TREE PROTECTION ZONES (ALSO APPLIES TO PALMS)

- 1. Notes below supplement Standard Plan I-10 08/16/06, of the Highways Division, Design Branch, 2008 of the Department of Transportation, State of Hawaii, which shall be considered part of this Contract.
- 2. Trees identified on the plans and trees greater than 6-inches in caliper (measured at a height of 4.5-feet) whether identified or not, shall have "tree protection zones" established by the arborist and approved by the engineer. No grading, compacting, or construction activity shall occur in the zone. If due to unforeseen site conditions utilities must traverse the tree protection zone, present options for re-routing or tunneling the utility. Options shall be approved by the Engineer.
- 3. A plan depicting the tree protection zones shall be submitted for approval. The plan shall include an accurate representation of the trees to be protected, to be removed, and to be relocated, including species, trunk diameter, and canopy diameter. Include a report evaluating the condition of the existing trees and an opinion on thier ability to survive work under this contract.
- 2. The tree protection zone shall be defined as the outer drip line of the canopy of the tree, or a radius of 20-feet from the external surface of the tree's trunk, whichever is greater. For palms, the minimum protection zone shall be a radius of 10-feet from the external surface of the palm's trunk.
- 3. Unless approved otherwise, the zone shall be entirely enclosed by temporary fencing prior to any work and remain fenced until work is completed. The protection fences shall not be relocated or removed without the permission of the Engineer.
- 4. Protection fencing shall be minimum 4-feet height orange plastic mesh fencing supported with steel t-posts a minimum of 6-feet long at 5-feet on center, or as otherwise approved by the Engineer. Protection fencing shall be maintained by the Contractor throughout the Contract Period. Post signs reading "Tree Protection Zone (TPZ) no grade change, storage, or equipment permitted with the TPZ", on all four sides.
- 5. Provide a 4-inch layer of organic cover mulch over the soil surface in the tree protection zone. Perform under the supervision of the Arborist.
- 6. No work shall begin before tree protection fencing has been installed and approved.
- 7. Staging areas shall be approved by the Engineer. No construction materials, equipment, vehicles, dumpsters or debris, shall be stored, parked, or temporarily placed within the tree protection zone.
- 8. Protect overhanging tree canopies from construction damage. Pruning for clearance, if required, shall be under the direction of the Contractor's Arborist and be approved by the Engineer.
- 9. There shall be no grade changes within 10-feet of the trunk of existing trees. Grade changes within the protection zone of any tree, shall be reviewed by the Arborist and approved by the Engineer.
- 10. Do not clean equipment near a tree protection zone. No construction liquid shall be dumped within the zone.
- 11. Monitor trees weekly and irrigate throughout the contract.
- 12. No lime, or other soil treatment shall be applied within or around tree protection zones without the approval of the Engineer.

TREE PROTECTION NOTES (ALSO APPLIES TO PALMS)

