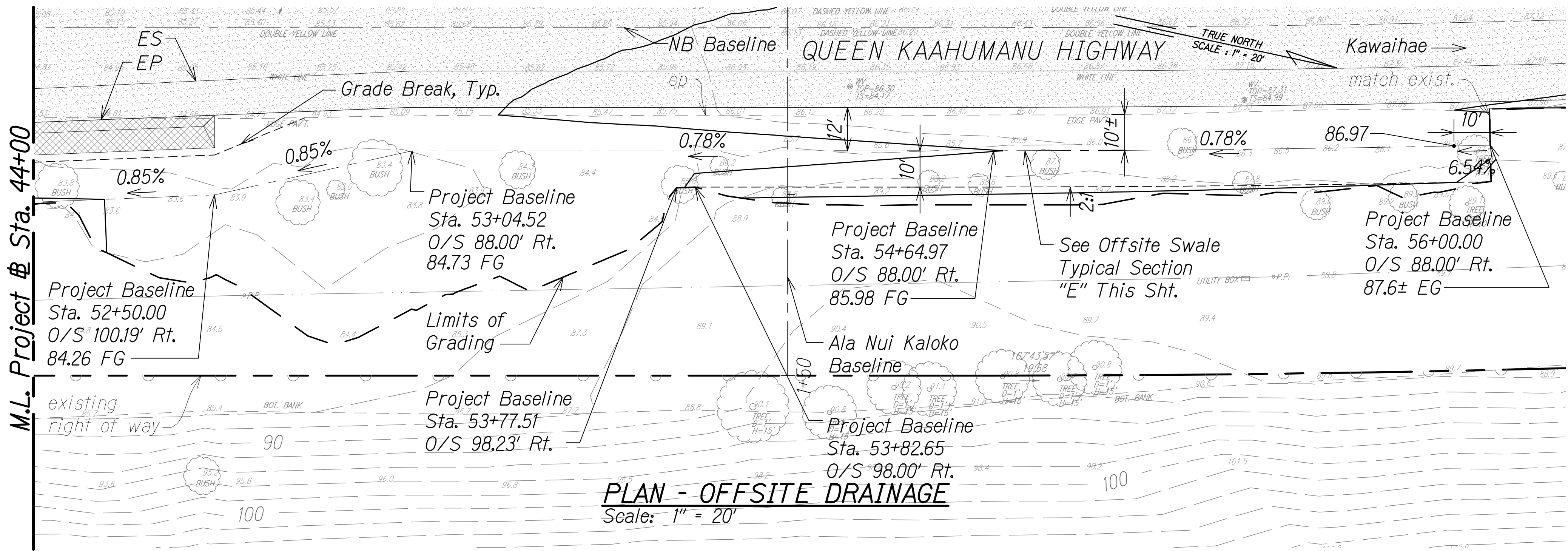
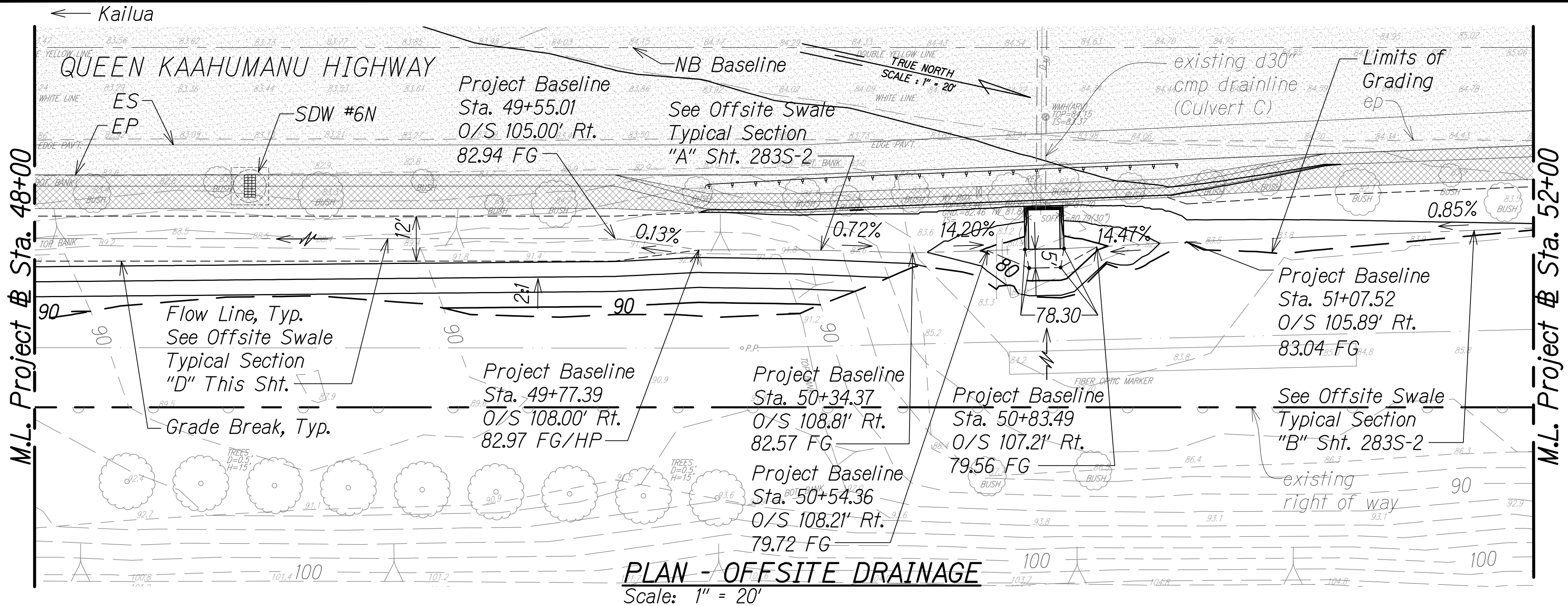
