

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | HSIP-0130(031) | 2014 | 100 | 108 |

Plant Notes:

1. Contractor will field verify all plant quantities and dimensions prior to installation. Contractor must verify actual quantities. If there is a discrepancy, the planting plan shall take precedence.

2. Contractor will be responsible for locating and protecting all new and existing utilities.

3. Prior to tree and shrub planting pit excavation, all plant locations shall be staked out by the Contractor for approval by the Engineer. Do not perform planting operations until ground has been prepared, stones greater than 1/2" diameter have been removed, site is neat, orderly, and the Engineer has accepted the site for planting.

4. Notify Engineer immediately in writing of any discrepancies in plant locations or insufficient plant quantities due to difference in plans and actual field conditions.

5. Notify the Engineer a minimum of thirty (30) days prior to commencing with planting operations for approval of all plant material at place of growth. Plant material not approved by the Engineer will be subject to rejection.

6. The Engineer will inspect plants at the place of growth and after delivery to the project site. Each tree will be tagged by the Engineer with a consecutively numbered plastic tamper-resistant and self locking seal. Seals shall remain on trees and only be removed by the Engineer at the completion of the Plant Establishment period. Trees delivered to the project site without the Engineer's seal will be rejected.

7. Plants shall meet minimum height and spread indicated. Plants will be straight, undamaged, sound, healthy, in vigorous growing condition and free of disease and insect/pest infestation. Plants not conforming to these requirements upon delivery to the project and at the end of the Plant Establishment period will be rejected.

8. Contractor will be solely responsible for the complete removal and damages resulting from planting any plant species listed on the Hawai'i Department of Agriculture 'Noxious Weed Rules' as defined in the Stature, Hawai'i Administrative Rules 4:68:1 or the 'Federal Noxious Weed List' as defined in Title 7 of the Code of Federal Regulations (CFR), Parts 360 and 361.
9. All tree work must adhere to American National Standards Institute (or ANSI) - A300 Tree Care Standards and ANSI - Z133 Safety Standards For Tree Work. Work will be contracted to arborists that have been certified in good standing as an International Society of Arboriculture (ISA) Certified Arborist for at least five (5) years to assure that tree work is performed properly and trees are not damaged by practices such as topping, flush cuts, over-thinning, or climbing with spikes. Contractor shall submit a copy of the ISA Arborist Certification in good standing of five (5) years, including the current year, to the Engineer a minimum of seven (7) days prior to tree pruning.

10. All trees identified to remain within the Limits of Work shall be maintained in good health by the Contractor throughout the construction period, inclusive but not limited to, watering, fertilizing, and trimming.

11. For the duration of construction within the dripline of trees to remain there must be:

11.1. No changes, alterations, or disturbance to the grade by adding fill, excavating or scraping except as noted on plans.

11.2. No storage of construction material or equipment.

11.3. No stockpiling of any construction material or any excavated material.

11.4. No disposal of any liquids (e.g. concrete sleuth, gas, oil, paint, etc.).

11.5. No vehicular traffic, equipment, or excessive pedestrian traffic.

11.6. No attachment of any wires, ropes, lights, or any other such attachment other than those of a protective nature to any tree to be preserved.

11.7. No cleaning of equipment or material under the canopy of any tree or group of trees to remain.

12. If trees other than those specifically designated for removal are damaged beyond survival conditions as determined by the Engineer, the Contractor will remove such trees and replace the trees with the same species and size and maintain the replacement trees for the duration of construction or twelve (12) months, whichever is greater, at no cost to the State.
13. Provide an even four (4) inch layer of imported planting soil over all planting areas. A composite sample of soil collected at the source of the imported planting soil shall be submitted by the Contractor to Crop Nutrient Solutions Inc., University of Hawai'i Agricultural Extension Service, or laboratory acceptable to the Engineer for analysis of types and quantities of required fertilizers and soil amendments. Test results and schedule of recommended fertilizer quantities and application rates shall be presented to the Engineer for review and acceptance before placing the planting soil. Uniformly distribute fertilizers and amendments over planting areas as recommended by the soil analysis report. Rototill top four (4) inches of soil to evenly incorporate fertilizers and amendments. After fertilizers and amendments have been incorporated, retest the soil to verify it meets the soil analysis recommendations. Continue to amend and retest soil until soil analysis recommendations are met. Provide copies of all soil tests to the Engineer.

14. Guy wires, flagging, stakes, windbreaks, etc. shall be maintained and replaced as necessary, and as requested by the Engineer, until the tree or shrub is able to stand unsupported. The Contractor will remove and dispose of the materials at the end of the Plant Establishment period.

15. Any planting that obstructs sight distances, signs, or traffic signals will be relocated or removed as determined by the Engineer.