- 1. Notes below supplement Standard Plan I-10 08/16/06, of the Highways Division, Design Branch, 2008 of the Department of Transportation, State of Hawaii, which shall be considered part of this Contract.
- 2. Retain the services of an Arborist who has been certified by the International Society of Arboriculture for a minimum of 5—years. The Arborist shall have experience in tree protection planning during construction, tree and root pruning, and transplanting of trees.
- 3. The Arborist shall insure that trees are provided proper care and retain good health during the contract period. Alternative procedures may be required on a tree by tree basis and field decisions by the Arborist, Contractor, and the Engineer to insure the safety and health of trees. Such as adjustment of walkways, utilities, walls, or curbs.
- 4. A pre-construction meeting shall be arranged with the Contractor, Sub-Contractors, the Arborist, the Engineer, and selected consultants, to review procedures for performing tree related work, work in the area around trees, access routes and storage areas, and measures to be taken to protect trees during the contract period.
- 5. The Arborist shall insure that proper measures are taken to protect the crown and root systems from damage. When potentially damaging construction activities arise, i.e. major support root removal, excessive root removal on one or more sides, or major crown branch removal, the Arborist shall insure such activity is performed in a manner that will minimize damage. The Arborist shall insure that root pruning is performed in accordance with ANSI A300 standards.
- 6. Underground utilities and irrigation shall be routed outside the tree protection zone. If utilities must traverse the protection zone, auger tunneling at a depth of 4—feet or greater, not trenching, shall be used where possible. If trenching is necessary with the protection zone, it shall be hand dug.
- 7. Tree roots shall not be cut unless cutting is unavoidable. When cutting is unavoidable, a clean, sharp cut shall be made to avoid shredding or smashing. A trencher, backhoe, or other equipment shall not rip out roots. Make root cuts back to a lateral root whenever possible.
- 8. Roots 2-inches or greater in diameter shall be tunneled or bored under and shall be covered to prevent dehydration. Cover exposed roots immediately with soil or burlap, and keep moist. Roots larger than 2-inches in diameter shall not be cut unless no other alternative is feasible and approved by the Arborist and the Engineer. Fertilize and water to minimize shock as directed by the Arborist or Engineer.
- 9. The Arborist shall prepare trees for upcoming impacts. Preparation includes, but is not limited to, advanced root and crown pruning. Excessive root pruning may require crown reduction pruning. Prune sufficiently in advance to allow the trees to adapt and prepare for construction procedures.
- 10. If construction sequencing requires temporary storage of trees prior to availability of final locations, the Contractor shall be responsible for transporting, watering and maintenance of subject trees through final acceptance. Temporary storage locations shall be determined by the Engineer.
- 11. Immediately notify the Engineer should damage to a tree occur. The Arborist shall evaluate the injury and provide the appropriate treatment.
- 12. Damage includes, but is not limited to: A. Mechanical injuries such as breaks, rips, punctures to trunk, branches, or roots. B. Crushed roots. C. Compacted root zone soil. D. Chemical contamination. E. Unapproved grade changes. F. Improper pruning.
- 13. If a tree should die, require removal, or continued remedial work due to damage caused by work under this Contract, the Contractor shall compensate the State for the full value of the affected tree. If replacement is approved, the replacement shall meet with the approval of the Engineer and maintained for the duration of the construction or 12 months, whichever is greater, at no cost to the State.
- 14. Tree value shall be determined by trunk formula method of tree appraisal in the current edition of "The Guide for Plant Appraisal," by the International Society of Arboriculture.
- 15. The Engineer reserves the right to obtain the opinion of another certified Arborist should conflicts arise.

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LANDSCAPE DEMOLITION NOTES

- 1. The extent of removal as indicated is approximate. The Contractor shall verify the extent of removal work to properly accommodate his method of constructing new work as required. Additional removal, patching, and restoration required to accommodate construction shall be considered incidental to the new work.
- 2. See notes regarding protection of existing trees and palms.
- 3. Remove and stockpile existing topsoil for re-use.
- 4. Unless otherwise noted, demolish and dispose miscellaneous existing landscaping within the contract limits as required for new construction. Consult with the Engineer for final verification prior to action involving existing trees and palms.
- 5. Demolition of trees and palms where structures are to be constructed shall include rootball removal, debris disposal, and backfill of excavation with approved material. Consult the soils report or the Structural Engineer for backfill requirements. Remove roots only where removal does not damage existing structures or surfaces to remain. Clean cut roots at structures to remain prior to rootball removal.
- 6. In landscaped areas where no structures are to be constructed, stump grind trees and palms to be removed to 12-inches below finish grade. Remove wood chips (do not use as backfill) and backfill with approved material. Compact to accept a finish surface of topsoil. Overfill and tamp topsoil to allow for settling to match finish grade.
- 7. Field verify, operate, and document the existing irrigation systems to become familiar with the respective systems affected by work under this Contract and surrounding the Contract Zone Limits prior to the start of construction and demolition. Coordinate operation of the various systems with the State. The Contractor shall not be responsible for damages on the existing systems prior to start of work under this Contract. However, upon commencement of the project the Contractor shall be responsible to protect, maintain and repair the portion of the existing systems within the project limits for the duration of the Contract.
- 8. Flag and record locations of existing irrigation heads, valves and appurtenances. Existing sprinkler heads and quick connect valves may be buried. The location of existing water and sprinkler lines, heads and valves as shown are approximate only. Extent of existing irrigation system protection and repair shall be determined based on this documentation.