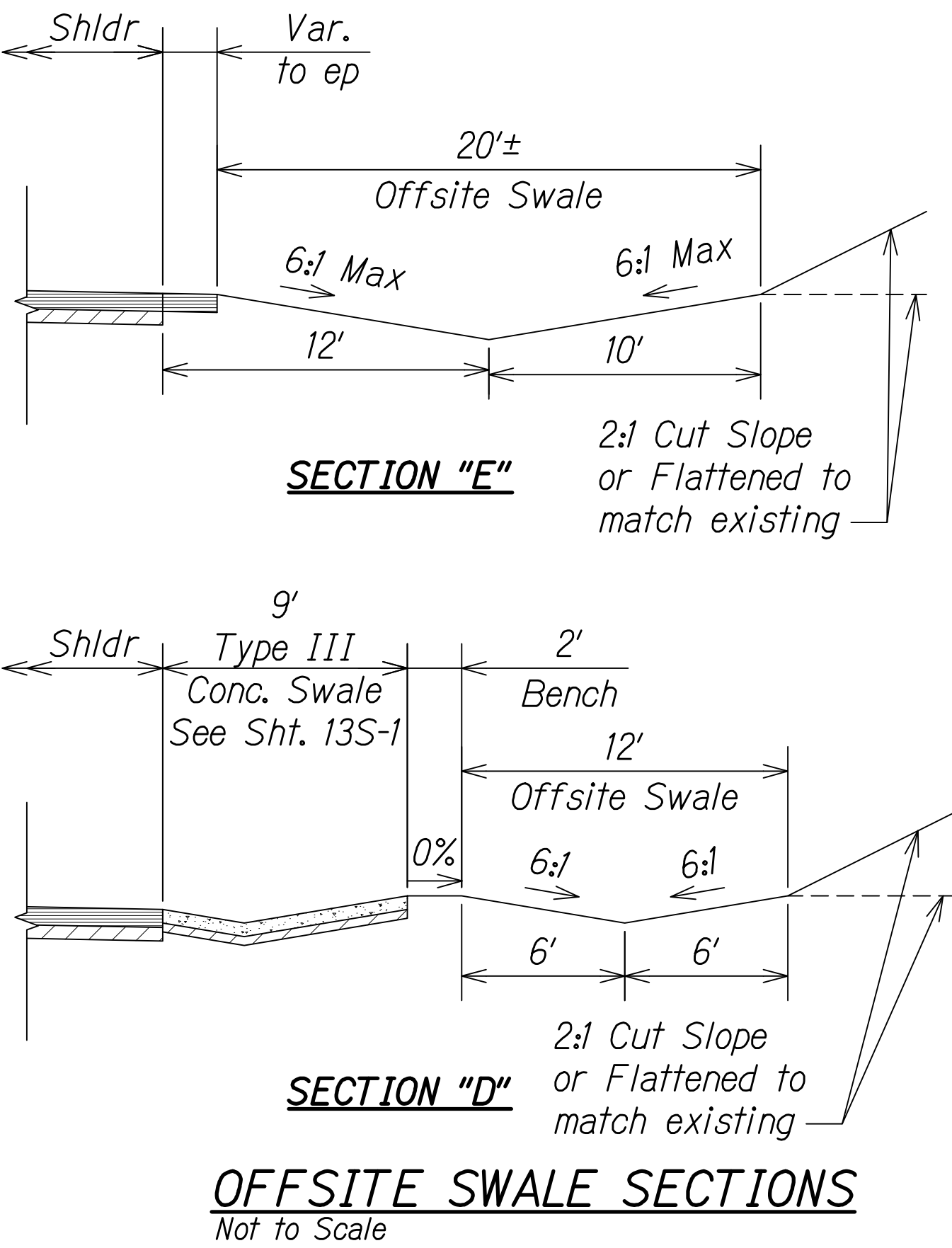