16. Contractor shall verify the limits of topsoil and soil amendment application with the Engineer. The Contractor will not install new topsoil or new soil amendments in active drainage ways. The Contractor will provide and install all necessary erosion control materials and/or devices to mitigate soil runoff from the project site to adjacent streams or drainage channels.
17. The Contractor will maintain and provide a temporary above-grade irrigation system for all landscape areas within the Project Limits. The Contractor will be responsible for determining the source and method of delivery of water to the Project Site.

17.1. The temporary irrigation system will include, but is not limited to, large radius rotor heads, mainline and lateral piping, remote control valves and valve boxes, shut-off valves, County of Hawai'i approved backflow prevention device(s), rain shut-off device, and automatic irrigation controller.

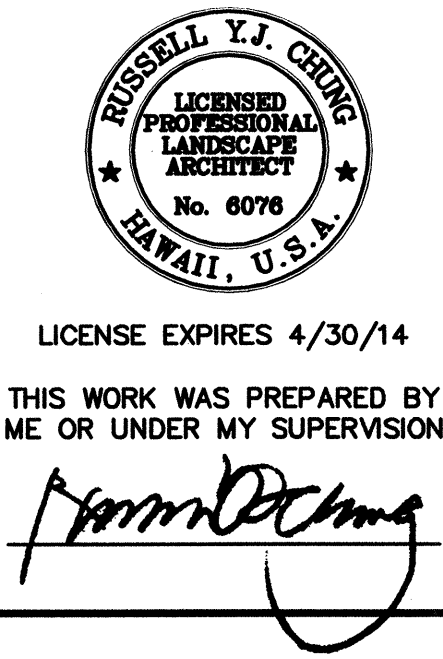
17.2. Contractor will be responsible for coordinating water source with the County. The Contractor will provide all required cross-connection equipment and permits (if applicable).

18. The Contractor will gradually decrease the amount of water to the plant material approximately eight (8) weeks before the Final Inspection to allow the plant material to adjust to the removal of the temporary irrigation system prior to project completion. During the eight (8) week period, the Contractor will monitor the plant material to ensure the plant material remains healthy at the Final Inspection.

19. The Contractor's method of watering shall not cause erosion of existing or new planting areas. The Contractor will immediately repair all damaged areas caused by the Contractor's method of watering at no cost to the State.

20. The Contractor will remove all irrigation equipment used for watering and repair damaged plant materials caused by removal operations upon receiving final acceptance of the project by the State. Repair of damaged areas will be done at no cost to the State.

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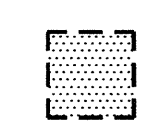
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| STATE OF HAWAII | |
| DEPARTMENT OF TRANSPORTATION | |
| HIGHWAYS DIVISION | |
| LANDSCAPE | |
| NOTES | |
| Keaau-Paho Road Intersection | |
| Improvements at Old Government Road | |
| Federal-Aid Project No. HSIP-0130(031) | |
| Scale: None | Date: August 2013 |
| SHEET No. LP-1 OF 9 SHEETS | |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII | HAW. | HSIP-0130(031) | 2014 | 101 | 108 |

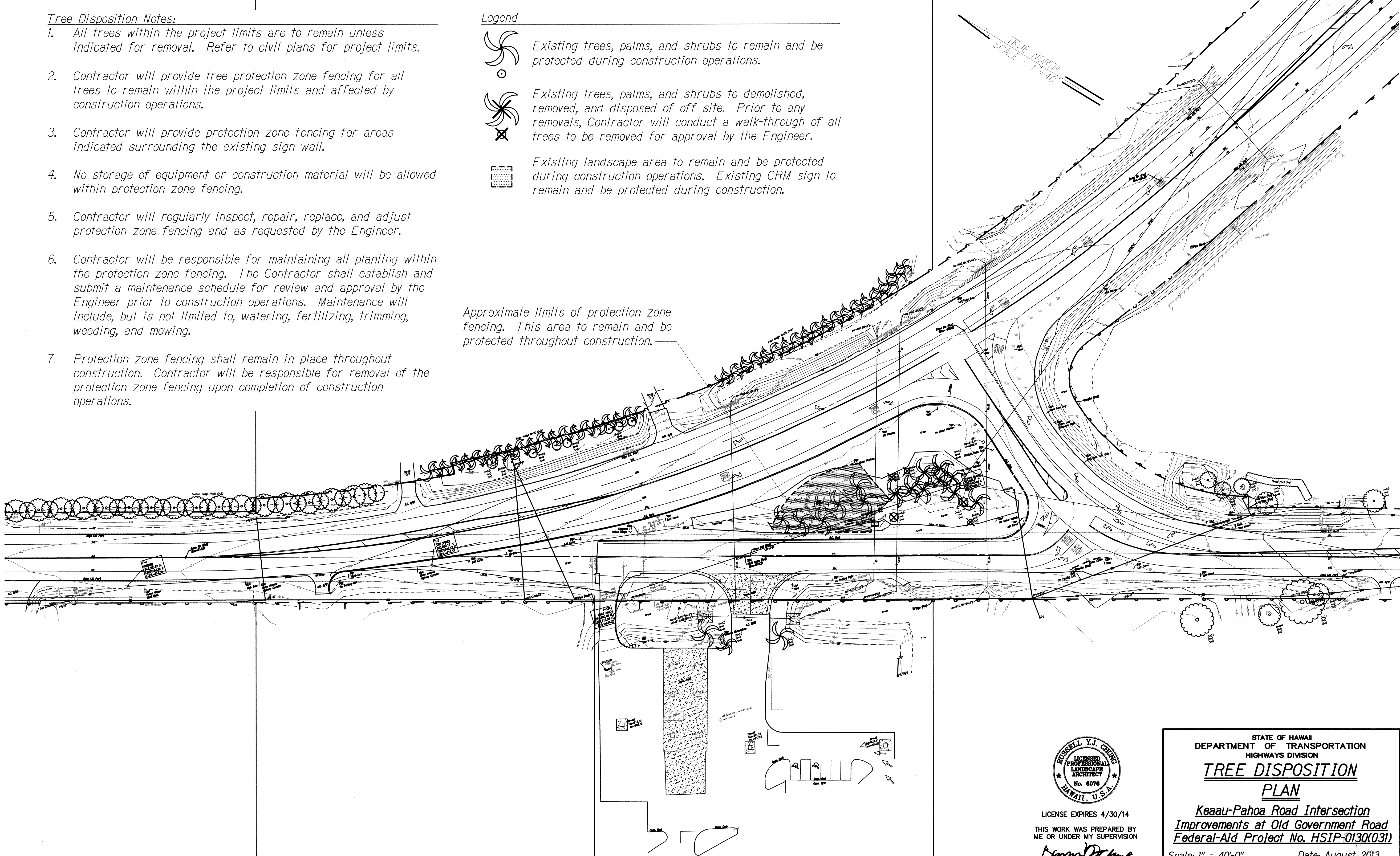
Tree Disposition Notes:

1. All trees within the project limits are to remain unless indicated for removal. Refer to civil plans for project limits.
2. Contractor will provide tree protection zone fencing for all trees to remain within the project limits and affected by construction operations.
3. Contractor will provide protection zone fencing for areas indicated surrounding the existing sign wall.
4. No storage of equipment or construction material will be allowed within protection zone fencing.
5. Contractor will regularly inspect, repair, replace, and adjust protection zone fencing and as requested by the Engineer.
6. Contractor will be responsible for maintaining all planting within the protection zone fencing. The Contractor shall establish and submit a maintenance schedule for review and approval by the Engineer prior to construction operations. Maintenance will include, but is not limited to, watering, fertilizing, trimming, weeding, and mowing.
7. Protection zone fencing shall remain in place throughout construction. Contractor will be responsible for removal of the protection zone fencing upon completion of construction operations.

Legend

-  Existing trees, palms, and shrubs to remain and be protected during construction operations.
-  Existing trees, palms, and shrubs to be demolished, removed, and disposed of off site. Prior to any removals, Contractor will conduct a walk-through of all trees to be removed for approval by the Engineer.
-  Existing landscape area to remain and be protected during construction operations. Existing CRM sign to remain and be protected during construction.

Approximate limits of protection zone fencing. This area to remain and be protected throughout construction.

