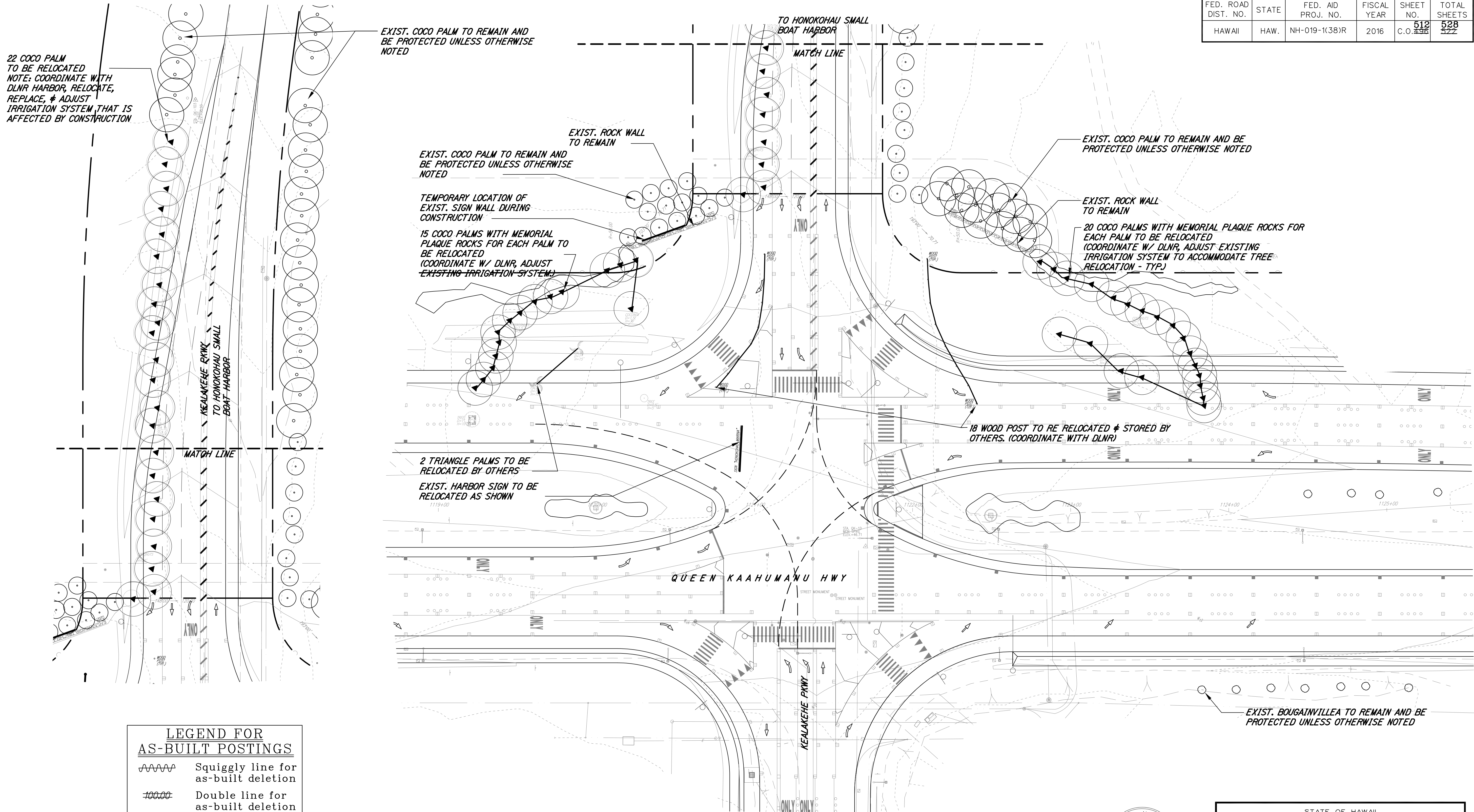


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	512 C.O. 496	528 522



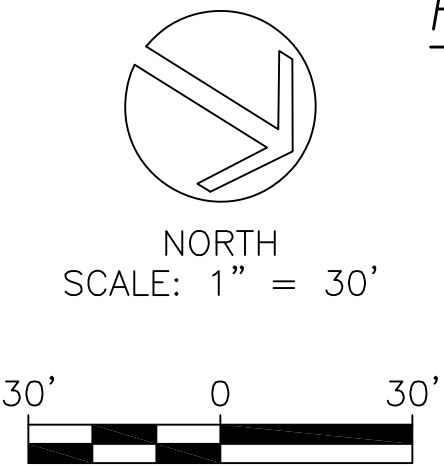
**LEGEND FOR AS-BUILT POSTINGS**

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Roadway Text for as-built posting

NOTE: BEFORE ANY REMOVAL/RELOCATION OF COCO PALMS, POSTS, OR SIGNAGE WORK, COORDINATE WITH STATE DLNR, HAWAII DISTRICT MANAGER, NANCY MURPHY AT (808) 327-3690 TO SCHEDULE AND COORDINATE WORK.



TREE DISPOSITION PLAN AT HONOKOHAU SMALL BOAT HARBOR ENTRY  
SCALE: 1" = 30'



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

DATE: 01/22/16  
SIGNATURE: [Signature]  
EXPIRATION DATE OF THE LICENSE: APRIL 30, 2018

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TREE DISPOSITION PLAN AT HONOKOHAU SMALL BOAT HARBOR ENTRY**

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: AUGUST 2016

SHEET No. 1 OF 13 SHEETS

|               |      |
|---------------|------|
| DESIGNED BY   | DATE |
| TRACED BY     |      |
| DESIGNED BY   |      |
| QUANTITIES BY |      |
| CHECKED BY    |      |
| ORIGINAL PLAN |      |
| NOTE BOOK     |      |
| No.           |      |

"AS-BUILT"

1/31/2012 10:25 AM

C.O. 496-512

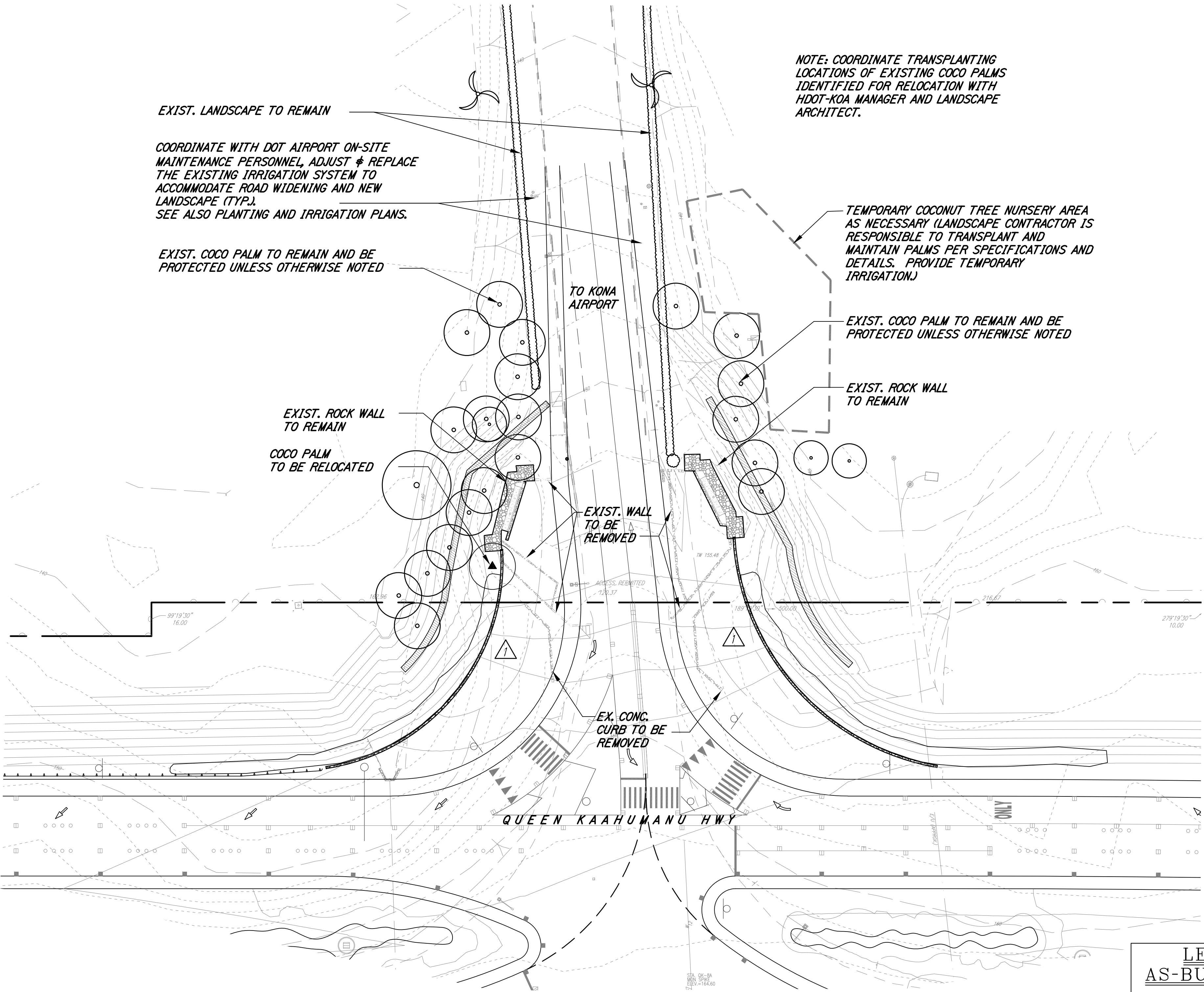
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 513<br>C.O. 497 | 528<br>522   |

TREE PROTECTION NOTES:

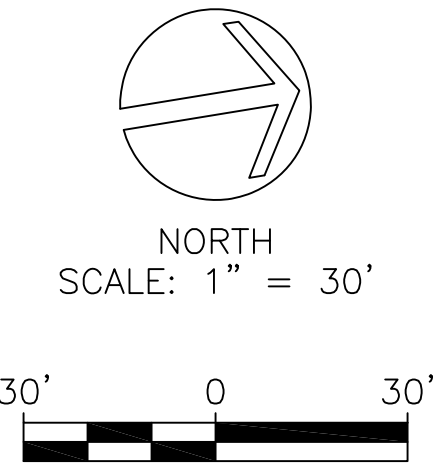
1. AVOID ANY TRENCHING OR EARTHWORK UNDER CANOPY LINE OF TREE OR W/IN 6 FEET FROM TRUNK OF PALM TREE. WHERE CONSTRUCTION IS REQUIRED W/IN SUCH AREAS, EXERCISE CAUTION AND AVOID ROOT DAMAGE.
2. ALL TREE PRUNING WORK SHALL BE PERFORMED BY OR UNDER DIRECT SUPERVISION OF AN ARBORIST, CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) AT THE PROJECT SITE. THE ARBORIST MUST BE AN INDEPENDANT CONSULTING ARBORIST WITH AT LEAST 10 YEARS OF TREE WORK FIELD EXPERIENCE. THE ARBORIST SHALL NOT BE AN EMPLOYEE OF THE LANDSCAPE SUB-CONTRACTOR OR THE GENERAL CONTRACTOR. THE CONTRACTOR SHALL SUBMIT TO DOT FOR APPROVAL, THE ARBORIST'S QUALIFICATIONS INCLUDING PROOF OF ISA CERTIFICATION AND RESUME.
3. AT THE START OF THE PROJECT THE CONTRACTOR SHALL MEET WITH THE ARBORIST AT THE SITE AND REVIEW THE WORK PROCEDURES.
4. CONTRACTOR SHALL NOTIFY DOT SEVEN DAYS PRIOR TO PERFORMING WORK ON ANY TREE.
5. CONTRACTOR SHALL ERECT A TEMPORARY 4' HEIGHT ORANGE PLASTIC SAFETY FENCE WITH METAL STUDDED 'I' FENCE POSTS AT DRIP LINE OF THE TREE OR/AS ESTABLISHED BY THE ARBORIST.
6. CONTRACTOR SHALL NOT STORE OR PARK ANY EQUIPMENT AND/OR VEHICLES UNDER THE DRIP LINE OF EXISTING TREES OR W/IN 6' OF PALM TRUNK. ALSO, DRIVING OVER ROOTS IS PROHIBITED.
7. EXISTING TREES AFFECTED BY NEW CONSTRUCTION SHALL BE SELECTIVELY PRUNED. PRUNING SHALL BE DONE TO RETAIN THE TREE'S NATURAL FORM AND APPEARANCE. TREE TOPPING IS NOT ACCEPTABLE.

TREE RELOCATION NOTES:

1. DURING TREE RELOCATION OPERATION THE CONTRACTOR SHALL RETAIN THE SERVICES OF A CERTIFIED ARBORIST WHO HAS BEEN CERTIFIED FOR AT LEAST 10 YEARS, WITH EXPERIENCE IN TREE PROTECTION AND PRESERVATION PLANNING DURING CONSTRUCTION, TREE AND ROOT PRUNING, AND TRANSPLANTING OF TREES.
2. TREE TO BE RELOCATED SHALL BE PRUNED PRIOR TO PRE-BALLING OPERATIONS FOR RELOCATION IN SUCH A WAY THAT THE NATURAL SHAPE OF THE TREE IS NOT IMPAIRED. PRUNING SHALL BE DONE WITH CLEAN, SHARP TOOLS ACCEPTABLE TO THE CERTIFIED ARBORIST. ALL DEAD AND BROKEN FRONDS SHALL BE REMOVED FROM THE TREE.
3. TREE SHALL BE CAREFULLY BALLED TO A ROOTBALL SIZE THAT INSURES SURVIVAL. THE BALLING TRENCH SHALL BE AT LEAST 18 INCHES WIDE, 42 INCHES DEEP MINIMUM, UNLESS OTHERWISE DETAILED ON PLANS. ALL CUT OR DAMAGED ROOTS SHALL BE TREATED WITH A GROWTH PROMOTING COMPOUND SUCH AS VITAMIN "B" TRANSPLANTING SOLUTION. FINAL UNDERCUTTING SHALL NOT BE DONE UNTIL THE CONTRACTOR CAN CERTIFY THAT THE HOLE TO RECEIVE THE TREE HAS BEEN PREPARED IN ACCORDANCE WITH SPECIFICATIONS AND THAT THE TREE CAN BE MOVED IMMEDIATELY TO THE NEW HOLE. A TREE SPADE MAY DO BALLING.
4. RELOCATED TREE SHALL BE "WALKED" TO NEW LOCATIONS BY THE LIFTING CRANE OR TREE SPADE. TREE SHALL BE PROTECTED AGAINST BRUISES AND BURNS.
5. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR SAFE TRANSPORT OF RELOCATED TREE.
6. TREE SHALL BE PLACED IN PLANT HOLE IN SUCH A WAY AS TO MOST NEARLY APPROACH A NATURAL BALANCE AND APPEARANCE. IMMEDIATELY PRIOR TO PLACING, TREE HOLE SHALL BE FILLED WITH WATER AND PERMITTED TO DRAIN COMPLETELY. TREE SHALL BE SLOWLY LOWERED INTO PLACE TO GUARD AGAINST BREAKING OF EARTH BALL AND OTHER DAMAGE.
7. ALL BACKFILLING SHALL BE DONE AS SPECIFIED ON DETAILS. SUFFICIENT SOIL SHALL BE FIRST PLACED IN THE BOTTOM OF THE HOLE TO ENSURE THAT THE LEVEL OF THE TOP OF THE ROOTBALL SHALL BE FLUSH WITH THE SURROUNDING GRADE. TO REDUCE SETTLING, ALL SOIL SHALL BE FIRMLY TAMPED DURING PLACING. WHEN HALF OF THE BACKFILLING IS COMPLETED, THE HOLE SHALL AGAIN BE FILLED WITH WATER AND PERMITTED TO DRAIN.
8. CARE SHALL BE EXERCISED IN THE PLACING OF BACKFILL TO ENSURE THAT NO AIR POCKETS ARE FORMED. ALL ROOTS DAMAGED DURING MOVING AND PLACING SHALL BE CAREFULLY PRUNED AND TREATED.
9. RELOCATED TREE SHALL BE PLANTED PER PLANS AND SPECIFICATION, AND IMMEDIATELY WATERED FOLLOWING PLANTING OPERATIONS. WATERING INTERVALS SHALL BE A MINIMUM OF 3 TIMES A WEEK THROUGHOUT THE MAINTENANCE PERIOD OR AS DETERMINED BY THE CERTIFIED ARBORIST.
10. ANY TREE(S) THAT DO NOT SURVIVE CONSTRUCTION AND PLANT ESTABLISHMENT PERIOD SHALL BE REPLACED WITH MATERIALS OF SIMILAR TYPE AND HEIGHT.