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WILL BE UNDER MY OBSERVATION.
Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE
OF THE LICENSE

4/20/18	5	Added sheet; Added offsite swale
DATE	REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
<u>GRADING AND</u> <u>DRAINAGE PLAN</u>		
QUEEN KAAHUMANU HIGHWAY WIDENING Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)		
Federal Aid Project No. NH-019-1(38)R		
Scale: AS NOTED		Date: DECEMBER 2016
SHEET No. 35B OF 38 SHEETS		

C.O. 283S-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 283S-3	528



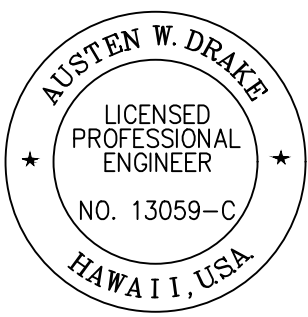
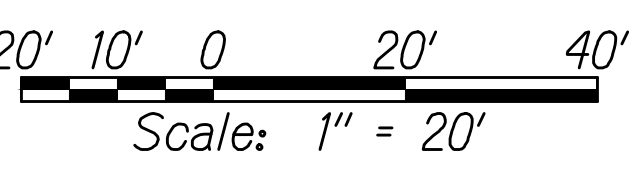
NOTES:

- For onsite grading and drainage, see Sht. 258.

LEGEND:

- 50— Finish Grade
- 50— existing ground
- Limits of Grading
- existing spot elevation
- Direction of Flow
- Shallow Drywell (Type 61616P)
- AC Pav't
- Conc. Swale
- Grade Break

GRAPHICAL SCALE:

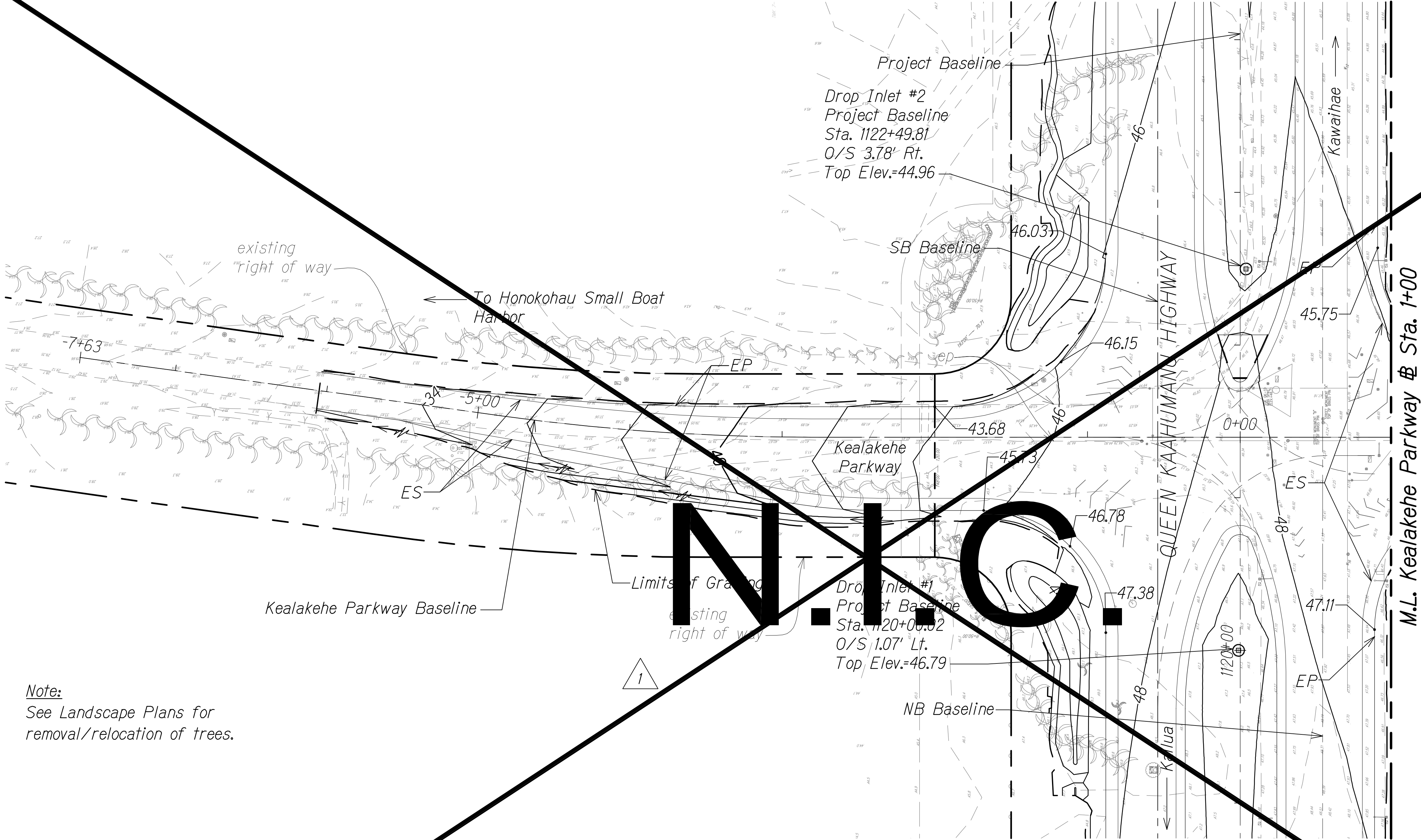


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Austen W. Drake
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

4/20/18	5	Added sheet; Added offsite swale
DATE	REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
<u>GRADING AND</u> <u>DRAINAGE PLAN</u>		
QUEEN KAAHUMANU HIGHWAY WIDENING Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)		
<u>Federal Aid Project No. NH-019-1(38)R</u>		
Scale: AS NOTED		Date: DECEMBER 2016
SHEET No. 35C OF 38 SHEETS		

C.O. 283S-3

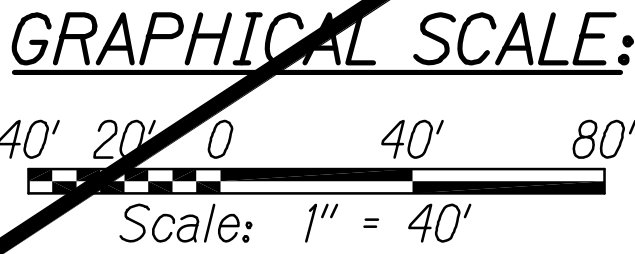
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 284	528



Note:
See Landscape Plans for
removal/relocation of trees.

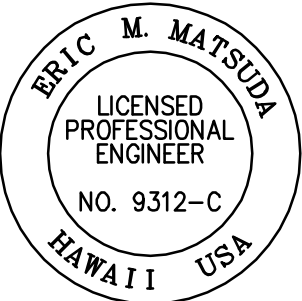
PLAN
Scale: 1" = 40'

- LEGEND:**
- 50— Finish Grade
 - -50- - existing ground
 - - - Limits of Grading
 - ⊙ existing spot elevation
 - ⊙ Drop Inlet



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

W:_L CIVIL 3D PROJECTS\2008_003_001 GBI QUEEN K HWY WIDENING\GRADING PLAN 36 - 40.DWG 6/1/2012 5:35 PM



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CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Eric M. Matsuda
SIGNATURE