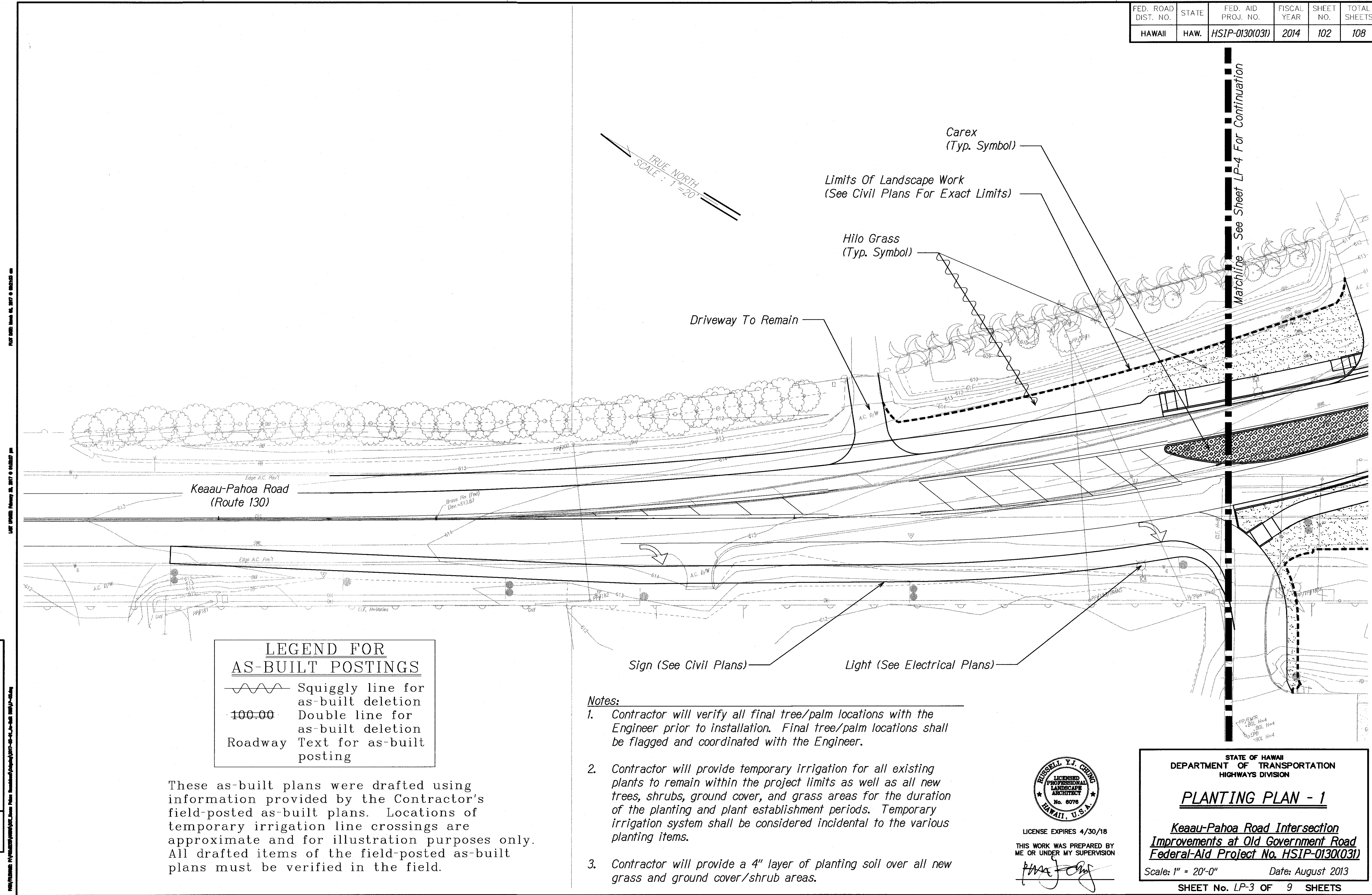


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| | DESIGNED BY | |
| | CHECKED BY | |

RUSSELL Y.J. CHENG
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 6076
HAWAII, U.S.A.
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Russell Y.J. Cheng

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TREE DISPOSITION PLAN