NOTE: BEFORE ANY REMOVAL AND RELOCATION OF COCO PALMS, GROUNDCOVER, AND IRRIGATION SYSTEM, COORDINATE WITH DOT AIRPORTS, HAWAII DISTRICT ENGINEER, DAVE HEIN AT (808) 987-3191 TO SCHEDULE WORK.



TREE DISPOSITION PLAN AT KONA INTERNATIONAL AIRPORT ENTRY  
SCALE: 1" = 30'

**LEGEND FOR AS-BUILT POSTINGS**

Squiggly line for as-built deletion

Double line for as-built deletion

Roadway Text for as-built posting

JOEL N. KUROKAWA  
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT  
No. 10659  
HAWAII, U.S.A.

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

APRIL 30, 2018  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TREE DISPOSITION PLAN AT KONA INTERNATIONAL AIRPORT**

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

Scale: AS NOTED Date: AUGUST 2016

SHEET No. 2 OF 13 SHEETS

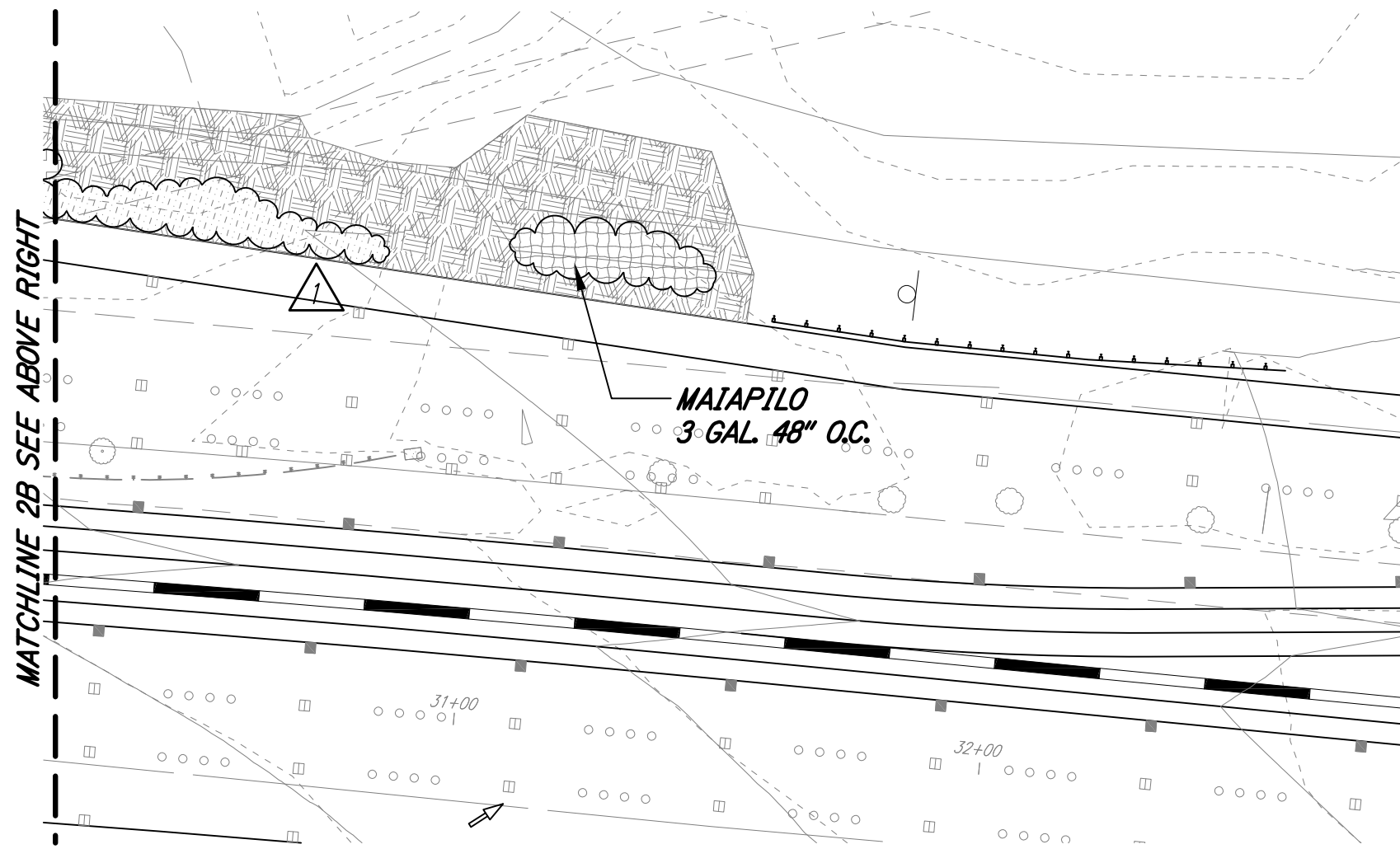
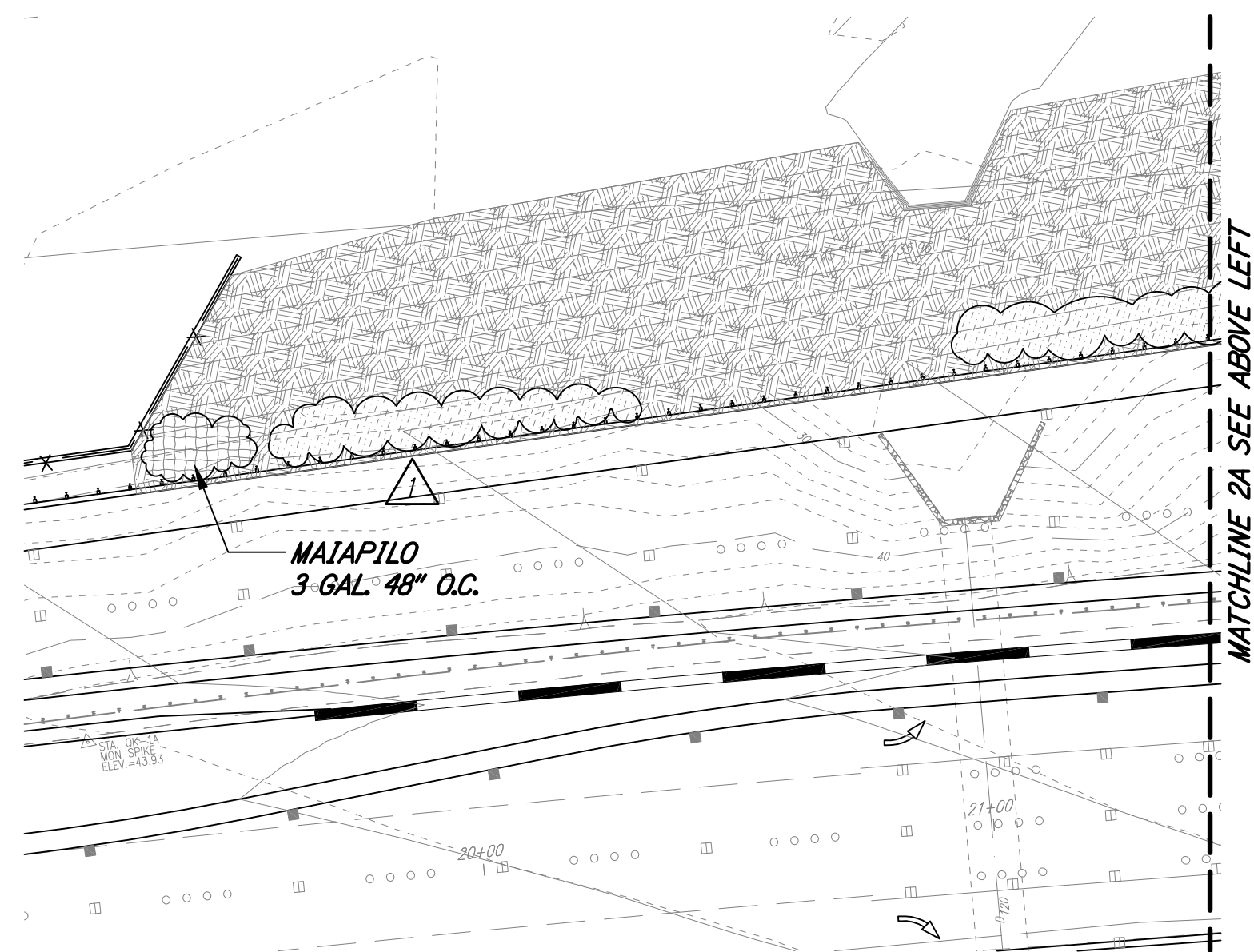
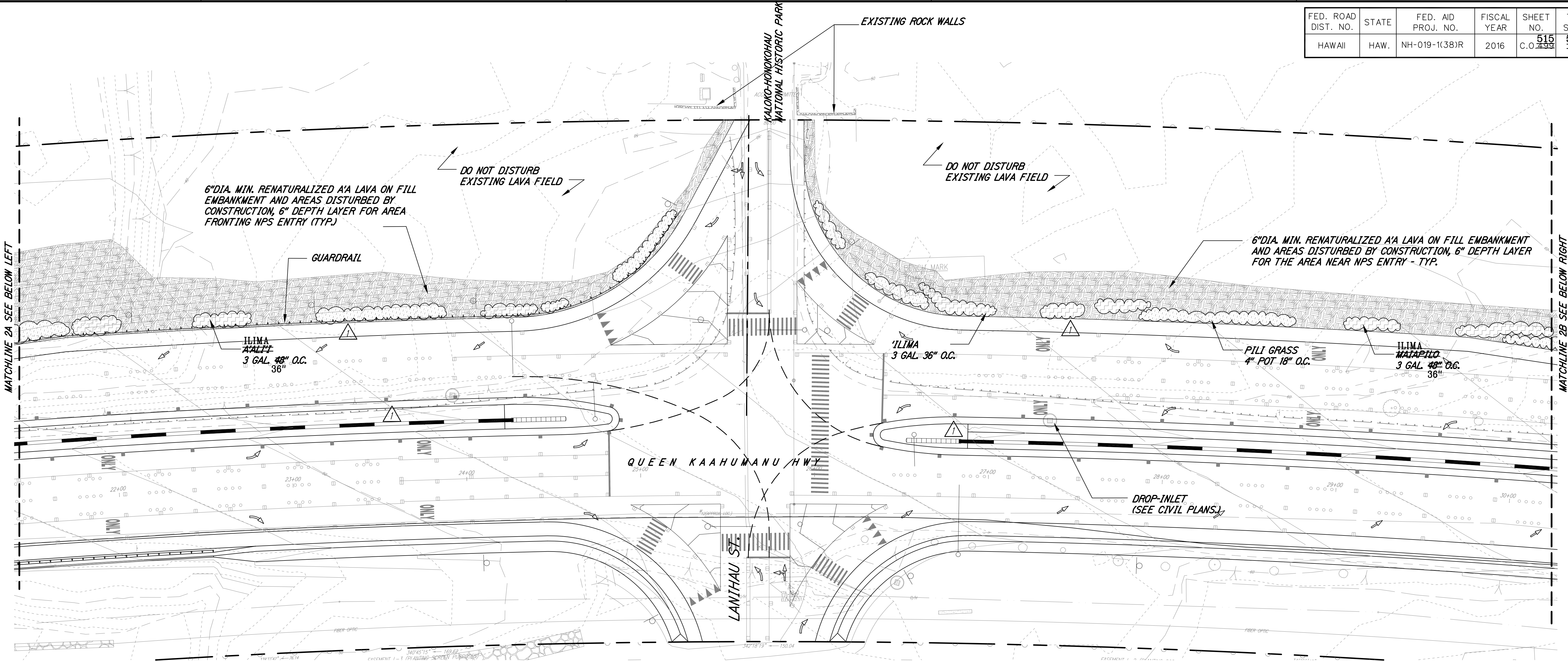
|          |                                                                      |
|----------|----------------------------------------------------------------------|
| 01/22/16 | Updated arborist years of experience<br>Update trees to be relocated |
| DATE     | REVISION                                                             |







| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 515<br>C.O. 499 | 528<br>522   |



PLANTING PLAN - 2b  
SCALE: 1" = 30'

PLANT SCHEDULE LANIHAI ST.

| SHRUB AREAS   | QTY                 | COMMON NAME | BOTANICAL NAME        | CONT      | SPACING  |
|---------------|---------------------|-------------|-----------------------|-----------|----------|
|               | 43 EA               | MAIAPILLO   | CAPPARIS SANDWICHIANA | 3 GAL     | 48" o.c. |
|               | 70 EA               | MAIAPILLO   | DICODONAEA VISCOSA    | 3 GAL     | 48" o.c. |
|               | 253 EA              | 'ILIMA      | SIDA FALLAX           | 3 GAL     | 36" o.c. |
| GROUND COVERS | QTY                 | COMMON NAME | BOTANICAL NAME        | CONT      | SPACING  |
|               | 27,279 SF           |             | RENATURALIZED AA LAVA | PER PLAN. |          |
|               | 3,944 SF<br>1735 EA | PILI GRASS  | HETEROPOGON CONTORTUS | 4"POT     | 18" o.c. |

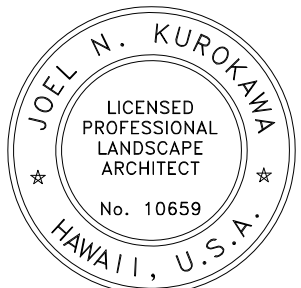
LEGEND FOR AS-BUILT POSTINGS

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Text for as-built posting

NORTH  
SCALE: 1" = 30'



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APRIL 30, 2018  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

PLANTING PLAN - 2

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: AUGUST 2016

SHEET No. 4 OF 13 SHEETS

|               |      |
|---------------|------|
| DESIGNED BY   | DATE |
| CHECKED BY    |      |
| NOTED BY      |      |
| ORIGINAL PLAN |      |
| NOTE BOOK     |      |
| QUANTITIES BY |      |
| CHECKED BY    |      |