APRIL 30, 2014
EXPIRATION DATE
OF THE LICENSE

1/22/16	1 Sheet Deleted
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
GRADING AND DRAINAGE PLAN	
QUEEN KAAHUMANU HIGHWAY WIDENING Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)	
Federal Aid Project No. NH-019-1(38)R	
Scale: AS NOTED	Date: MAY 2012
SHEET No. 36 OF 38 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-K(38)R	2016	C.O. 285	528

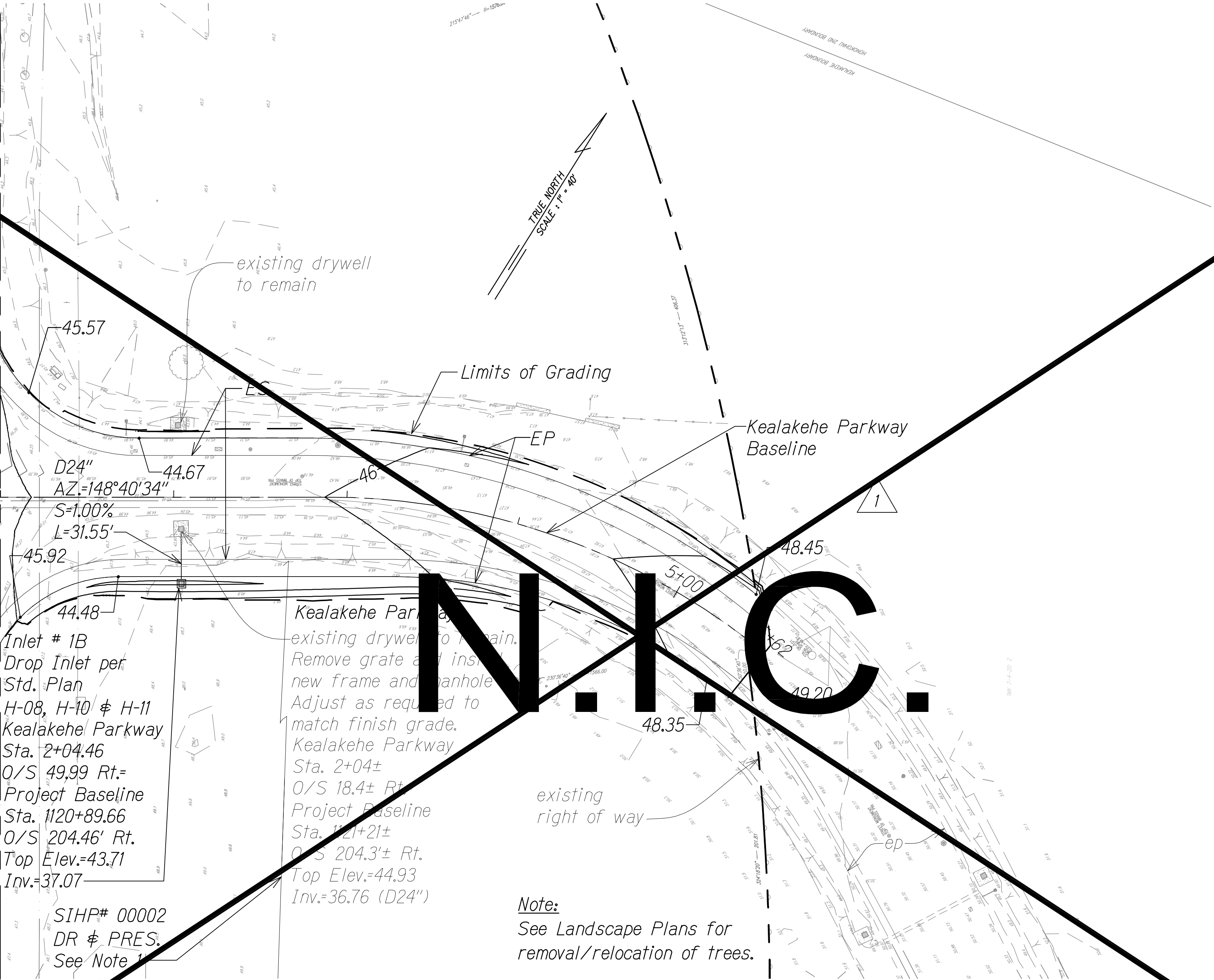
NOTE:

1. The mitigation recommendations for the archaeological sites located within the project limits are currently under review by the State Historic Preservation Division and pending final approval. Upon receipt of approval, the recommended treatments will be incorporated into the affected construction plans and submitted to HDOT for review and approval.