Keaau-Pahoa Road Intersection Improvements at Old Government Road
Federal-Aid Project No. HSIP-0130(031)
Scale: 1" = 40'-0" Date: August 2013
SHEET No. LP-2 OF 9 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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PLANTING PLAN - 1

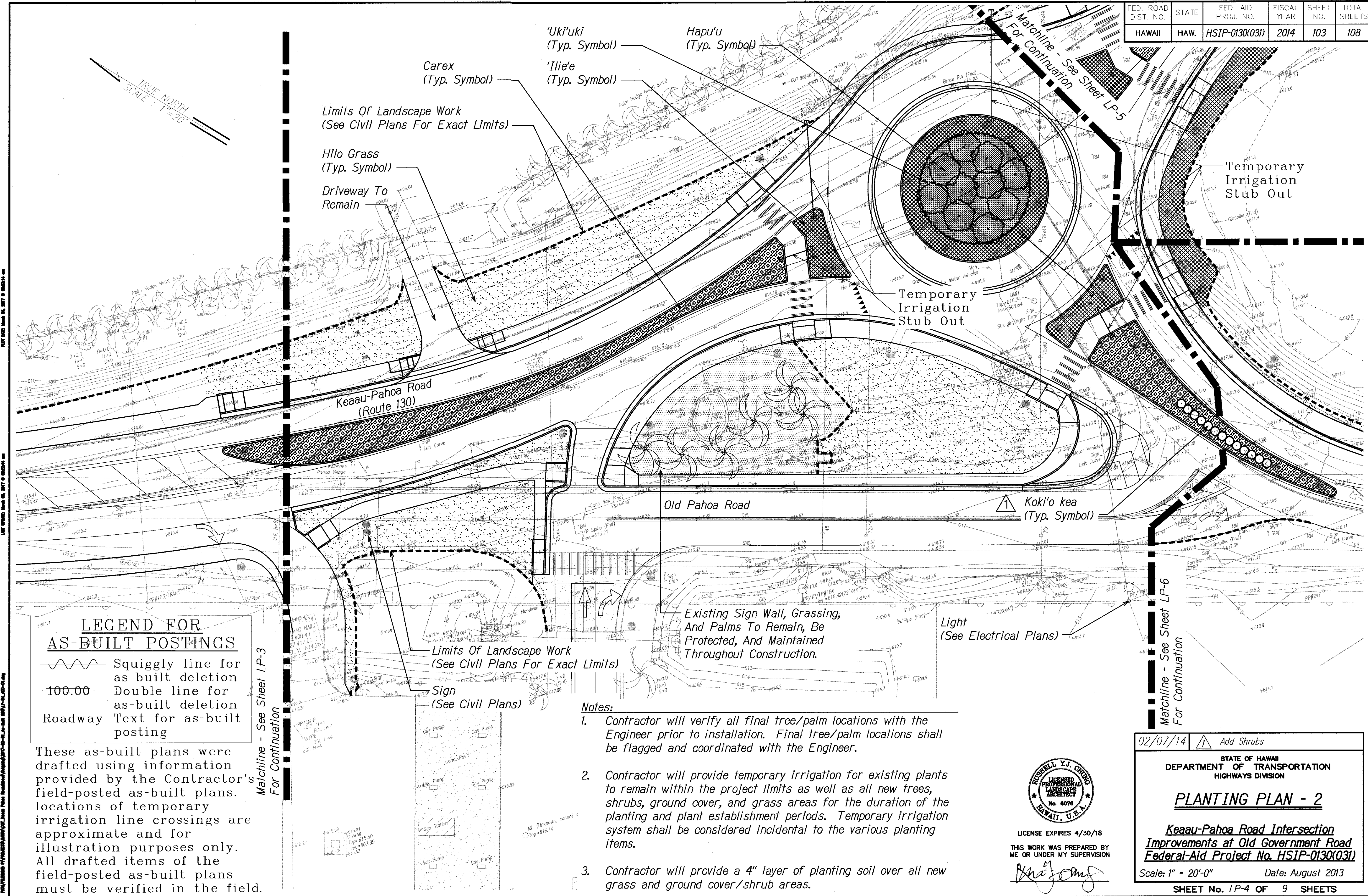
**Keaau-Pahoa Road Intersection
Improvements at Old Government Road
Federal-Aid Project No. HSIP-0130(031)**