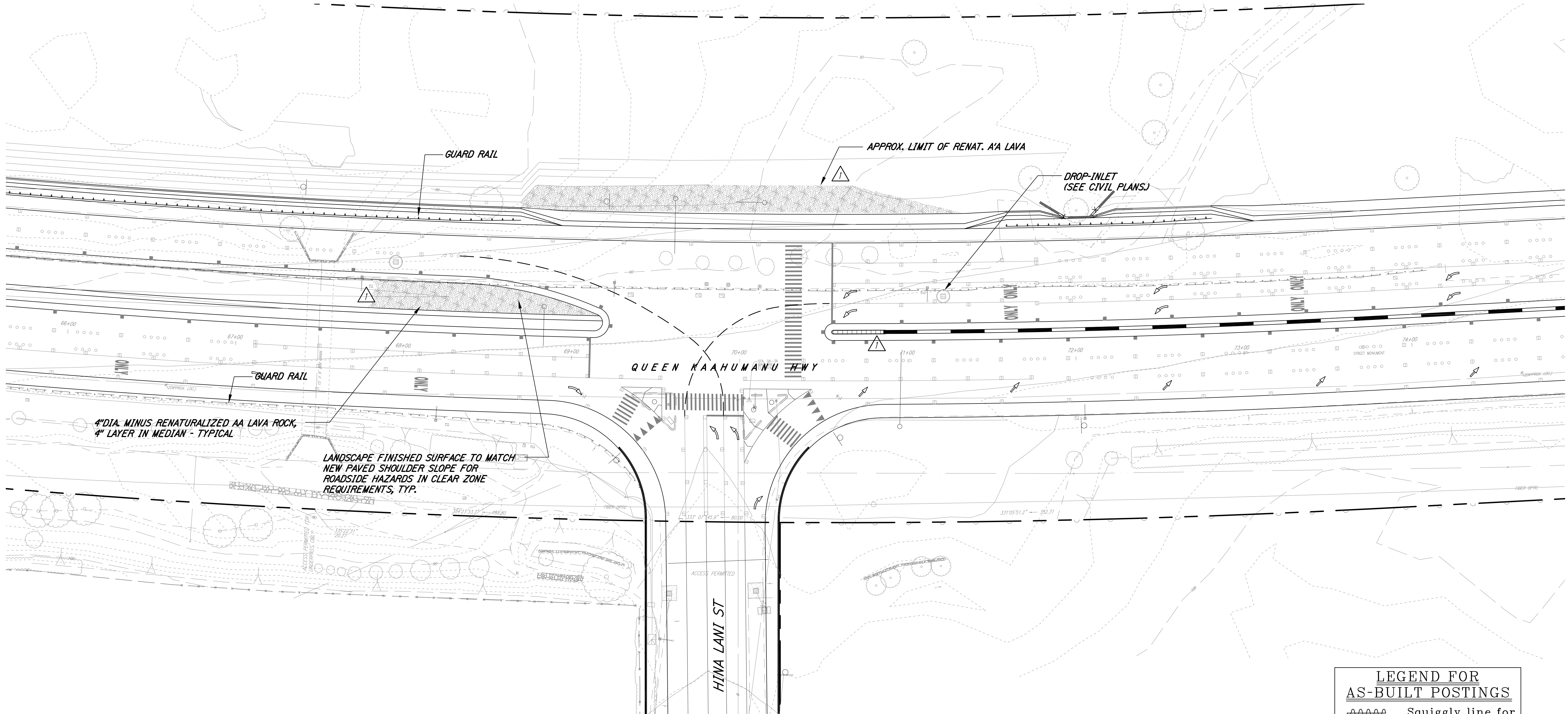
|          |                                                                                                       |
|----------|-------------------------------------------------------------------------------------------------------|
| 01/22/16 | Plantings added to street shoulder. Removed landscape in median due to decreased width from redesign. |
| DATE     | REVISION                                                                                              |

"AS-BUILT"

1/31/2012 10:25 AM

C.O. 499-515

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 516<br>C.O. 500 | 528<br>522   |



| LEGEND FOR AS-BUILT POSTINGS |                                     |
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| Roadway                      | Text for as-built posting           |



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SIGNATURE: *Joel N. Kurokawa* APRIL 30, 2018 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

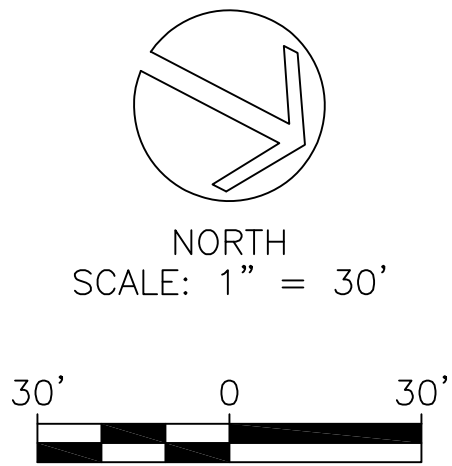
**PLANTING PLAN - 3**

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: AUGUST 2016

SHEET No. 5 OF 13 SHEETS

|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DESIGNED BY   |      |
| NOTED BY      |      |
| CHECKED BY    |      |



PLANTING PLAN - 3  
SCALE: 1" = 30'

|          |                                                                                                                 |
|----------|-----------------------------------------------------------------------------------------------------------------|
| 01/22/16 | Revised landscaping at makai edge (trees to renat lava) and median due to decreased median width from redesign. |
| DATE     | REVISION                                                                                                        |

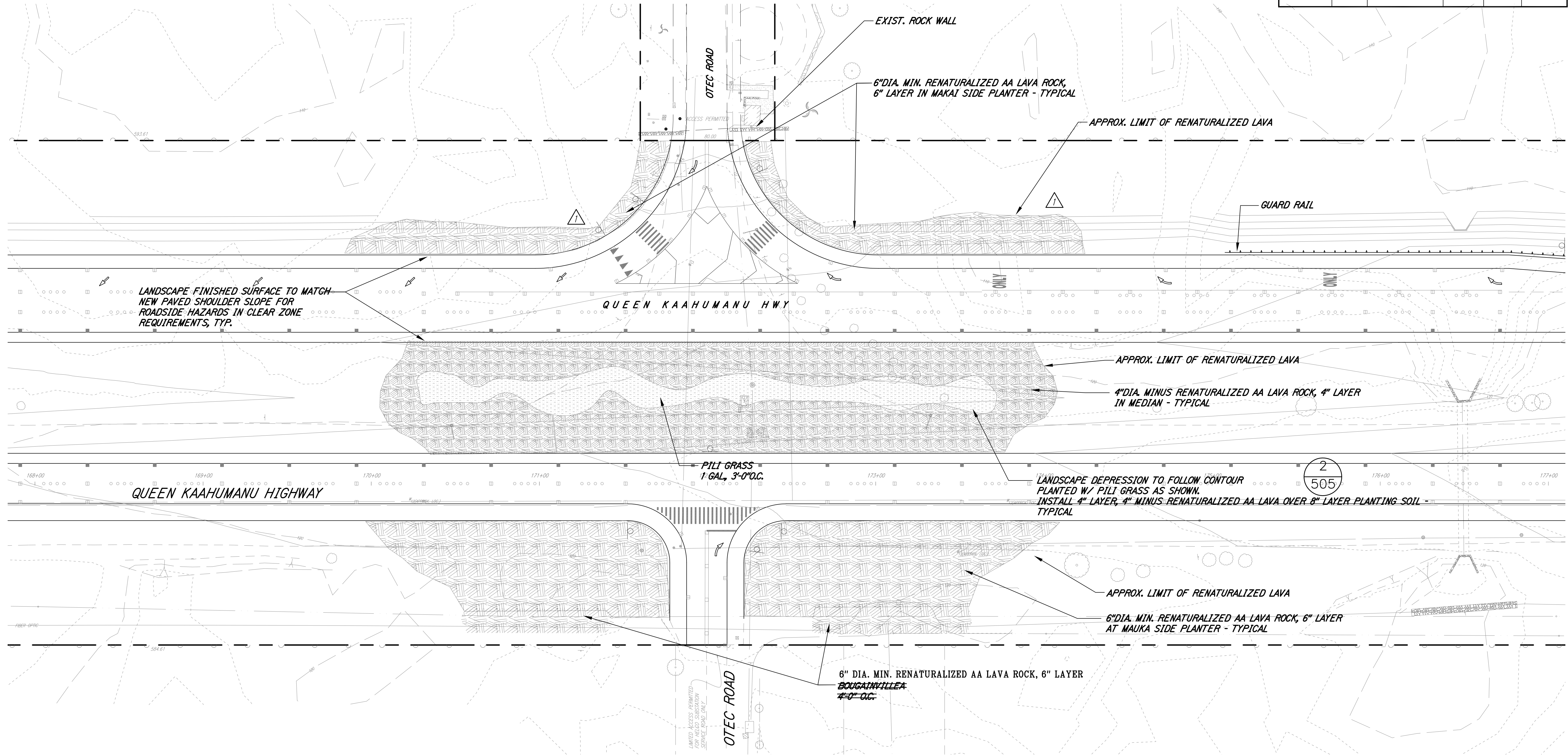
"AS-BUILT"

1/31/2012 10:25 AM

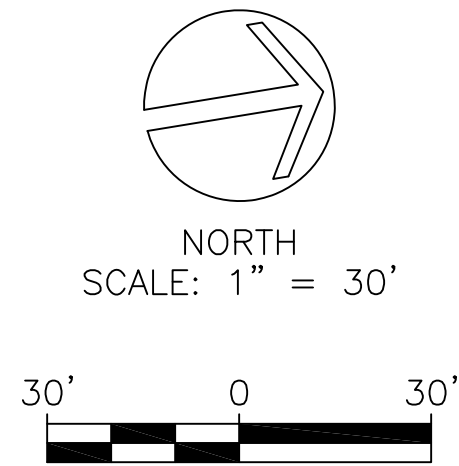
C.O. 500-516



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 517       | 528          |

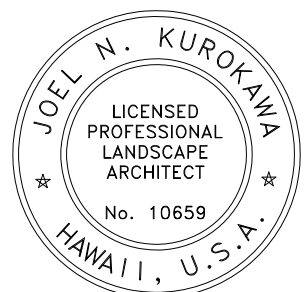


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| DESIGNED BY   | DATE |
| NOTED BY      |      |
| CHECKED BY    |      |
| ORIGINAL PLAN |      |
| NOTE BOOK     |      |
| No.           |      |



PLANTING PLAN - 4  
SCALE: 1" = 30'

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



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SIGNATURE: *[Signature]* APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

|          |                                                    |
|----------|----------------------------------------------------|
| 01/22/16 | Revised a'a lava area to respond to revised grades |
| DATE     | REVISION                                           |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**PLANTING PLAN - 4**

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

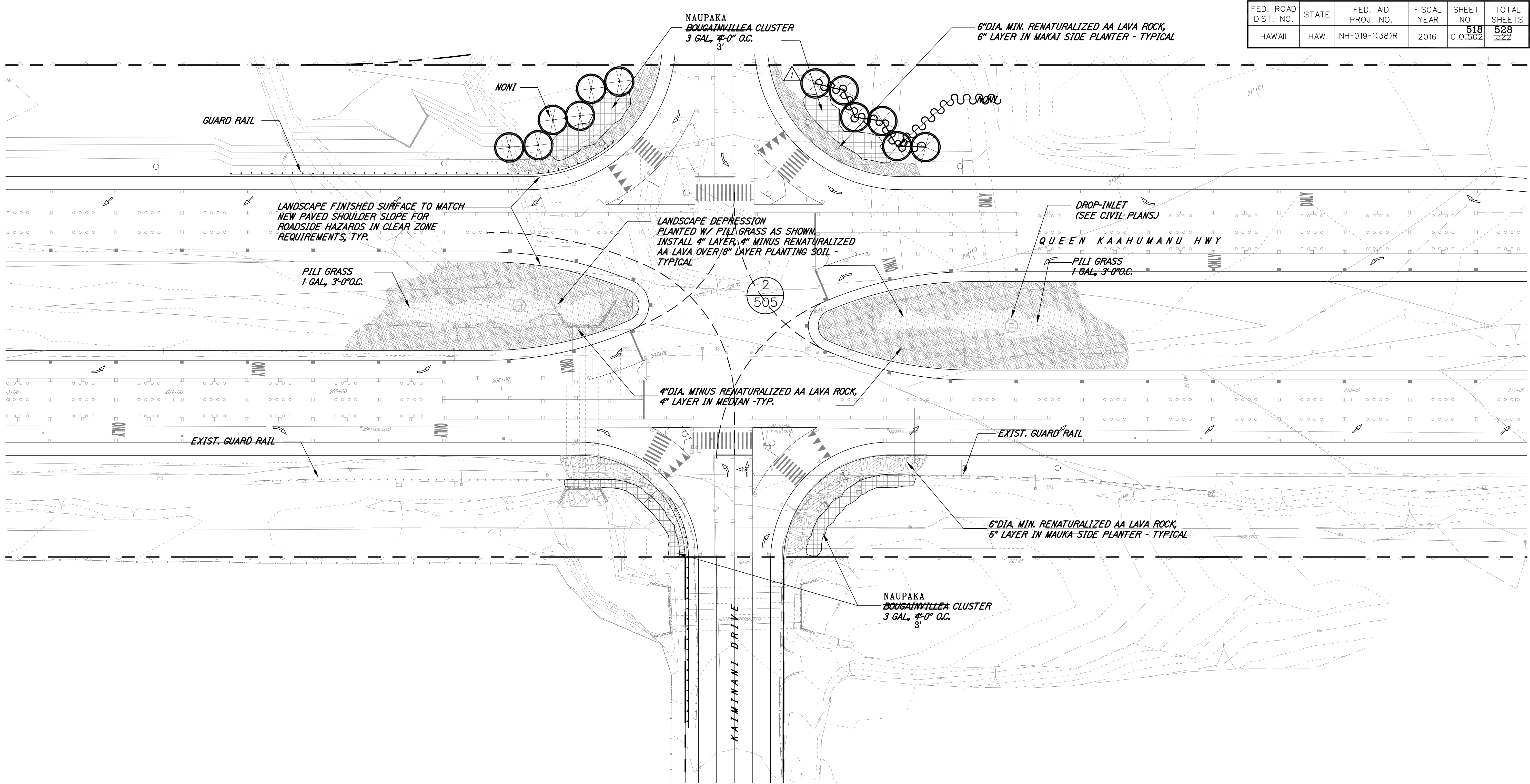
Scale: AS NOTED Date: AUGUST 2016

SHEET No. 6 OF 13 SHEETS

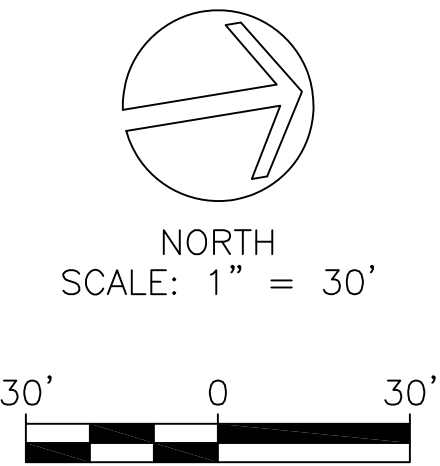
"AS-BUILT"

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| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 518<br>C.O. 502 | 528<br>522   |



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| ORIGINAL PLAN | DESIGNED BY   | DATE |
| NOTE BOOK     | TRACED BY     |      |
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|               | CHECKED BY    |      |



PLANTING PLAN - 5  
SCALE: 1" = 30'

LEGEND FOR AS-BUILT POSTINGS

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Double line for as-built deletion

Text for as-built posting



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*Signature* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE OF THE LICENSE

|         |          |                                                        |
|---------|----------|--------------------------------------------------------|
| 8/24/15 |          | Adjust landscaping to new grades and highway alignment |
| DATE    | REVISION |                                                        |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

PLANTING PLAN - 5

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: AUGUST 2016

SHEET No. 7 OF 13 SHEETS












"AS-BUILT"