Landscape Demolition Notes continued on sht. L-2.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

MIYABARA ASSOCIATES, LLC LIC. EXP. DATE

HIGHWAYS DIVISION

DEPARTMENT OF TRANSPORTATION

<u>LANDSCAPE NOTES</u>

<u>KAHULUI AIRPORT</u> <u>ACCESS ROAD, PHASE I</u> <u>Federal Aid Project No. NH-0380(10)</u>

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OF 11 SHEETS

ORIGINAL PLOTTED BY

PLAN

PLAN

TRACED BY

NOTE BOOK

GUANTITIES BY

CHECKED BY

CHECKED

Date: February 2013

LANDSCAPE DEMOLITION NOTES (CON'T)

- 9. Existing irrigation systems serving areas outside the Contract Zone Limits shall remain operational and be protected. Should existing systems be damaged or made inoperable due to work under this contract, immediately make repairs or provide temporary irrigation until repairs can be made. The Engineer shall approve repairs or temporary system.
- 10. The Contractor shall not be responsible for repair of systems inoperable or damaged prior to work under this contract. Repair shall be limited to damage to existing systems caused while trenching or other work under this Contract. Repair damaged piping and wires, and replace damaged valves and heads to the satisfaction of the Engineer.
- 11. Materials and equipment for repair shall at a minimum meet the specifications and performance standards for the existing items being replaced. Submit material and equipment data for review and approval.
- 12. Schedule work to minimize the duration which an existing irrigation zone becomes inoperable. Affected zone(s) shall become operable prior to proceeding with similar work in other zones. Provide temporary irrigation should delays cause decline of the affected landscape.
- 13. Replace and pay for existing planting outside the project limits damaged as a result of delays in repairing existing irrigation systems damaged by work under this contract, or in making connections or modifications to existing irrigation systems. The Engineer shall approve size and spacing of replacement planting.
- 14. Where noted or required for new construction, cap irrigation pipes as directed and remove affected components.

 Existing irrigation components removed shall be cleaned and turned over to the owner. Remove and dispose existing buried piping to the extent exposed by other work.

 Unexposed piping may be abandoned in place.

<u>SPECIAL NOTE - COQUI FROG</u> (<u>ELEUTHERODACTYLUS COQUI AND/OR</u> <u>ELEUTHERODACTYLUS PLANIROSTRIS</u>):

- 1. Prior to transport to the project, inspect, take precautions, and certify that plant materials, equipment and vehicles are free of coqui frogs and/or their eggs.
- 2. In the event of the presence of coqui frogs and/or their eggs, they shall be completely destroyed and removed and the plant material, equipment, or vehicle treated as recommended by the state and re-inspected.
- 3. Report presence of coqui frogs or eggs to the Hawaii Dept. of Agriculture pest hotline at (808) 643-pest (7378), or the Maui Invasive Species Committee (MISC) ph: (808) 573-6472 or email: miscpr@hawaii.Edu.

GENERAL NOTES

- The Contractor shall obtain and pay for all required permits from appropriate government agencies.
- 2. The Contractor is alerted to the encountering of obstacles whether shown on the drawings or not, or which may differ in location from that shown which may interfere with his normal method of operations. The Contractor shall take into account additional costs anticipated due to these conditions and shall have these costs included in the bid items which he feels most appropriate.
- 3. Inspect the site and verify conditions prior to commencing with the work. Perform an independent check of elements and possible conflicting structures. By commencing with the work, existing conditions and responsibility for maintaining those conditions is accepted.
- 4. No guarantee is made on the accuracy or completeness of the information shown. The user(s) of these drawings shall verify prior to and during construction, the existing conditions in order to complete the contract.
- 5. The Contractor must satisfy himself through his own investigations as to what subsurface conditions are to be encountered. Exercise extreme care in excavating the area. Tone the area prior to excavation and trenching to verify the location of underground utilities and obstructions that may affect the work. Report obstructions to the Engineer.
- 6. If the Contractor elects not to verify existing underground utilities and structures prior to excavation, he forfeits his rights for claims for compensation caused by conflicts with existing utilities and structures.
- 7. In the event artifacts or human remains are uncovered during construction operations, immediately notify the State Department of Land and Natural Resources Historic Preservation Division (ph. 692–8015).
- 8. Protect existing improvements on the premises and in adjacent areas. Repair damages caused by work under this contract to match surrounding surfaces, including but not limited to, patching, painting, and re-planting. Consult with the engineer prior to action involving repair of existing surfaces and finishes.
- 9. Verify dimensions and details prior to the start of construction. Bring discrepancies to the immediate attention of the Engineer.
- 10. Field layout the location, alignment and elevation profile of the proposed improvements and obtain approval of the layout and finish elevations prior to start of excavation. The Engineer reserves the right to revise the layout and finish elevations of the proposed improvements prior to start of excavation.
- 11. The Contractor shall be responsible to plan and construct
 Best Management Practices (BMP) as required by his
 operations to comply with all laws, standards, rules, and or
 policies of the City, State or Federal regulatory agencies.
 Upon acceptance of the project, the Contractor shall be
 required to remove all best management practices and to
 restore the project site to its original conditions or better.
- 12. Provide, install and maintain all necessary signs, lights, barricades, and protective facilities. Take necessary precautions for the protection, convenience and safety of the public.