Scale: 1" = 20'-0" Date: August 2013

SHEET No. LP-3 OF 9 SHEETS

"AS-BUILT"

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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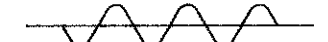
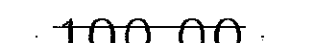


"AS-BUILT"

ADD. 103

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII | HAW. | HSIP-0130(031) | 2014 | 104 | 108 |

LEGEND FOR AS-BUILT POSTINGS

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

These as-built plans were drafted using information provided by the Contractor's field-posted as-built plans. locations of temporary irrigation line crossings are approximate and for illustration purposes only. All drafted items of the field-posted as-built plans must be verified in the field.

Carex
(Typ. Symbol)

Limits Of Landscape Work
(See Civil Plans For Exact Limits)

Temporary
Irrigation
Stub Out

Pahoa Bypass Road (Route 130)

Hilo Grass
(Typ. Symbol)

Light
(See Electrical Plans)

TRUE NORTH
SCALE: 1"=20'

Notes:

- Contractor will verify all final tree/palm locations with the Engineer prior to installation. Final tree/palm locations shall be flagged and coordinated with the Engineer.
- Contractor will provide temporary irrigation for existing plants to remain within the project limits as well as all new trees, shrubs, ground cover, and grass areas for the duration of the planting and plant establishment periods. Temporary irrigation system shall be considered incidental to the various planting items.
- Contractor will provide a 4" layer of planting soil over all new grass and ground cover/shrub areas.

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Limits Of Landscape Work
(See Civil Plans For Exact Limits)

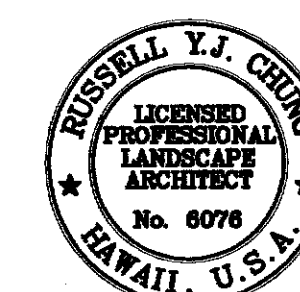
Temporary
Irrigation
Stub Out

'Ilie'e
(Typ. Symbol)

Sign
(See Civil Plans)

Temporary
Irrigation
Stub Out

Matchline - See Sheet LP-6 For Continuation



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PLANTING PLAN - 3

Keaau-Pahoa Road Intersection
Improvements at Old Government Road
Federal-Aid Project No. HSIP-0130(031)