ORIGINAL PLAN	DESIGNED BY	DATE
NOTE BOOK	DESIGNED BY	
No.	CHECKED BY	

W:_CIVIL_3D_PROJECTS\2008_003_001_GBI_QUEEN_K_HWY_WIDENING\GRADING PLAN_36 - 40.DWG 10/8/2012 1:19 PM

M.L. Kealakehe Parkway @ Sta. 1+00



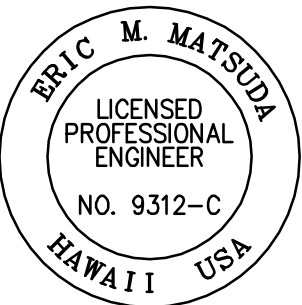
Note:
See Landscape Plans for
removal/relocation of trees.

PLAN
Scale: 1" = 40'

LEGEND:

- 50— Finish Grade
- -50- - existing ground
- - - Limits of Grading
- ⊙ existing spot elevation
- ⊙ Drop Inlet

GRAPHICAL SCALE:
40' 20' 0 40' 80'
Scale: 1" = 40'



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

SIGNATURE

APRIL 30, 2014
EXPIRATION DATE
OF THE LICENSE

1/22/16	1 Sheet Deleted
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION GRADING AND DRAINAGE PLAN QUEEN KAAHUMANU HIGHWAY WIDENING Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2) Federal Aid Project No. NH-019-K(38)R Scale: AS NOTED Date: MAY 2012	
SHEET No. 37 OF 38 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-K(38)R	2016	C.O. 286	528

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SIHP# 10714

DATA RECOVERY & PRESERVATION
See Note 1

Drop Inlet #8
Project Baseline
Sta. 71+25.40
O/S 16.01' Rt.
Top Elev.=90.11

SB Baseline

existing
right of way

existing
right of way
NB Baseline

Inlet #8B
Drop Inlet per
Std. Plan
H-08, H-10 & H-11
Hina Lani Street
Sta. 1+94.26
O/S -39.02 Lt.=
Project Baseline
Sta. 70+25.28
O/S 193.41' Rt.
Top Elev.=94.21
Inv.=89.14

existing drywell to remain.
Remove grate and install
new frame and manhole cover.
Adjust as required to
match finish grade.
Hina Lani Street
Sta. 1+92±
O/S -29.2± Lt.=
Project Baseline
Sta. 70+16±
O/S 190.9± Rt.
Top Elev.=94.40
Inv.=88.93 (D24")

existing
right of way

Hina Lani Street
Baseline

Limits of Grading

Hina Lani Street

105.71

105.97

5+00 5+24

106.00

Kanalani Street

Relocate existing
street lights
See Electrical Plans

existing drywell to remain.
Remove grate and install
new frame and manhole cover.
Adjust as required to
match finish grade.
Hina Lani Street
Sta. 1+93±
O/S 22.5± Rt.=
Project Baseline
Sta. 69+66±
O/S 193.1± Rt.
Top Elev.=94.50
Inv.=89.10 (D24")

Inlet #7B
Drop Inlet per
Std. Plan
H-08, H-10 & H-11
Hina Lani Street
Sta. 1+93.78
O/S 30.81 Rt.=
Project Baseline
Sta. 69+57.66
O/S 194.52' Rt.
Top Elev.=94.34
Inv.=89.27

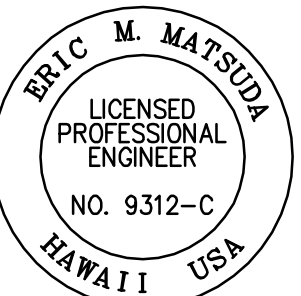
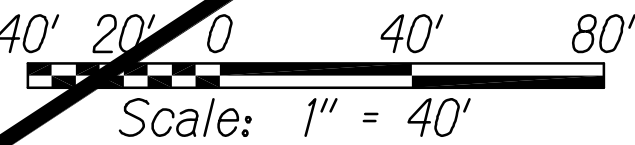
LEGEND:

- 50— Finish Grade
- 50— existing ground
- Limits of Grading
- existing spot elevation
- ⊕ Drop Inlet

PLAN

Scale: 1" = 40'

GRAPHICAL SCALE:



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SHEET No. 38 OF 38 SHEETS	