TEMPORARY IRRIGATION NOTES

- 1. Provide temporary irrigation as required for the establishment of plant materials for the duration of the plant maintenance period. Temporary irrigation shall remain the property of the Contractor and shall be removed upon project completion. Unless otherwise noted below, type and means of temporary irrigation shall be at the option of the Contractor. Point(s) of connection shall be approved by the Engineer.
- 2. The Contractor shall be aware that temporary irrigation will be exposed to the public and may not be secure. The contractor shall take reasonable precautions to minimize exposure and damage. Repair and replacement of temporary irrigation shall be the contractor's responsibility. Payment for cost of repair and replacement due to vandalism is not part of this Contract. Payment shall be determined by the Engineer on a case by case basis.
- 3. Within 30 days after award of the contract, submit for the Engineer's acceptance, six (6) copies of detailed scaled drawings and wiring diagrams, if applicable, for temporary irrigation systems. Include equipment product data.
- 4. Obtain and pay costs of necessary permits and certificates for water service.
- 5. Provide a temporary Maui Department of Water Supply approved reduced pressure principle backflow prevention device for each point of connection to a potable water source.
- 6. Provide a temporary water meter at each point of connection. Record water consumption data as directed by the Engineer.
- 7. If used, locate sprinkler heads minimum 6-inches from walkways, curbs, and pavements, and minimum 12-inches from buildings and walls unless otherwise approved. Flexible tubing, or mechanical swing joints where applicable, shall be provided on sprinkler heads along walkways, curbs and pavements. Adjust sprinkler heads for minimum overthrow and misting.
- 8. Locate valve boxes so that the outer edges are no closer than 5-feet to roadway pavement.
- 9. To minimize water consumption and increase efficiency, provide battery operated controllers to enable automatic irrigation during "off peak" evening hours. Except as required for initial plant establishment, irrigation systems shall be operated during "off peak" evening hours. The Engineer shall approve operation during other times.
- 10. Prior to removal of the temporary irrigation system, acclimatize the plants to receiving minimal water.

 Accomplish this by gradually reducing the amount of water applied during the last month of the maintenance period. Keep up to date records of water application.

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PLANTING NOTES

- 1. Notes below supplement the plant notes on the Standard Plan I-11 08/16/06, of the Highways Division, Design Branch, 2008 of the Department Of Transportation, State of Hawaii, which shall be considered part of this Contract.
- 2. Existing plants and lawn to remain shall be protected in place. If plants or lawn are damaged due to work under this contract, the contractor shall replace plants or lawn with the same species at a size approved by Engineer. Replacement shall be at no cost to the State.
- 3. Areas damaged by work under this contract, including but not limited to, storage areas, staging areas, and equipment access routes shall be restored and replanted to match the existing conditions prior to disturbance. The Engineer shall approve repairs. Restoration includes tilling, amending, fine grading and planting.
- 4. Notify the Engineer 30 days prior to planting operations for approval of plant material at place of growth. Plant material not approved by the engineer will be subject to rejection. Each tree and palm shall be tagged by the Engineer with a consecutively numbered plastic tamper—resistant tag. Trees and palms delivered to the project without the Engineers tag will be rejected. Tags shall remain on trees and palms and only be removed by the Engineer at the completion of the plant establishment period.
- 5. Test plant pits for drainage by filling with water. Conditions permitting the retention of water in the planting pit shall be brought to the immediate attention of the Engineer. Do not proceed with planting without approval. Pay special attention in areas of compacted fill or exposed rock.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