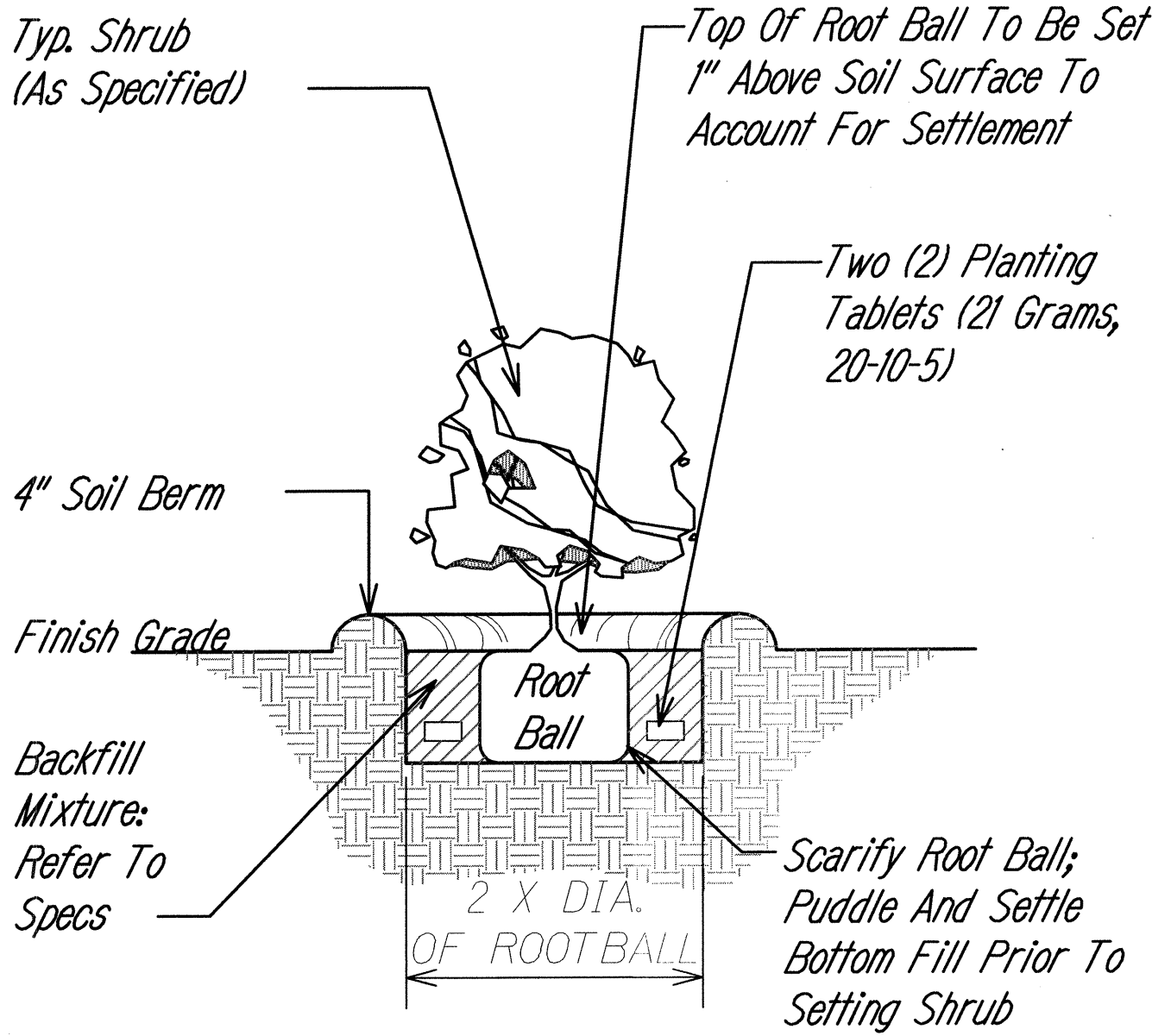
Scale: 1" = 20'-0" Date: August 2013

SHEET No. LP-5 OF 9 SHEETS

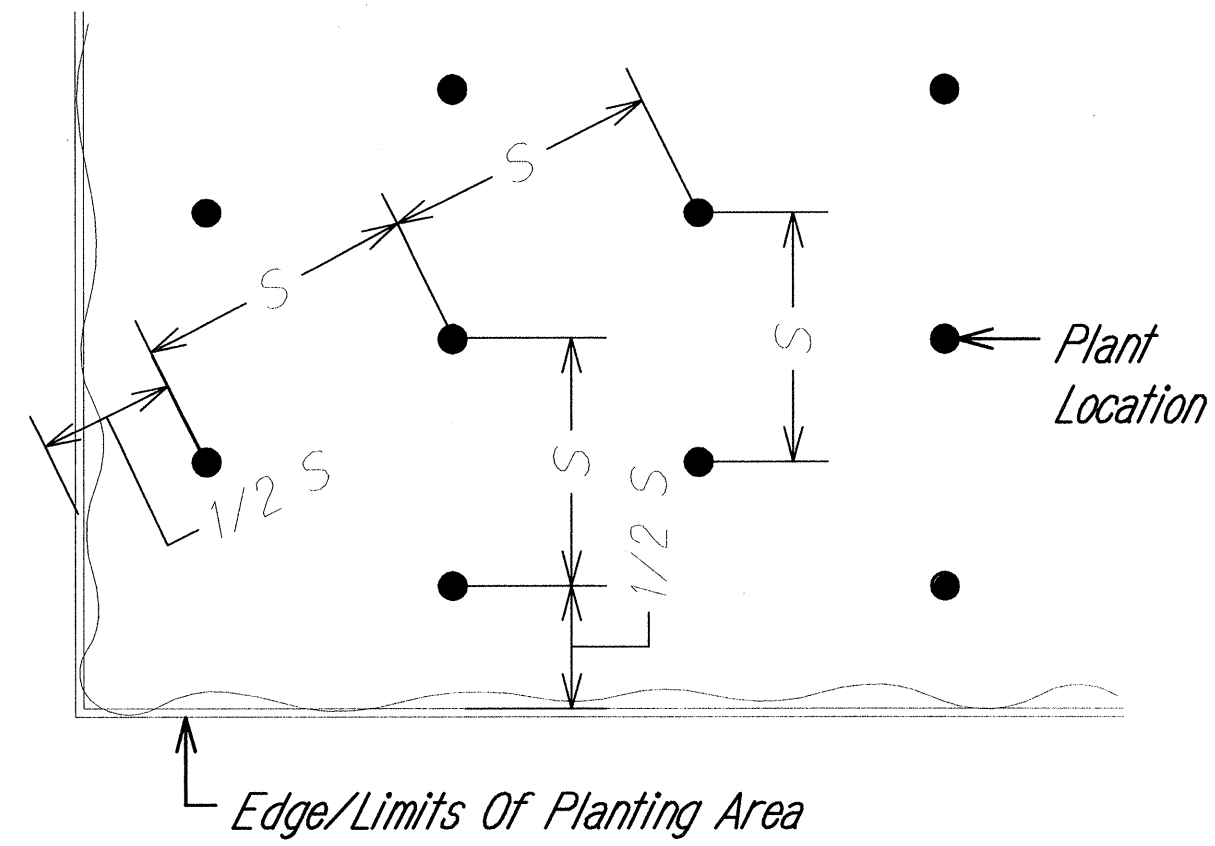
"AS-BUILT"

104

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII | HAW. | HSIP-0130(031) | 2014 | 107 | 108 |



- Note:
1. S = Spacing (Refer To Plant List For Spacing)
 2. Use Spacing Layout For Shrubs, Groundcovers, And Annuals