1/31/2012 10:25 AM

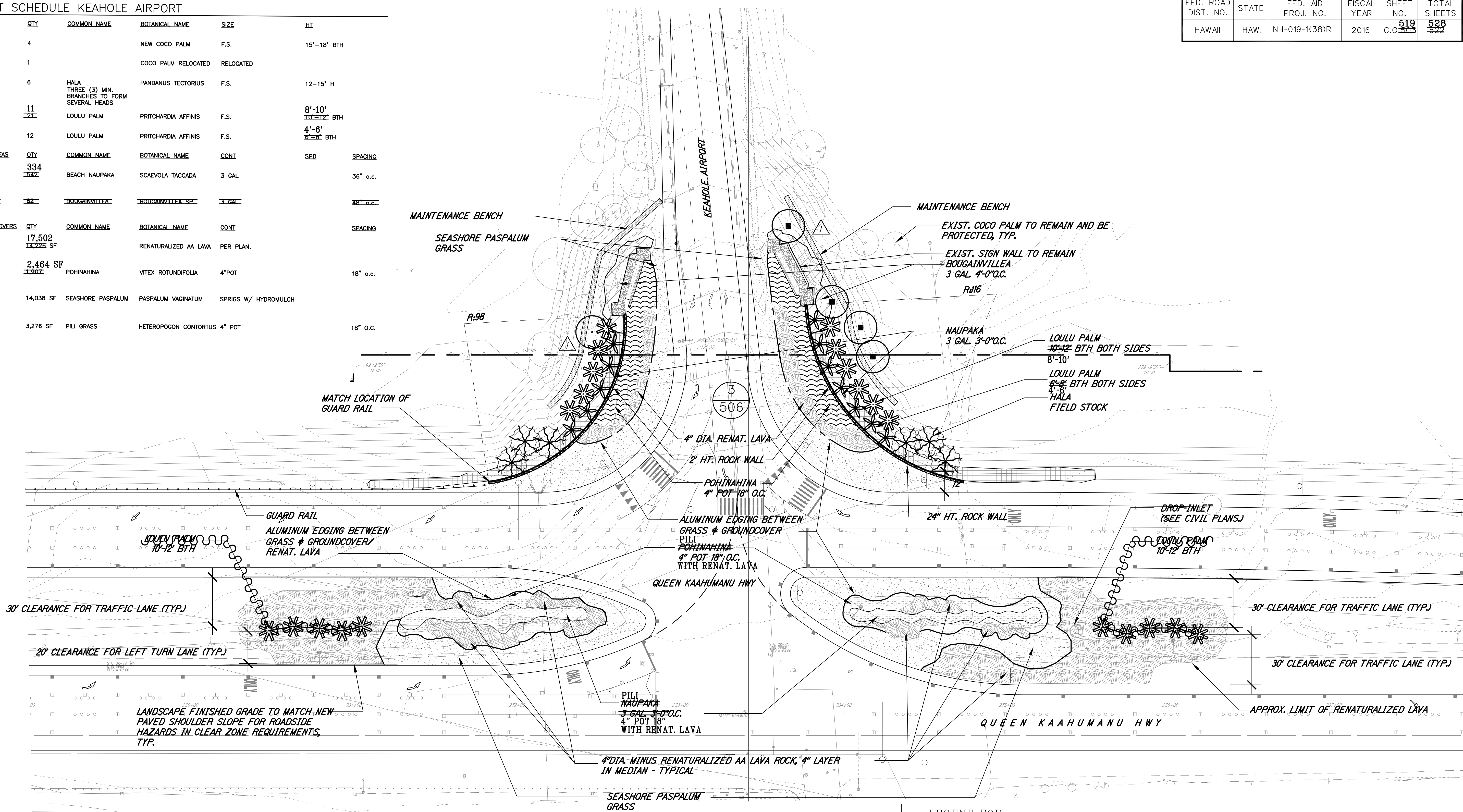
C.O. 502 518



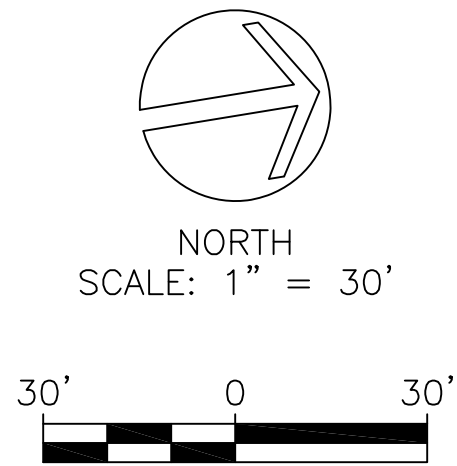
PLANT SCHEDULE KEAHOLE AIRPORT

| TREES                                                                             | QTY                                   | COMMON NAME                                                 | BOTANICAL NAME               | SIZE                 | HT                                      |                     |
|-----------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------------|------------------------------|----------------------|-----------------------------------------|---------------------|
|  | 4                                     |                                                             | NEW COCO PALM                | F.S.                 | 15'-18' BTH                             |                     |
|  | 1                                     |                                                             | COCO PALM RELOCATED          | RELOCATED            |                                         |                     |
|  | 6                                     | HALA<br>THREE (3) MIN.<br>BRANCHES TO FORM<br>SEVERAL HEADS | PANDANUS TECTORIUS           | F.S.                 | 12-15' H                                |                     |
|  | <u>11</u><br><del>21</del>            | LOULU PALM                                                  | PRITCHARDIA AFFINIS          | F.S.                 | <u>8'-10'</u><br><del>10'-12'</del> BTH |                     |
|  | 12                                    | LOULU PALM                                                  | PRITCHARDIA AFFINIS          | F.S.                 | <u>4'-6'</u><br><del>6'-8'</del> BTH    |                     |
| SHRUB AREAS                                                                       | QTY                                   | COMMON NAME                                                 | BOTANICAL NAME               | CONT                 | SPD                                     | SPACING             |
|  | <u>334</u><br><del>352</del>          | BEACH NAUPAKA                                               | SCAEVOLA TACCADA             | 3 GAL                |                                         | 36" o.c.            |
|  | <u>82</u><br><del>102</del>           | <del>BOUGAINVILLEA</del>                                    | <del>BOUGAINVILLEA SP.</del> | <del>3 GAL</del>     |                                         | <del>48" o.c.</del> |
| GROUND COVERS                                                                     | QTY                                   | COMMON NAME                                                 | BOTANICAL NAME               | CONT                 |                                         | SPACING             |
|  | <u>17,502</u><br><del>16,226</del> SF |                                                             | RENATURALIZED AA LAVA        | PER PLAN.            |                                         |                     |
|  | <u>2,464</u> SF<br><del>1,902</del>   | POHINAHINA                                                  | VITEX ROTUNDIFOLIA           | 4" POT               |                                         | 18" o.c.            |
|  | 14,038 SF                             | SEASHORE PASPALUM                                           | PASPALUM VAGINATUM           | SPRIGS W/ HYDROMULCH |                                         |                     |
|  | 3,276 SF                              | PILI GRASS                                                  | HETEROPOGON CONTORTUS        | 4" POT               |                                         | 18" o.c.            |

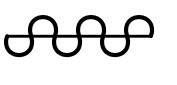


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 519<br>C.O. 503 | 528<br>522   |

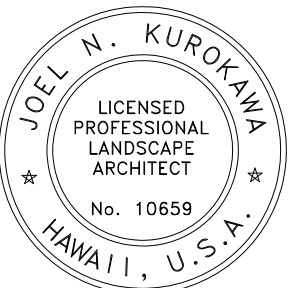


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| TRACED BY     |      |
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| QUANTITIES BY |      |
| CHECKED BY    |      |
| ORIGINAL PLAN |      |
| NOTE BOOK     |      |
| No.           |      |



PLANTING PLAN - 6  
SCALE: 1" = 30'

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



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*Joel M. Kurokawa* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**PLANTING PLAN - 6**

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. 8 OF 13 SHEETS

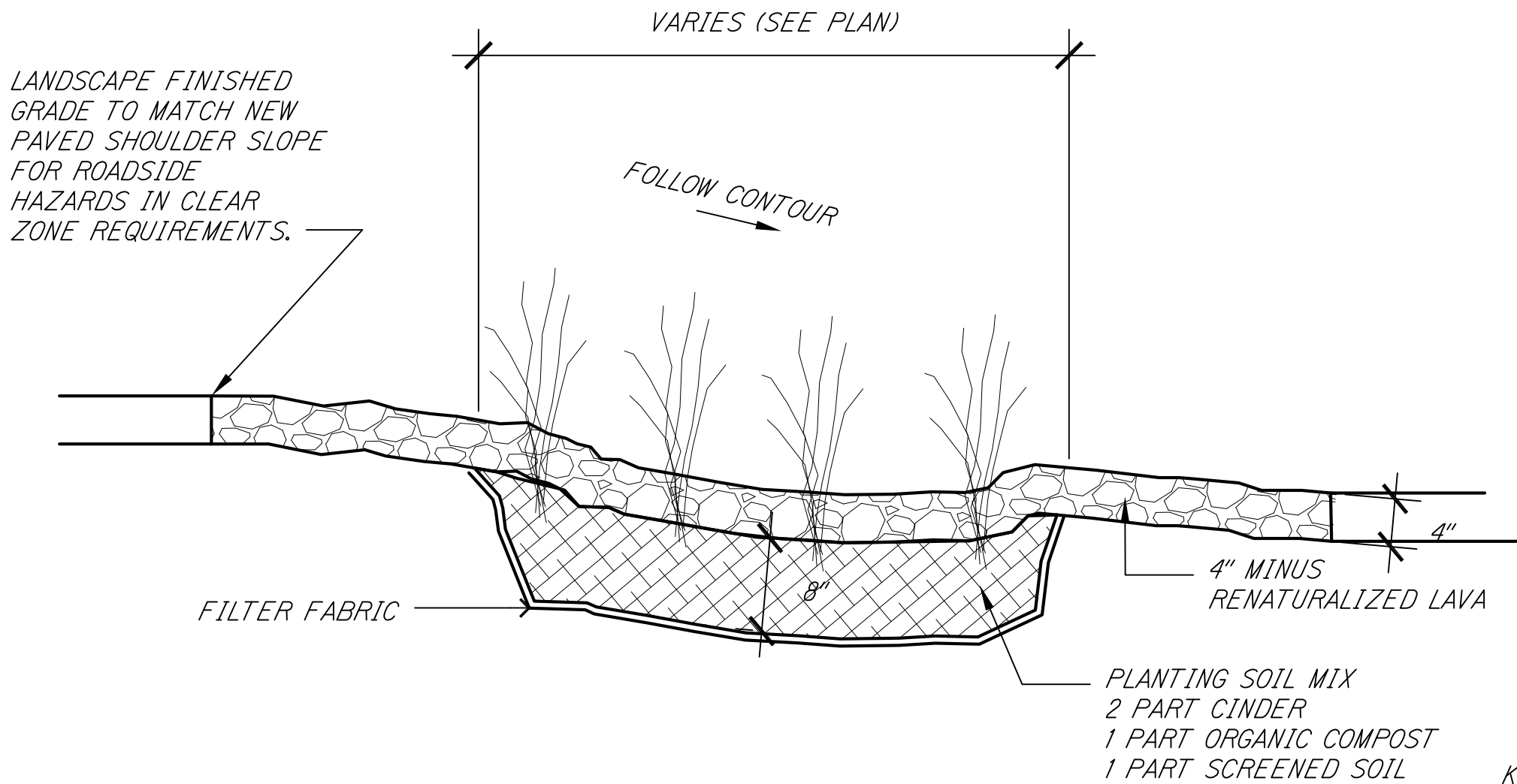
|          |                                                   |
|----------|---------------------------------------------------|
| 01/22/16 | Planting plan adjustments due to field conditions |
| DATE     | REVISION                                          |

"AS-BUILT"

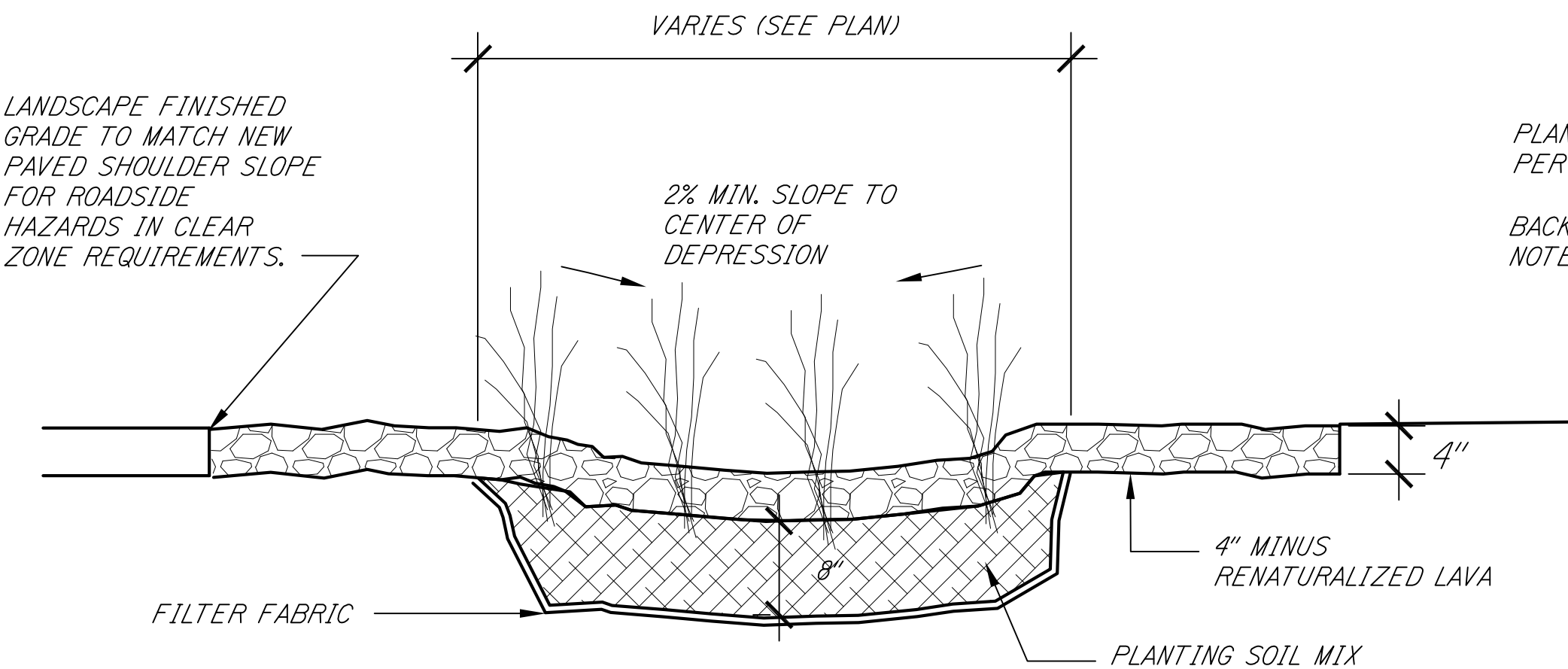




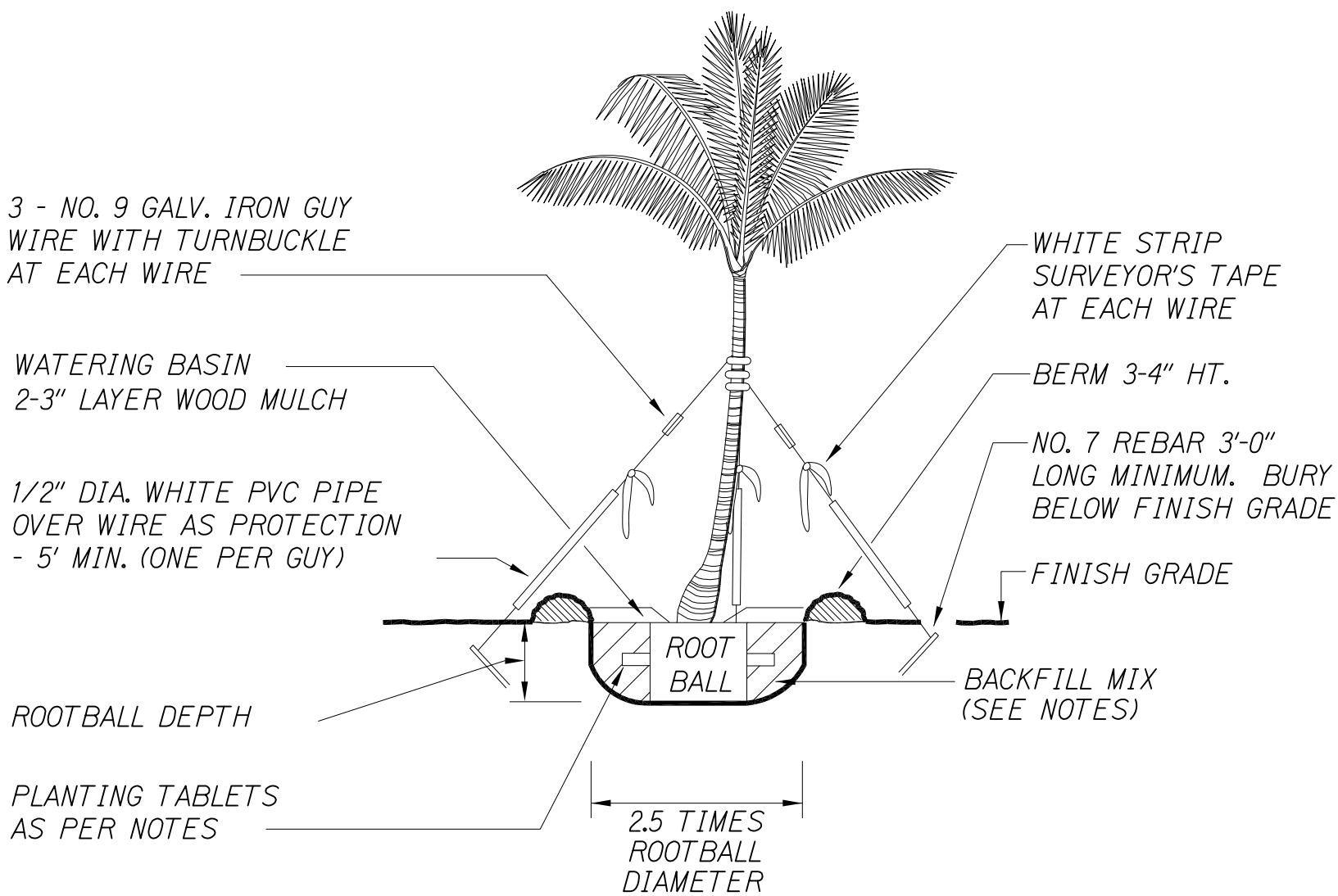
| FED. ROAD<br>DIST. NO. | STATE | FED. AID<br>PROJ. NO. | FISCAL<br>YEAR | SHEET<br>NO.    | TOTAL<br>SHEETS |
|------------------------|-------|-----------------------|----------------|-----------------|-----------------|
| HAWAII                 | HAW.  | NH-019-1(38)R         | 2016           | 521<br>C.O. 305 | 528<br>522      |