MIYABARA ASSOCIATES, LLC LIC. EXP. DATE

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

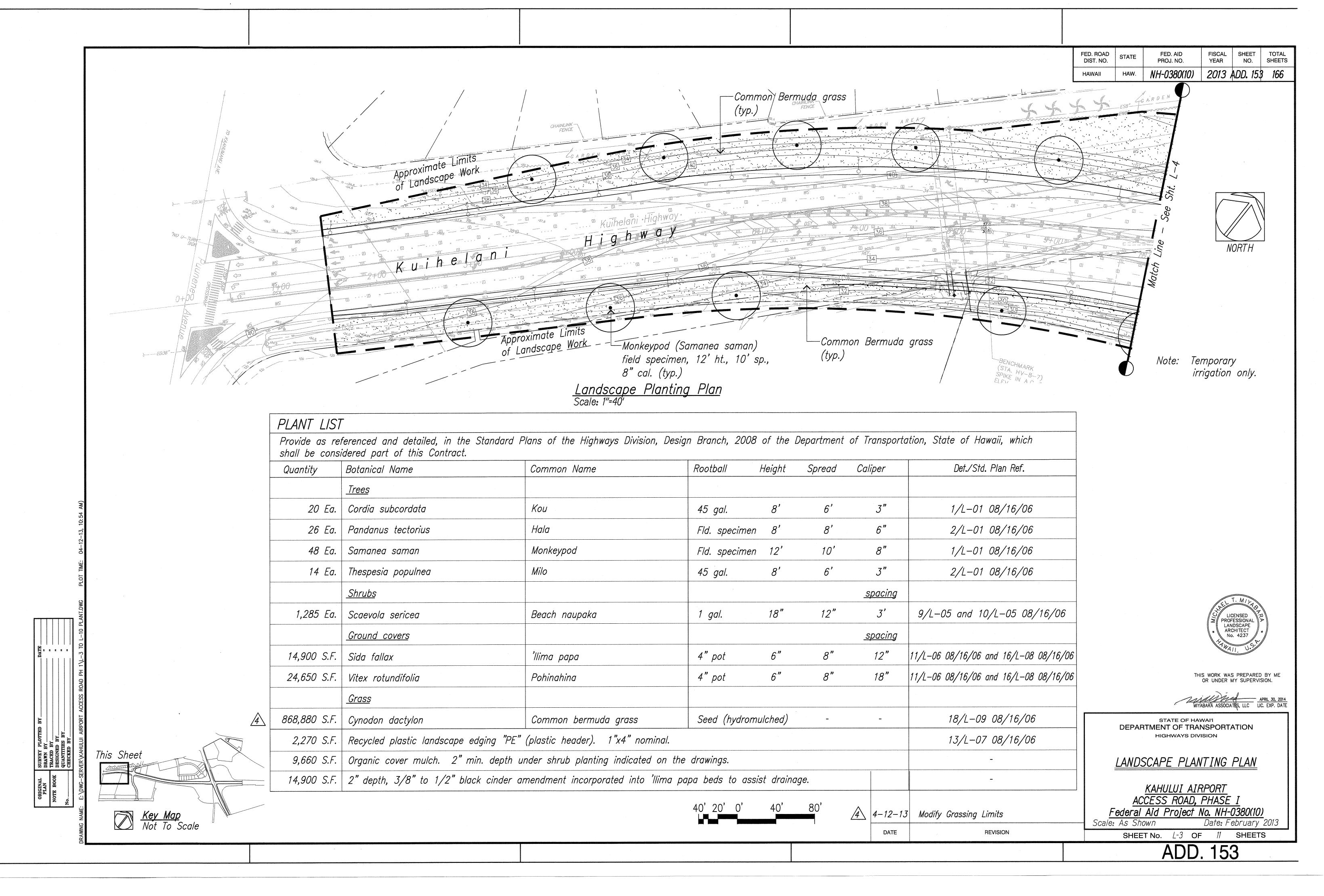
LANDSCAPE NOTES

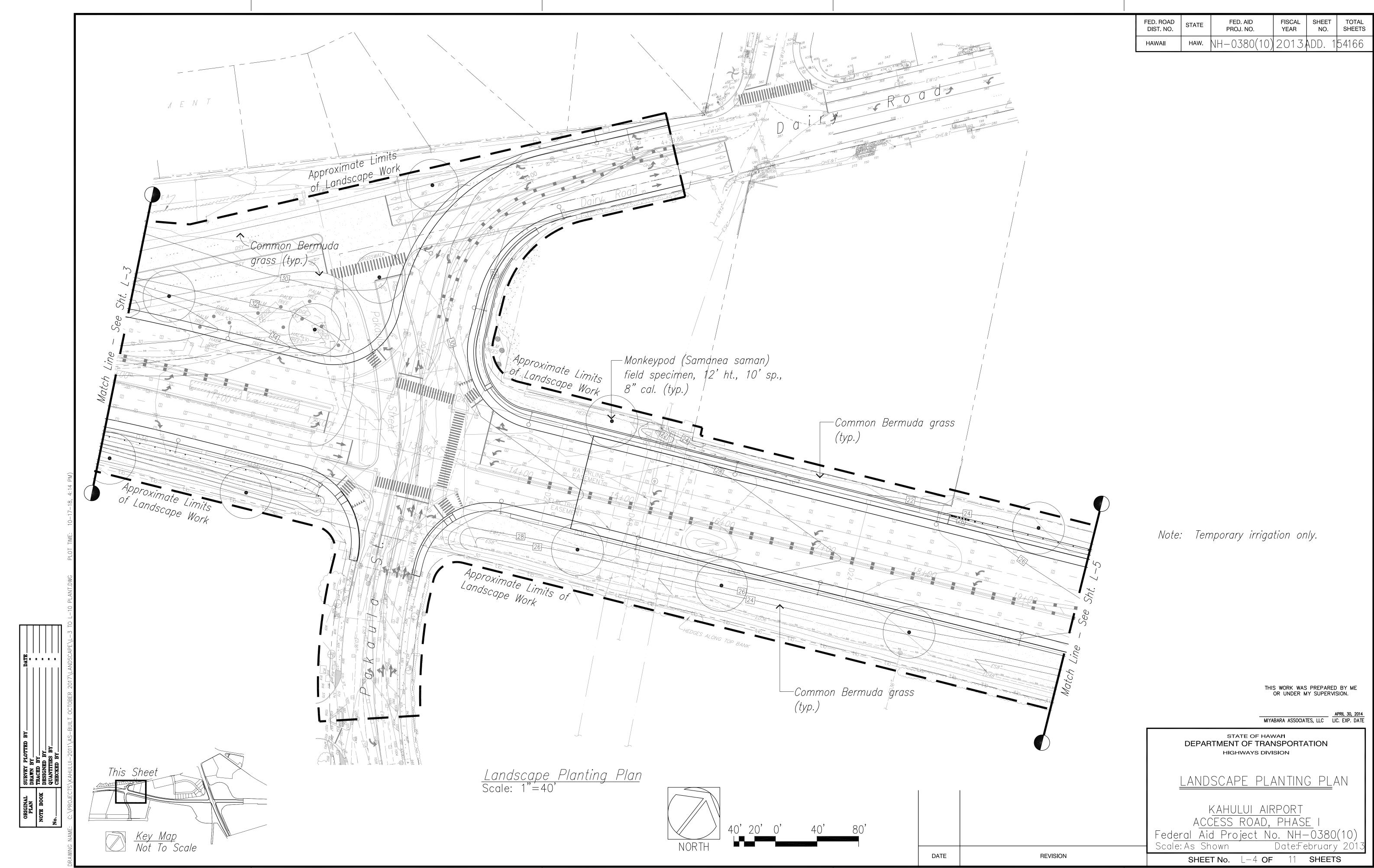
<u>KAHULUI AIRPORT</u> <u>ACCESS ROAD, PHASE I</u> Federal Aid Project No. NH-0380(10)

cale: None

Date: February 2013

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ADD. 154