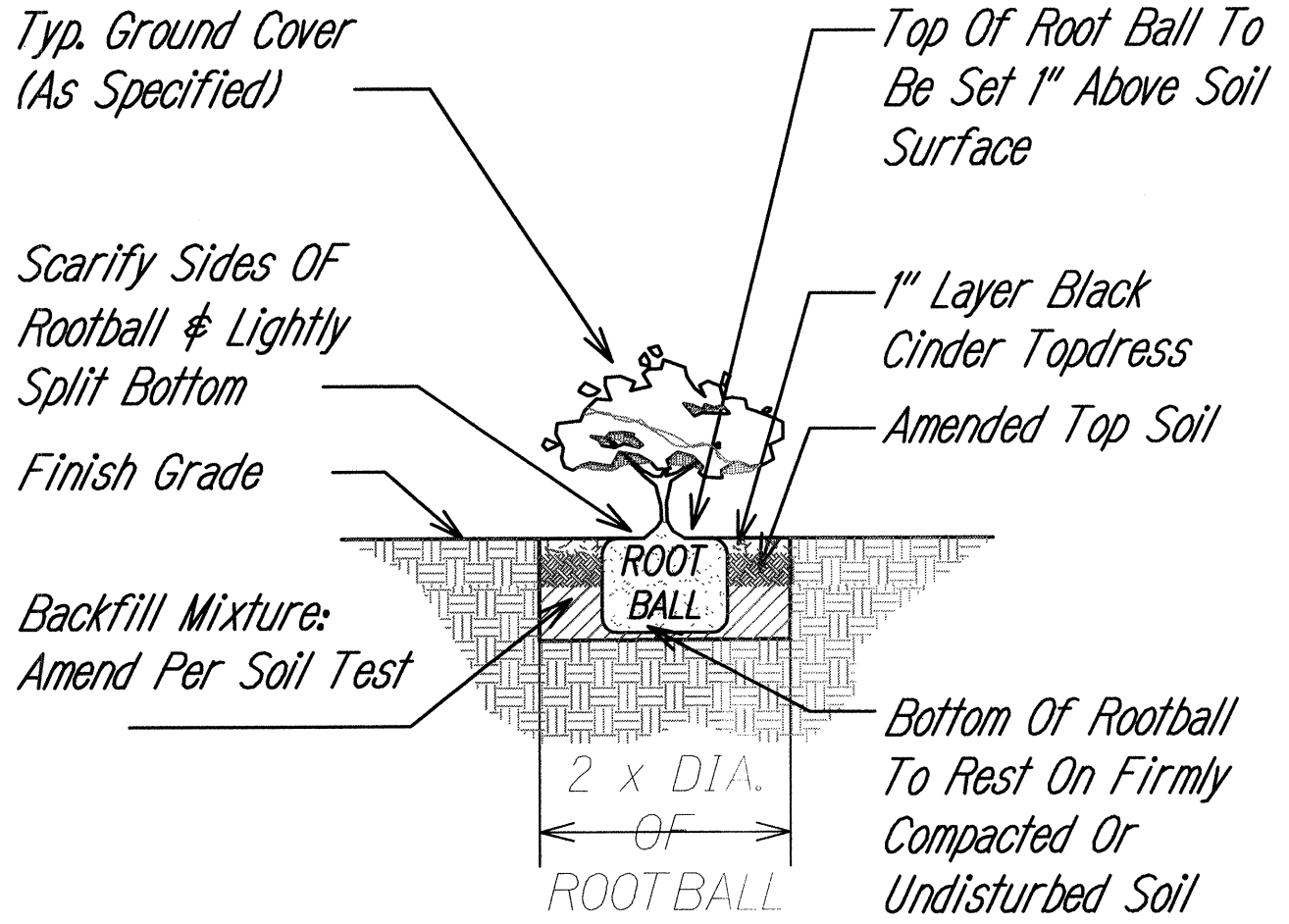


1 SHRUB PLANTING

NOT TO SCALE

329333.13-06

Note:
Immediately after planting, water heavily to ensure soil settles around roots.



2 GROUND COVER PLANTING

NOT TO SCALE

329313-02

3 TRIANGULAR SPACING

NOT TO SCALE

329313-01

Hydro-Mulch Over Sprig:
Mulch Shall Be Specifically Processed Fiber Containing No Growth Or Germination Inhibiting Factors. It Shall Be Such That After Addition And Agitation In The Hydraulic Equipment With Fertilizer, Water, And Other Additives Not Detrimental To Plant Growth, The Fibers Will Form A Homogeneous Slurry When Hydraulically Sprayed On The Soil. The Fibers Shall Form A Blotter-Like Ground Cover Which Readily Absorbs Water And Allows Infiltration, Complete Coverage Of The Surface Shall Be Attained.



4 HYDRO-SPRIG DETAIL

NOT TO SCALE

329313-04

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLANTING DETAILS - 2

**Keaau-Pahoa Road Intersection
Improvements at Old Government Road
Federal-Aid Project No. HSIP-0130(031)**

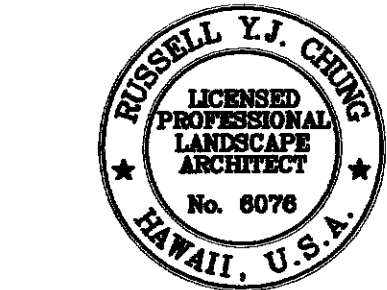
Scale: NONE Date: August 2013

SHEET No. LP-7 OF 9 SHEETS

PLANT SCHEDULE

| <u>NATIVE TREES</u> | <u>BOTANICAL NAME</u> | <u>COMMON NAME</u> | <u>CONT</u> | <u>SIZE</u> | <u>REMARKS</u> |
|---|-----------------------|--------------------|------------------|-------------|-----------------------------|
|  | CIBOTIUM GLAUCUM | HAPU'U | FIELD STOCK | 4'-6' T.H. | |
| <u>SHRUBS</u> | <u>BOTANICAL NAME</u> | <u>COMMON NAME</u> | <u>CONT</u> | | <u>REMARKS</u> |
|  | HIBISCUS WAIMEAE | KOKI'O KEA | 3 GAL. | | BUSHY |
| <u>SHRUB AREAS</u> | <u>BOTANICAL NAME</u> | <u>COMMON NAME</u> | <u>CONT</u> | | <u>REMARKS</u> |
|  | DIANELLA SANDWICENSIS | 'UKI'UKI | 6" POTS | | 18" O.C. TRIANGULAR SPACING |
| <u>GROUND COVERS</u> | <u>BOTANICAL NAME</u> | <u>COMMON NAME</u> | <u>CONT</u> | | <u>REMARKS</u> |
|  | CAREX WAHUENSIS | CAREX | 6" POTS @ 12" OC | | |
|  | PLUMBAGO ZEYLANICA | 'ILIE'E | 4" POTS @ 18" OC | | |
| <u>GRASSES</u> | <u>BOTANICAL NAME</u> | <u>COMMON NAME</u> | <u>CONT</u> | | <u>REMARKS</u> |
|  | PASPALUM CONJUGATUM | HILO GRASS | SPRIGS | | |


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| | |
|--|--|
| 02/07/14 |  Add Shrubs |
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION | |
| <u>PLANT SCHEDULE</u> | |
| Keaau-Pahoa Road Intersection Improvements at Old Government Road Federal-Aid Project No. HSIP-0130(031) | |
| Scale: NONE | Date: February 7, 2014 |
| SHEET No. LP-9 OF 9 SHEETS | |