1 LANDSCAPED DEPRESSION ON SLOPE TYP. SECTION  
NOT TO SCALE

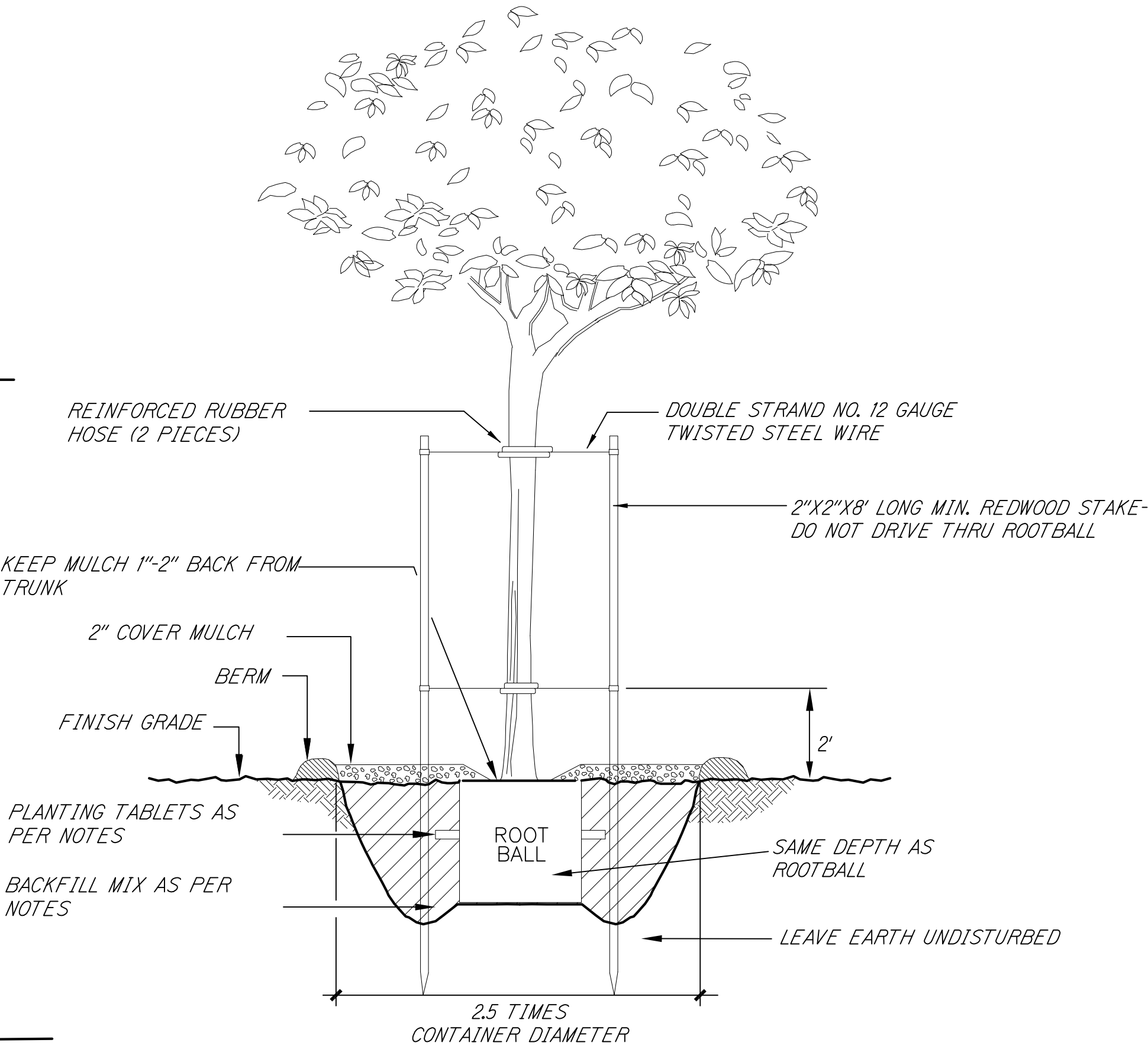


2 LANDSCAPED DEPRESSION TYP. SECTION  
NOT TO SCALE

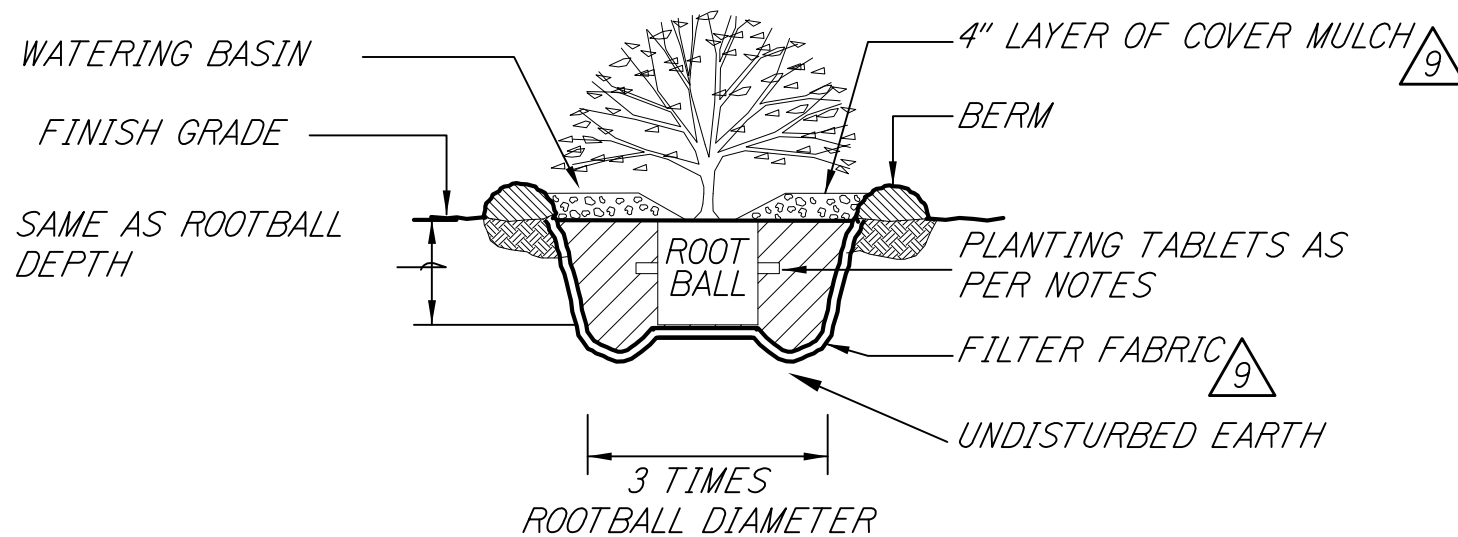


3 PALM PLANTING DETAIL  
NOT TO SCALE

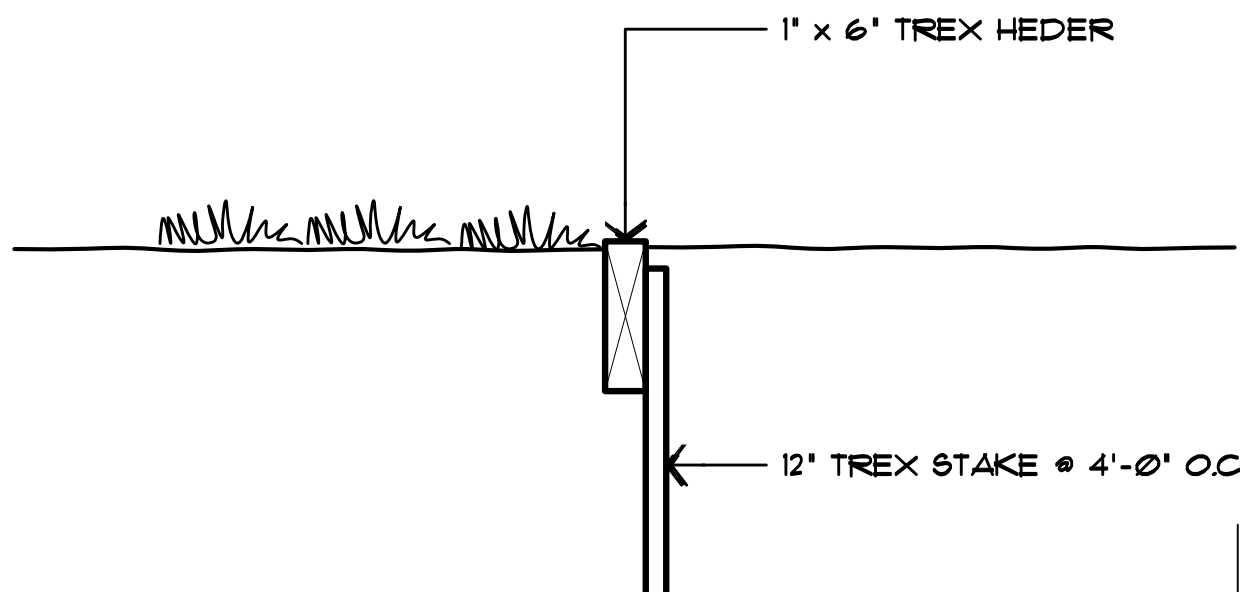
EACH NEW & RELOCATED COCO PALM TO HAVE THREE (3) GUY WIRES FOR A MINIMUM OF 12 MONTHS, OR UNTIL THEY ARE RELOCATED, WHICHEVER OCCURS SOONEST.



4 TREE PLANTING AND STAKING DETAIL  
NOT TO SCALE



5 SHRUB PLANTING DETAIL  
NOT TO SCALE



6 TREX HEADER DETAIL  
NOT TO SCALE

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF UTILITIES PRIOR TO EXCAVATION.
2. INSPECT THE SITE AND VERIFY ALL CONDITIONS PRIOR TO COMMENCING WITH THE WORK. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER. BY COMMENCING WITH THE WORK, THE CONTRACTOR ACCEPTS THE EXISTING CONDITIONS AND RESPONSIBILITY FOR MAINTAINING THOSE CONDITIONS.
3. THE CONTRACTOR SHALL EMPLOY THE USUAL STANDARD PRACTICE OF COORDINATING THE LANDSCAPE CONSTRUCTION WORK WITH THE WORK OF OTHER DISCIPLINES.

PLANTING NOTES

1. PLANT QUANTITIES ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES AND PROVIDE THE QUANTITY OF PLANT MATERIALS REQUIRED TO FULFILL THE DESIGN INTENT OF THE PLANS AT THE SIZES AND SPACING SHOWN INDICATED.
2. PLANTING TABLETS FOR TREES, PALMS, AND SHRUBS SHALL BE AS FOLLOWS:

|                   |            |
|-------------------|------------|
| A) FIELD SPECIMEN | 12 TABLETS |
| B) 25 GALLON      | 8 TABLETS  |
| C) 15 GALLON      | 5 TABLETS  |
| D) 5 GALLON       | 3 TABLETS  |
| E) 3 GALLON       | 2 TABLETS  |
| F) 1 GALLON       | 1 TABLET   |

USE SLOW RELEASE FERTILIZER TABLETS 20-10-5, 21 GRAM SIZE

3. *BACKFILL MIX SHALL CONSIST OF THREE (3) PARTS OF IMPORTED SCREENED SOIL TO ONE (1) PART ORGANIC SOIL AMENDMENTS (SEE SPECIFICATIONS). ADD ONE (1) POUND OF 10-30-10 FERTILIZER TO ONE (1) CUBIC YARD OF BACKFILL MIX. MIX THOROUGHLY ON PROJECT SITE PRIOR TO ANY PLANTING OPERATIONS.*
4. *GROUND COVER SHALL BE PLANTED UNDER ALL TREES, PALMS AND SHRUBS (UNLESS OTHERWISE NOTED ON PLANS).*
5. *RESTORE ALL EXISTING LANDSCAPE AREAS WITHIN THE PROJECT LIMIT AND AREAS AFFECTED BY THE CONSTRUCTION WORK.*
6. *GUYING AND STAKING FOR TREES TO BE PER DISCRETION OF CONTRACTOR.*

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 |
|---------|---------------------------|



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

 APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

PLANTING DETAIL - 1

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

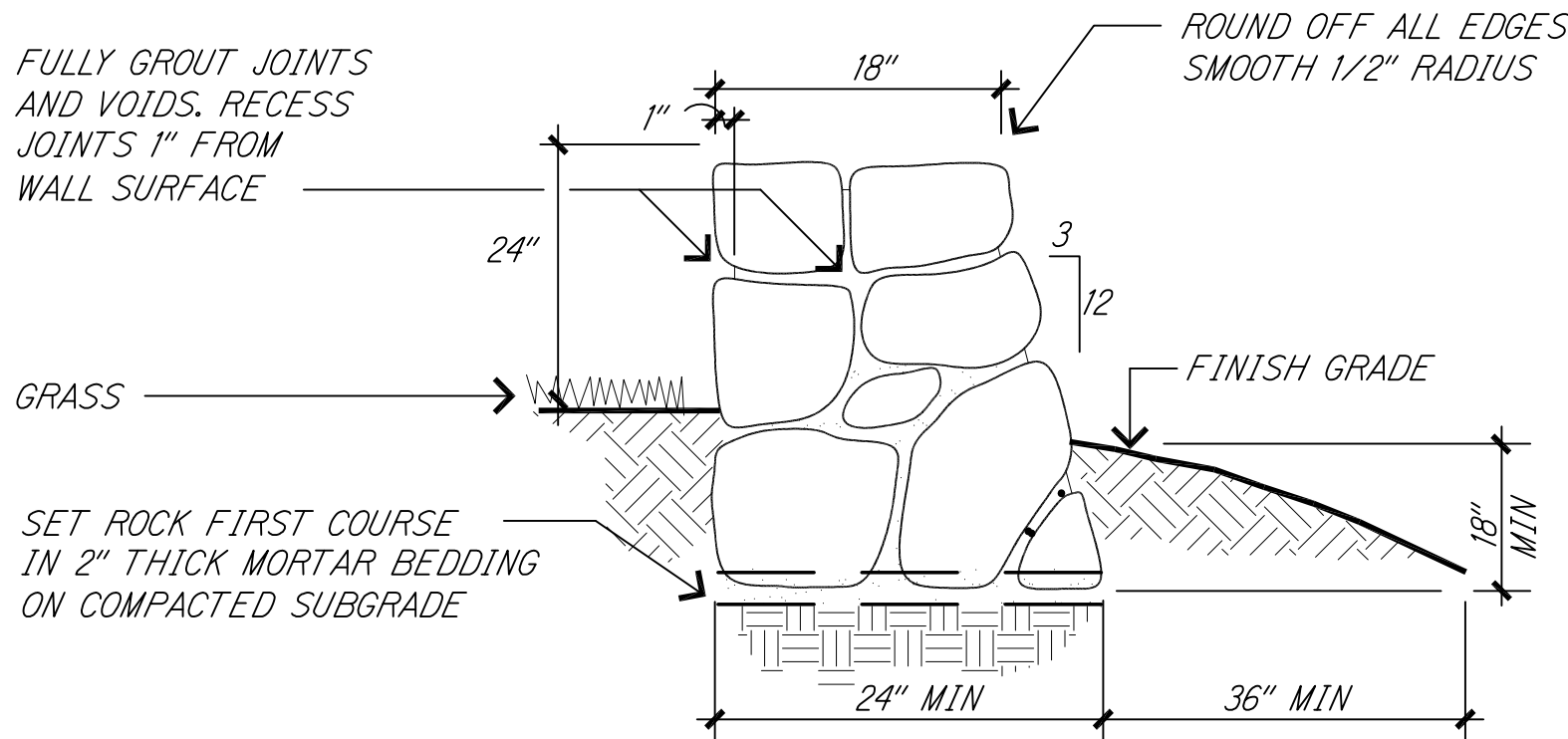
Scale: AS NOTED Date: AUGUST 2016

SHEET No. 10 OF 13 SHEETS

|                  |                                    |  |
|------------------|------------------------------------|--|
| ORIGINAL<br>PLAN | SURVEY PLOTTED BY _____ DATE _____ |  |
|                  | DRAWN BY _____                     |  |
| NOTE BOOK        | TRACED BY _____                    |  |
|                  | DESIGNED BY _____                  |  |
|                  | QUANTITIES BY _____                |  |
| No. _____        | CHECKED BY _____                   |  |

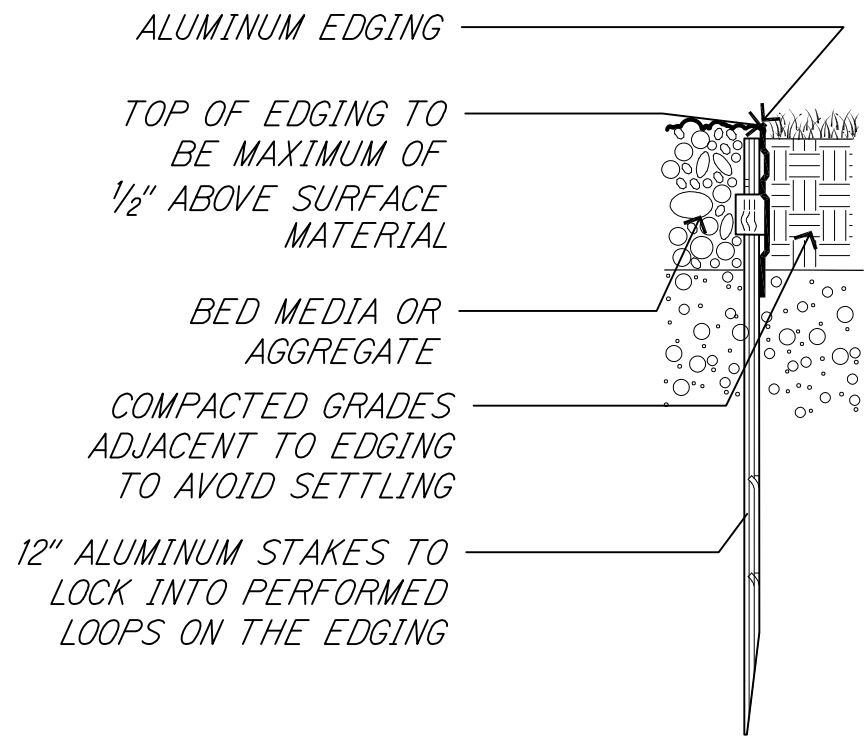


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 522<br>C.O. 506 | 528<br>522   |

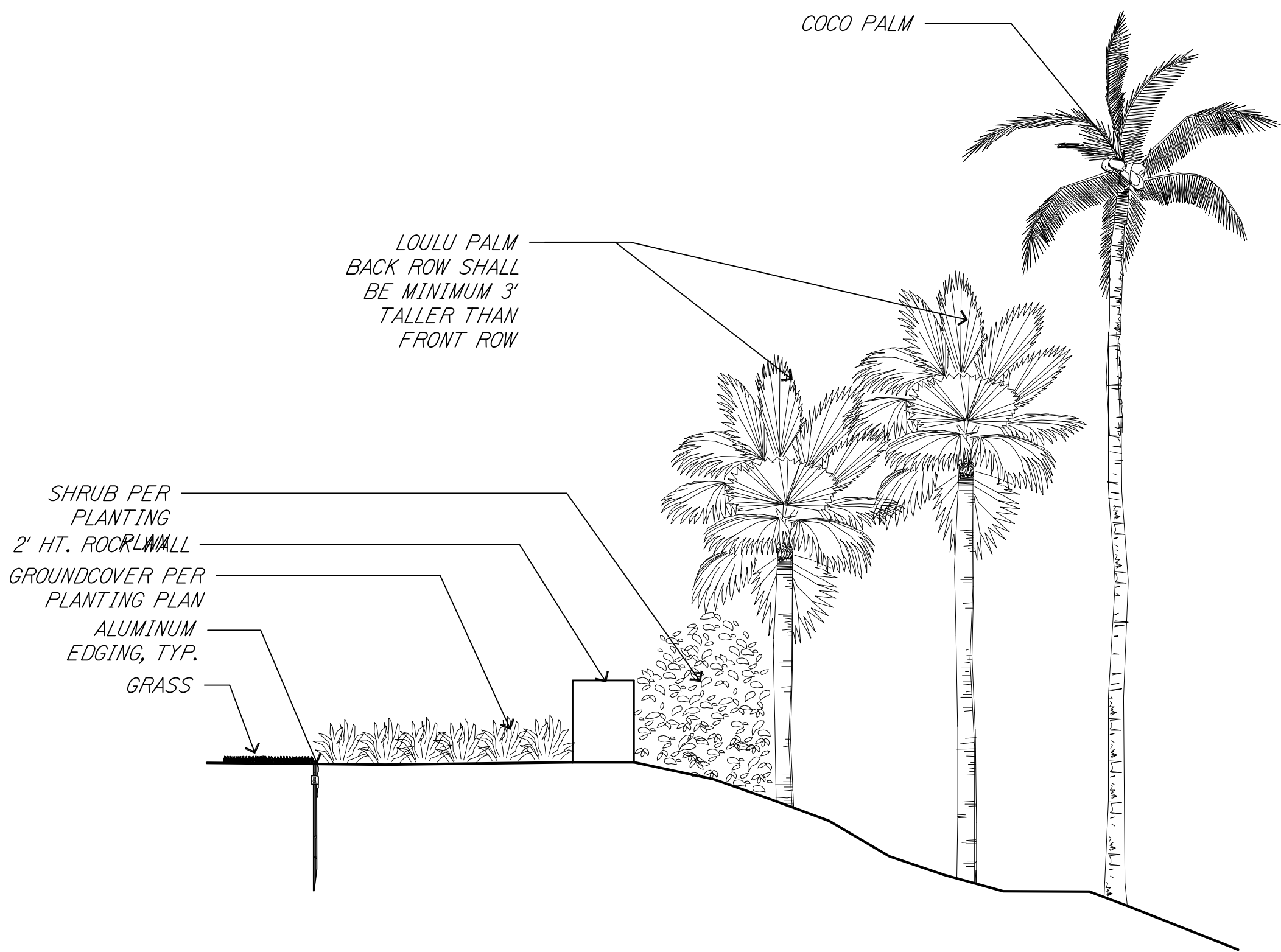


1 CONCRETE RUBBLE MASONRY (CRM) WALL @ AIRPORT ENTRY  
NOT TO SCALE

2 ALUMINUM LANDSCAPE BED EDGING  
NOT TO SCALE

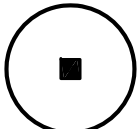
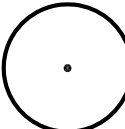
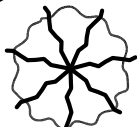
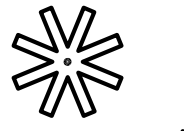
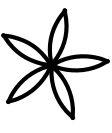

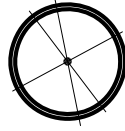
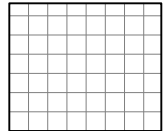

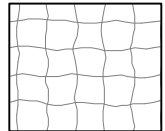
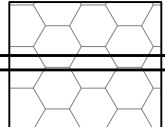
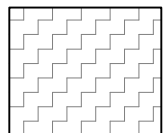
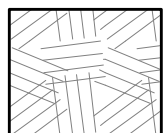
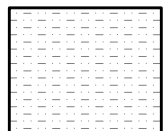
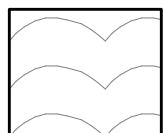
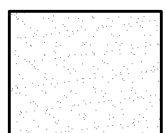


WALL ELEVATION



3 TYPICAL AIRPORT SIGN AREA ENTRY SECTION  
NOT TO SCALE

## PLANT SCHEDULE

| TREES                                                                                 | QTY                              | COMMON NAME                                                 | BOTANICAL NAME               | SIZE                 | HT                                                                                            |                     |
|---------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------------------|------------------------------|----------------------|-----------------------------------------------------------------------------------------------|---------------------|
|    | 4                                |                                                             | NEW COCO PALM                | 15 GAL               | 15'–18' BTH                                                                                   |                     |
|    | 59                               |                                                             | COCO PALM RELOCATED          | RELOCATED            |                                                                                               |                     |
|    | 12                               | HALA<br>THREE (3) MIN.<br>BRANCHES TO FORM<br>SEVERAL HEADS | PANDANUS TECTORIUS           | F.S.                 | 12–15' H                                                                                      |                     |
|    | <del>21</del><br>11              | LOULU PALM                                                  | PRITCHARDIA AFFINIS          | F.S.                 | 10'–12' BTH                                                                                   |                     |
|    | 12                               | LOULU PALM                                                  | PRITCHARDIA AFFINIS          | F.S.                 | 6'–8' BTH  |                     |
|    | <del>12</del><br>6               | NONI                                                        | MORINDA CITRIFOLIA           | 15 GAL               |                                                                                               |                     |
| SHRUB AREAS                                                                           | QTY                              | COMMON NAME                                                 | BOTANICAL NAME               | CONT                 | SPD                                                                                           | SPACING             |
|    | <del>786</del><br>1,243          | BEACH NAUPAKA                                               | SCAEVOLA TACCADA             | 3 GAL                |                                                                                               | 36" o.c.            |
|    | <del>450</del>                   | <del>BOUGAINVILLEA</del>                                    | <del>BOUGAINVILLEA SP.</del> | <del>3 GAL</del>     |                                                                                               | <del>48" o.c.</del> |
|    | <del>144</del><br>43             | MAIPILO                                                     | CAPPARIS SANDWICHIANA        | 3 GAL                |                                                                                               | 48" o.c.            |
|  | <del>70</del>                    | <del>'A'ALI'</del>                                          | <del>DODONAEA VISCOSA</del>  | <del>3 GAL</del>     |                                                                                               | <del>48" o.c.</del> |
|  | <del>133</del><br>469            | 'ILIMA                                                      | SIDA FALLAX                  | 3 GAL                |                                                                                               | 36" o.c.            |
| GROUND COVERS                                                                         | QTY                              | COMMON NAME                                                 | BOTANICAL NAME               | CONT                 |                                                                                               | SPACING             |
|  | <del>156,716</del><br>162,788 SF |                                                             | RENATURALIZED AA LAVA        | PER PLAN.            |                                                                                               |                     |
|  | <del>14,606</del><br>17,882 SF   | PILI GRASS                                                  | HETEROPOGON CONTORTUS        | 4"POT                |                                                                                               | 18" o.c.            |
|  | <del>4,118</del><br>2,464 SF     | POHINAHINA                                                  | VITEX ROTUNDIFOLIA           | 4"POT                |                                                                                               | 18" o.c.            |
|  | <del>11,073</del><br>14,038 SF   | SEASHORE PASPALUM                                           | PASPALUM VAGINATUM           | SPRIGS W/ HYDROMULCH |                                                                                               |                     |

Note: Landscape architect  
to approve tree selections

LEGEND FOR  
AS-BUILT POSTINGS

Squiggly line for  
as-built deletion

Double line for  
as-built deletion

Text for as-built  
posting

|          |                                                          |
|----------|----------------------------------------------------------|
| 01/22/16 | Schedule revised to reflect<br>variations in Loulu sizes |
| DATE     | REVISION                                                 |

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

APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

PLANTING DETAIL - 2

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. 11 OF 13 SHEETS



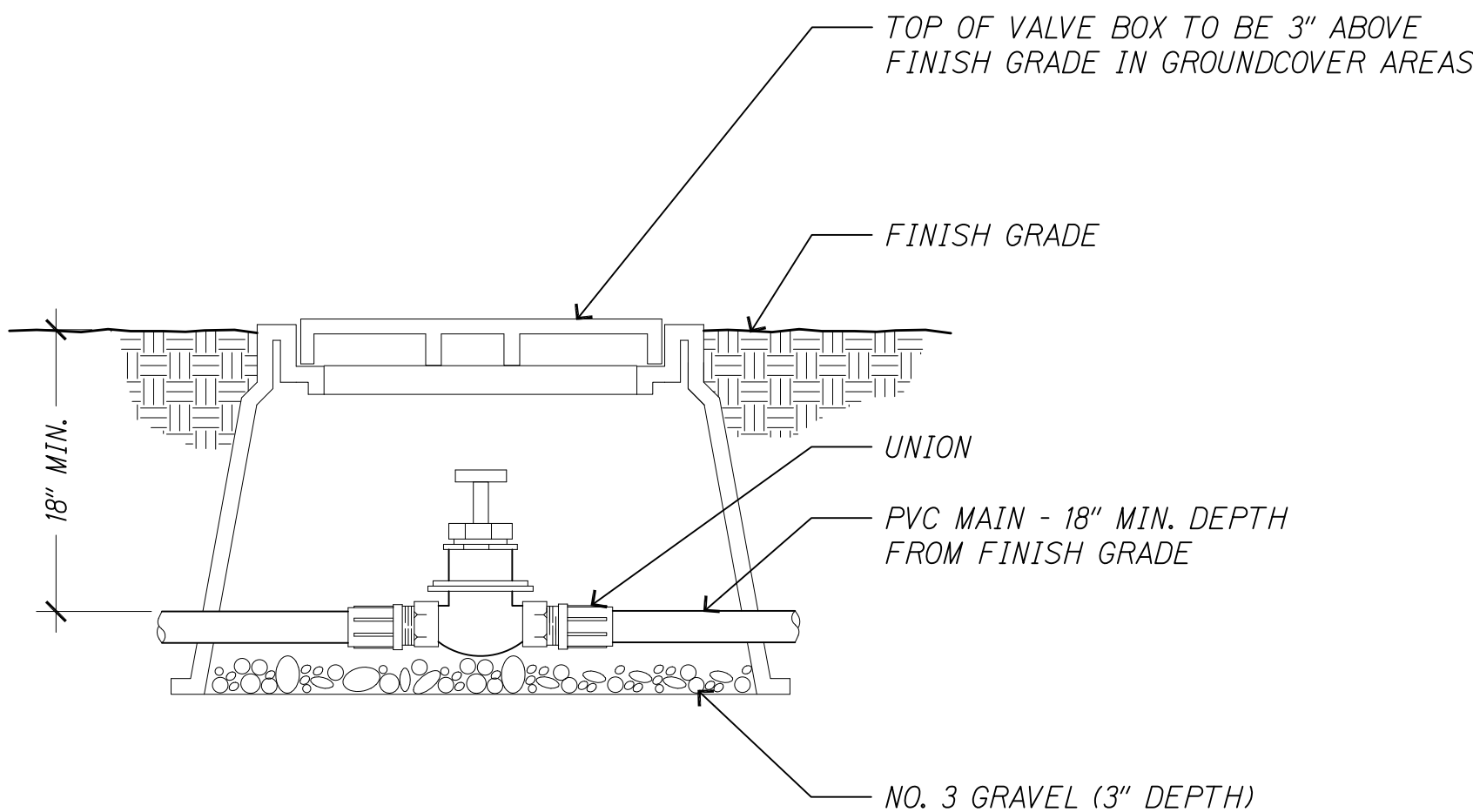


IRRIGATION SCHEDULE

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 524<br>C.O. 508 | 528<br>522   |

| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION                                                                                                                                                                                                   | ARC     | PSI | GPM  | RADIUS |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|------|--------|
|        | HUNTER MP1000 W/ MPR40-04-CV-R TURF ROTATOR, 4" POP-UP WITH CHECK VALVE, RECLAIMED BODY CAP, MP ROTATOR NOZZLE. M=MAROON ADJ ARC 90 TO 210, L=LIGHT BLUE 210 TO 270 ARC, O=OLIVE 360 ARC, ON MPR40 4" POP-UP BODY.               | 210-270 | 40  |      | 13'    |
|        | HUNTER MP1000 W/ MPR40-04-CV-R TURF ROTATOR, 4" POP-UP WITH CHECK VALVE, RECLAIMED BODY CAP, MP ROTATOR NOZZLE. M=MAROON ADJ ARC 90 TO 210, L=LIGHT BLUE 210 TO 270 ARC, O=OLIVE 360 ARC, ON MPR40 4" POP-UP BODY.               | 90-210  | 40  |      | 13'    |
|        | HUNTER MP1000 W/ MPR40-04-CV-R TURF ROTATOR, 4" POP-UP WITH CHECK VALVE, RECLAIMED BODY CAP, MP ROTATOR NOZZLE. M=MAROON ADJ ARC 90 TO 210, L=LIGHT BLUE 210 TO 270 ARC, O=OLIVE 360 ARC, ON MPR40 4" POP-UP BODY.               | 360     | 40  | 0.75 | 14'    |
|        | HUNTER MP STRIP W/ MPR40-04-CV-R TURF ROTATOR, 4" POP-UP WITH FACTORY INSTALLED CHECK VALVE, RECLAIMED BODY CAP, MP ROTATOR NOZZLE. LST=IVORY LEFT STRIP, SST=BROWN SIDE STRIP, RST=COPPER RIGHT STRIP, ON MPR40 4" POP-UP BODY. | LCS     | 40  | 0.22 | 5'x15' |
|        | HUNTER MP STRIP W/ MPR40-04-CV-R TURF ROTATOR, 4" POP-UP WITH FACTORY INSTALLED CHECK VALVE, RECLAIMED BODY CAP, MP ROTATOR NOZZLE. LST=IVORY LEFT STRIP, SST=BROWN SIDE STRIP, RST=COPPER RIGHT STRIP, ON MPR40 4" POP-UP BODY. | SST     | 40  | 0.44 | 5'x30' |

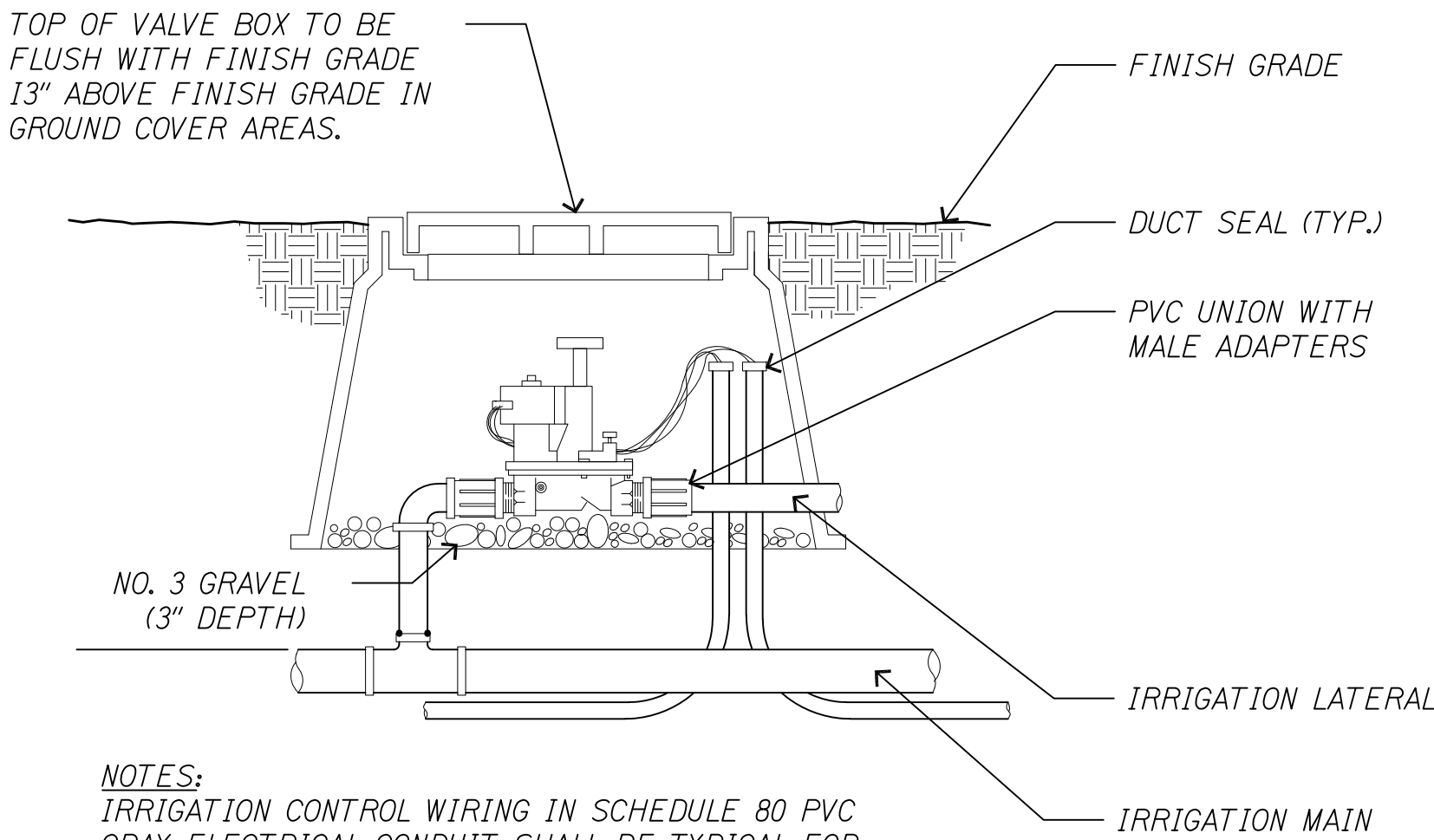
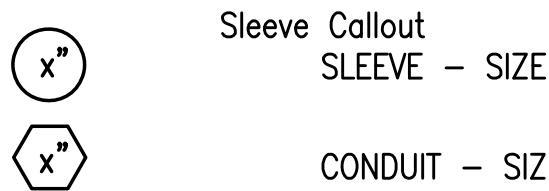
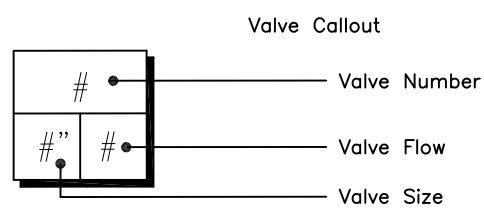
| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION                                                                                                                                                                                                                                                                    |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | HUNTER ICZ-101 INSTITUTIONAL DRIP CONTROL ZONE KIT, 1" ICV CONTROL ZONE VALVE WITH 1" HY100 WYE FILTER, 150 MESH AND 25PSI HIGH-FLOW REGULATOR W/ RECLAIMED WATER TAG.                                                                                                                            |
|        | AREA TO RECEIVE DRIPLINE NETAFIM TLRW-06-18 (18) TECHLINE RW LANDSCAPE DRIPLINE WITH PURPLE STRIPE FOR NON-POTABLE WATER APPLICATIONS. 0.6GPH EMITTERS AT 18.0" O.C. DRIPLINE LATERALS SPACED AT 18.0" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. DESIGNED FOR RECLAIMED WATER USE ONLY. |



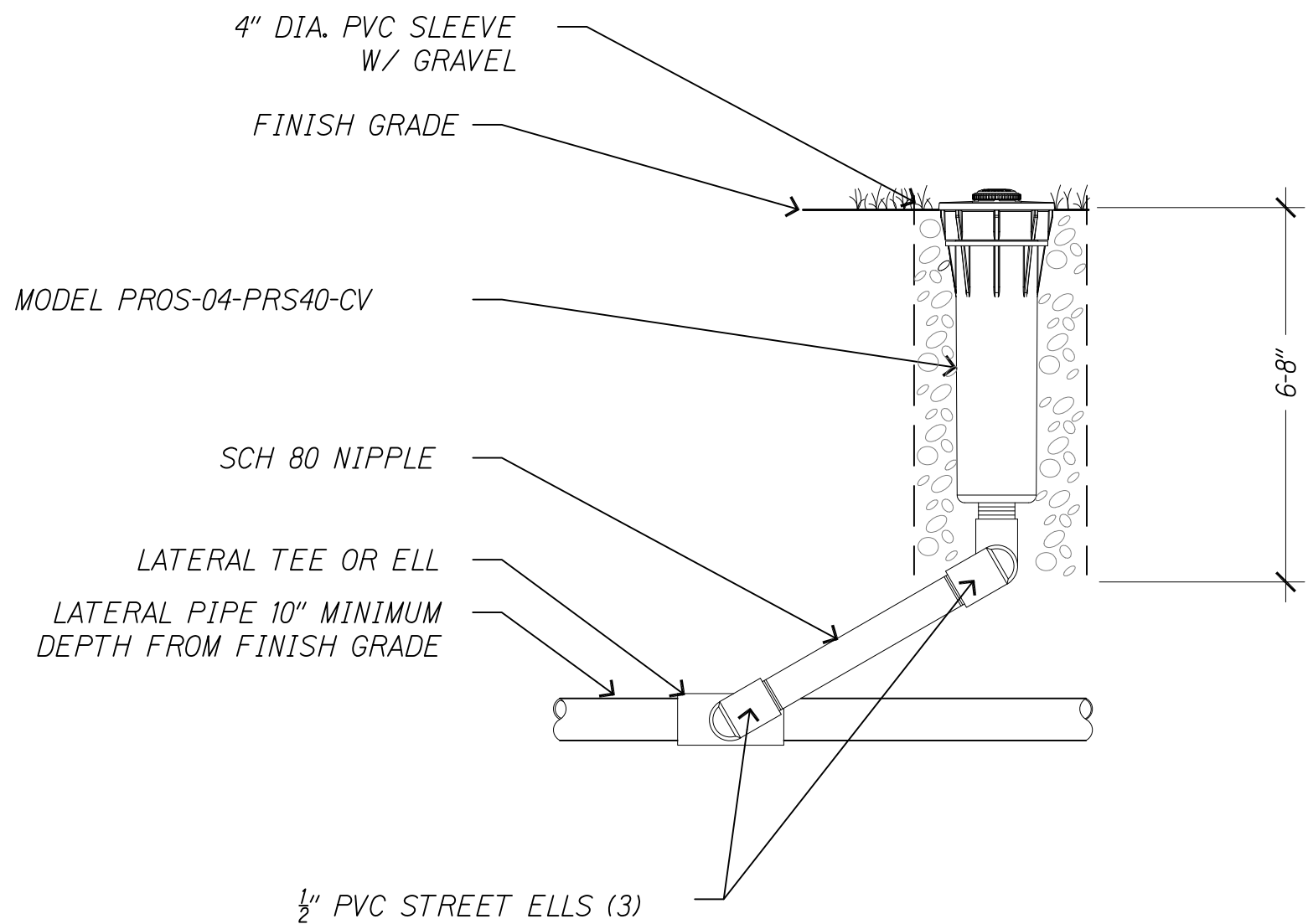
1 GATE VALVE DETAIL  
NOT TO SCALE

| SYMBOL | MANUFACTURER/MODEL/DESCRIPTION                                                                                                                                                                                                                          |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | HUNTER ICV-G-FS-R 1", 1-1/2", 2", AND 3" PLASTIC ELECTRIC REMOTE CONTROL VALVES, GLOBE CONFIGURATION, WITH NPT THREADED INLET/OUTLET, FOR COMMERCIAL/MUNICIPAL USE. WITH FILTER SENTRY FACTORY INSTALLED OPTION, AND RECLAIMED WATER ID, PURPLE HANDLE. |
|        | NELSON 7645 1" BRASS QUICK COUPLER VALVE WITH ACME THREADS FOR SLOW FLOW CONTROL, WITH LOCKING RUBBER COVER AND PURPLE CAP WITH RECLAIMED WATER WARNING.                                                                                                |
|        | NIBCO T-113-K CLASS 125 BRONZE GATE SHUT OFF VALVE WITH CROSS HANDLE, SAME SIZE AS MAINLINE PIPE DIAMETER AT VALVE LOCATION. SIZE RANGE - 1/4" - 3"                                                                                                     |
|        | HUNTER MINI-CLIK RAIN SENSOR, MOUNT AS NOTED                                                                                                                                                                                                            |
|        | POINT OF CONNECTION 3" CONNECT TO EXISTING 3" MAIN                                                                                                                                                                                                      |
|        | POINT OF CONNECTION 2" CONNECT TO EXISTING 2" MAIN                                                                                                                                                                                                      |

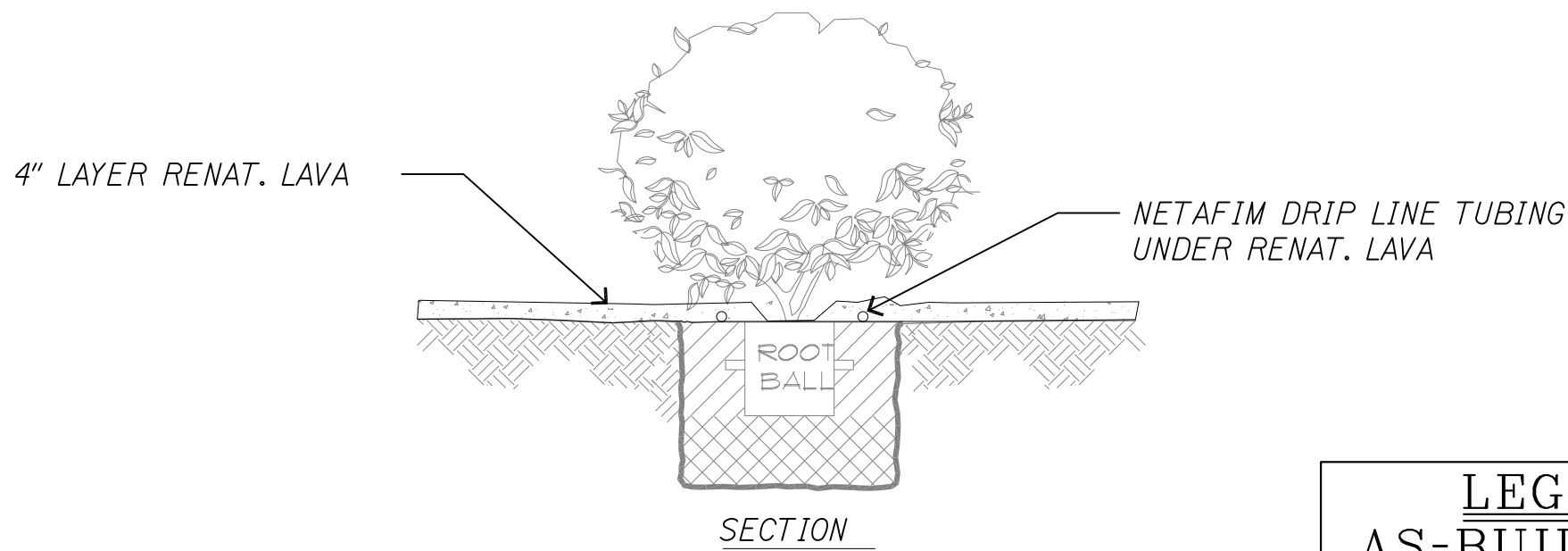
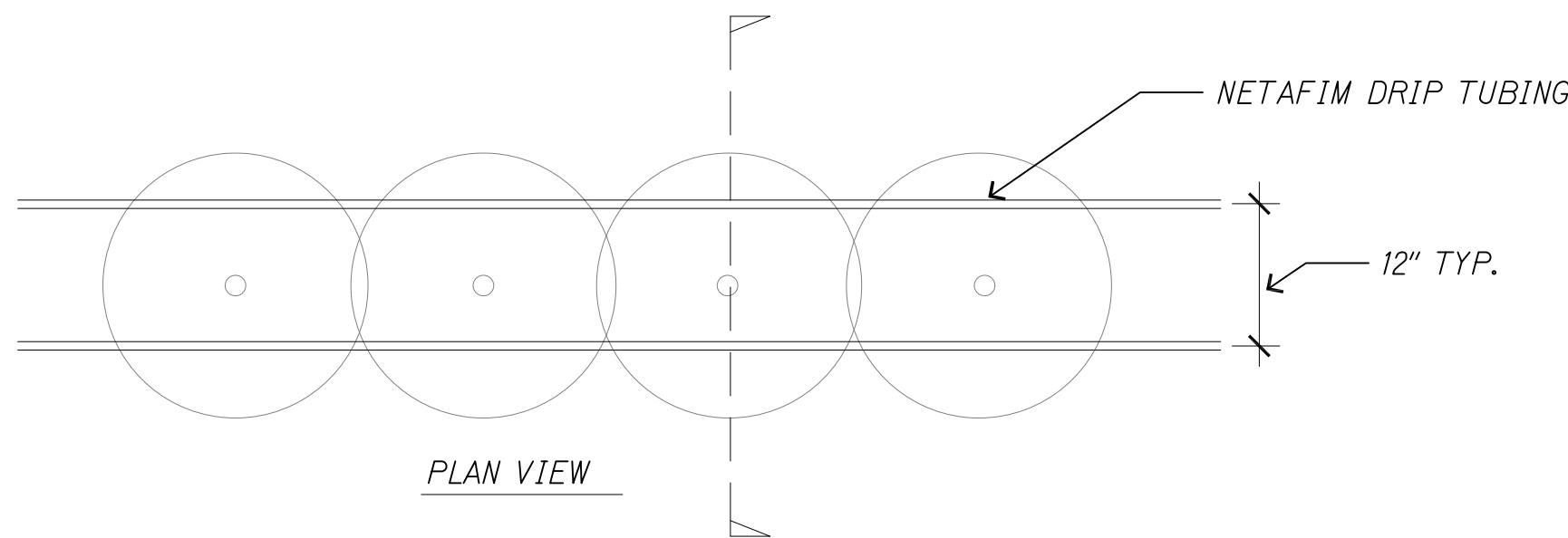
IRRIGATION LATERAL LINE: PVC SCHEDULE 40 (PURPLE COLOR FOR RECLAIMED WATER)  
IRRIGATION MAINLINE: PVC SCHEDULE 40 (PURPLE COLOR FOR RECLAIMED WATER)  
PIPE SLEEVE: PVC SCHEDULE 80  
TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE. PIPE SLEEVE SIZE SHALL ALLOW FOR IRRIGATION PIPING AND THEIR RELATED COUPLINGS TO EASILY SLIDE THROUGH SLEEVING MATERIAL. EXTEND SLEEVES 18 INCHES BEYOND EDGES OF PAVING OR CONSTRUCTION.



2 REMOTE CONTROL VALVE DETAIL  
NOT TO SCALE



3 4" MP ROTATOR DETAIL  
NOT TO SCALE



4 TYP. SHRUB DRIP IRRIGATION DETAIL  
NOT TO SCALE

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

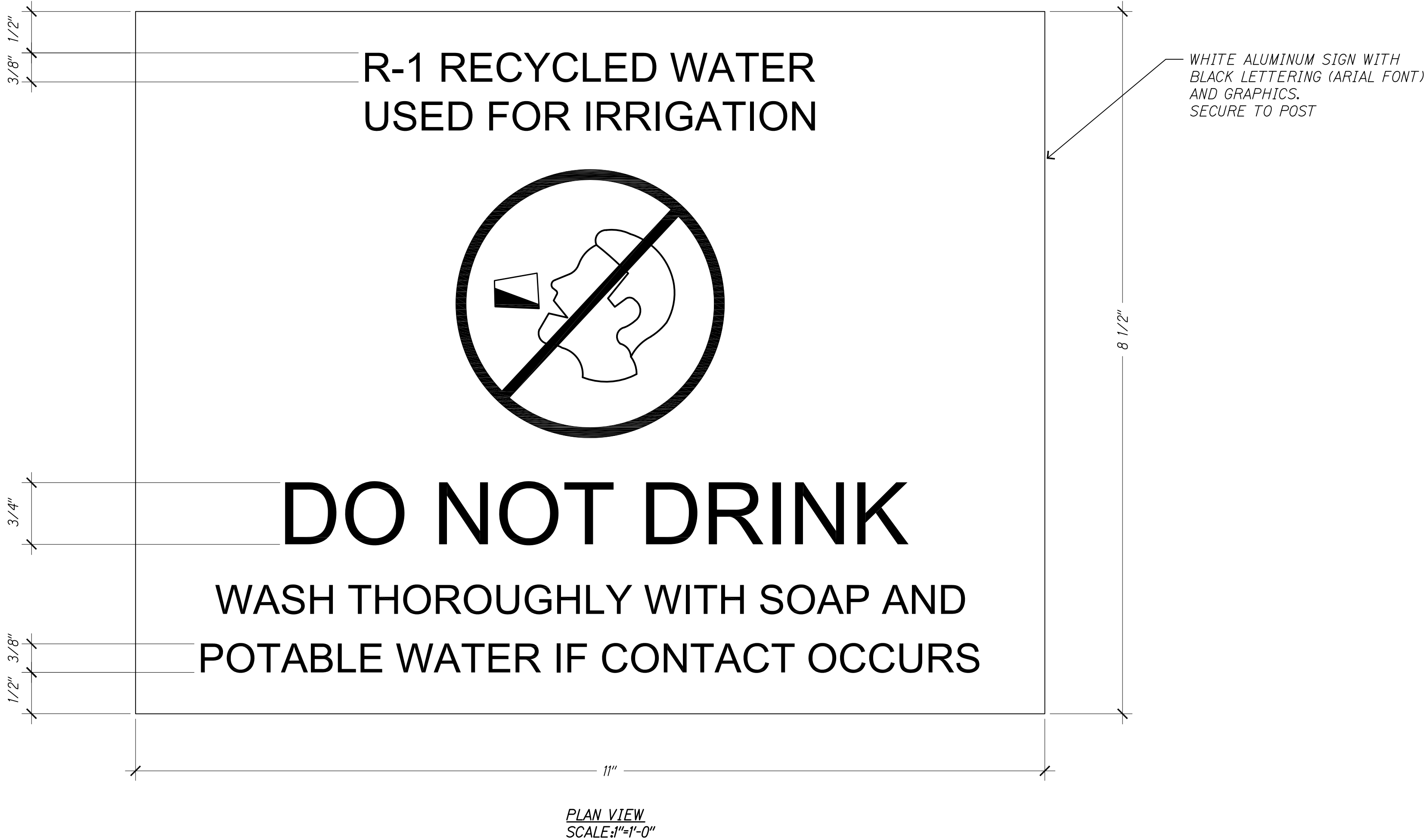


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
SIGNATURE: *Joel N. Kurokawa* EXPIRATION DATE OF THE LICENSE: APRIL 30, 2020

|                                                                                                                            |                   |
|----------------------------------------------------------------------------------------------------------------------------|-------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION                                                       |                   |
| IRRIGATION DETAILS - 2                                                                                                     |                   |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd. (Ph. 2)<br>Federal Aid Project No. NH-019-1(38)R |                   |
| Scale: AS NOTED                                                                                                            | Date: AUGUST 2016 |
| SHEET No. 13 OF 13 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. 508S-1 | 528          |

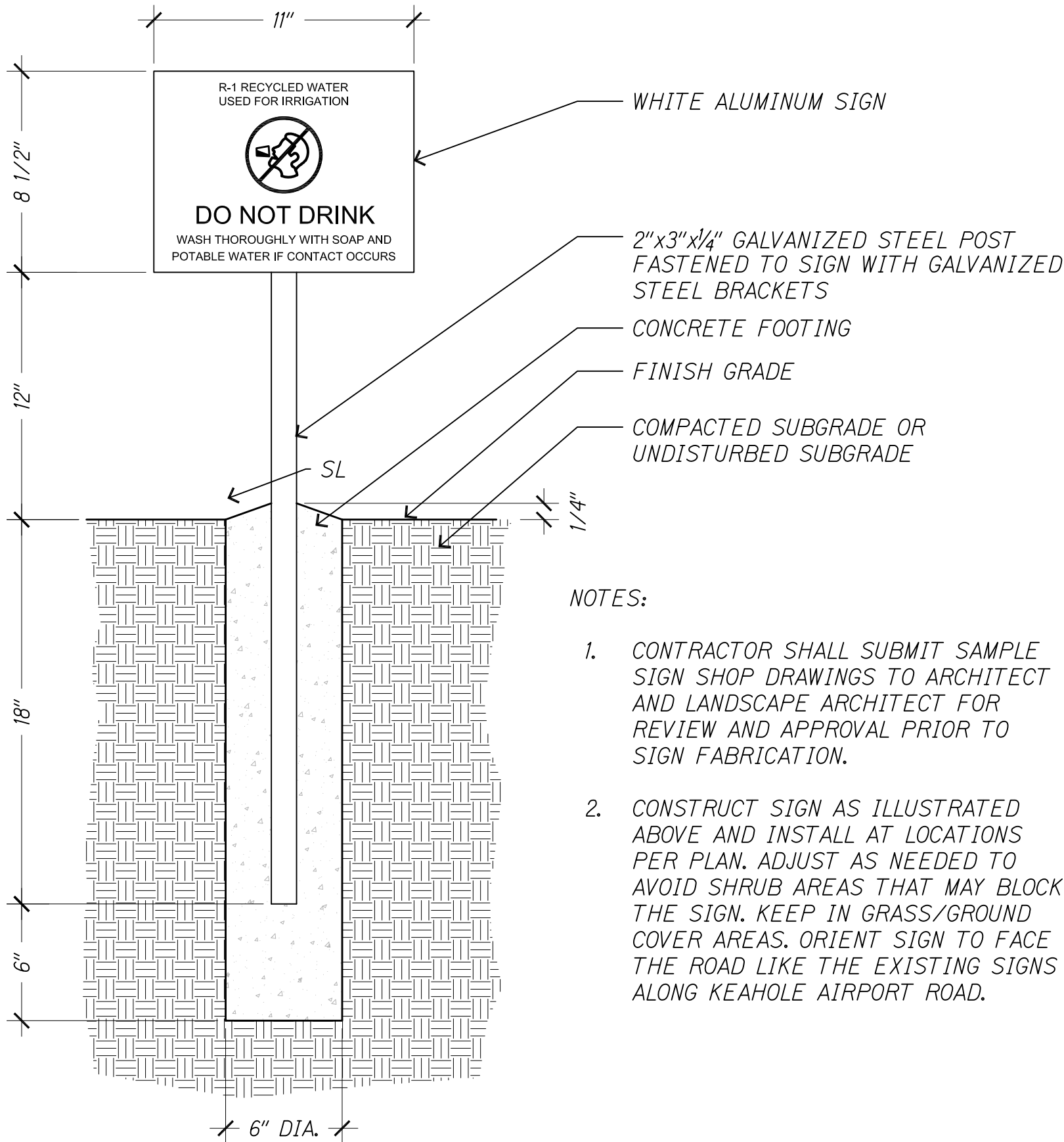
524



NOTE:

- LETTERS AND GRAPHICS TO BE BLACK, EXCEPT FOR CIRCLE AND DIAGONAL LINE THROUGH IT WHICH SHALL BE RED.

PLAN VIEW  
SCALE: 1"=1'-0"



NOTES:

- CONTRACTOR SHALL SUBMIT SAMPLE SIGN SHOP DRAWINGS TO ARCHITECT AND LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO SIGN FABRICATION.
- CONSTRUCT SIGN AS ILLUSTRATED ABOVE AND INSTALL AT LOCATIONS PER PLAN. ADJUST AS NEEDED TO AVOID SHRUB AREAS THAT MAY BLOCK THE SIGN. KEEP IN GRASS/GROUND COVER AREAS. ORIENT SIGN TO FACE THE ROAD LIKE THE EXISTING SIGNS ALONG KEAHOLE AIRPORT ROAD.

## 1 RECYCLED WATER SIGN DETAIL

SCALE AS NOTED



## 2 RECYCLED WATER SIGN POST DETAIL

NOT TO SCALE

NOTE: SET ALL THRUST BLOCKS AGAINST UNDISTURBED SOIL

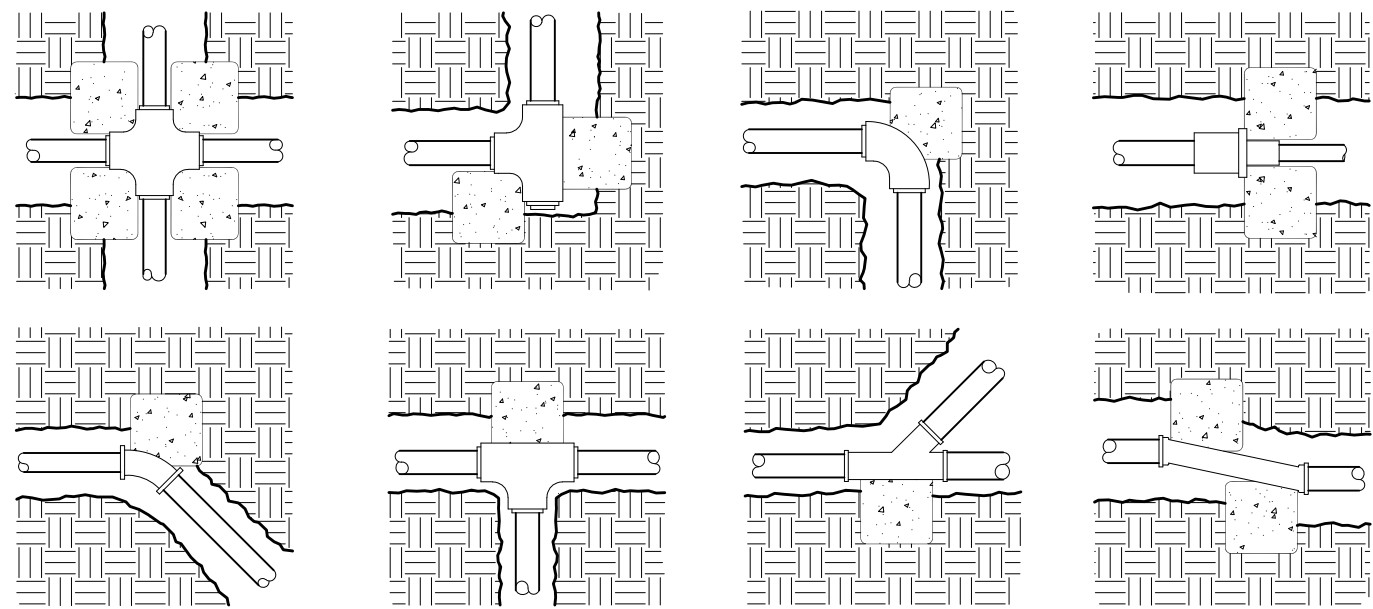


TABLE FOR BEARING AREA OF THRUST BLOCKS (SQ. FT.)

| PIPE SIZE      | 1-1/4" | 1-1/2" | 2"   | 2-1/2" | 3"   | 4"   | 6"  |
|----------------|--------|--------|------|--------|------|------|-----|
| TEES & CROSSES | 0.50   | 0.50   | 0.50 | 0.50   | 1.00 | 1.25 | 3.2 |
| 90 °BEND       | 0.50   | 0.50   | 0.50 | 0.75   | 1.25 | 2.00 | 4.5 |
| 45 °BEND       | 0.50   | 0.50   | 0.50 | 0.50   | 0.75 | 1.00 | 2.4 |

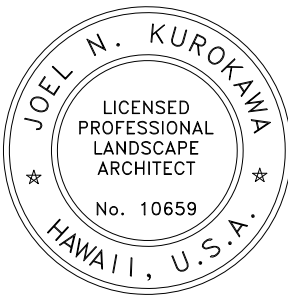
## 3 TYPICAL THRUST BLOCK DETAIL FOR IRRIGATION MAINS

NOT TO SCALE



### LEGEND FOR AS-BUILT POSTINGS

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



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

SIGNATURE: *Joel N. Kurokawa* EXPIRATION DATE: APRIL 30, 2020 OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### IRRIGATION DETAILS - 3

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: AUGUST 2016

SHEET No. 13A OF 13 SHEETS

01/22/16

DATE



New details for thrust blocks and recycled water sign added

REVISION

"AS-BUILT"

C.O. 524 S-1 C.O. 508S-1