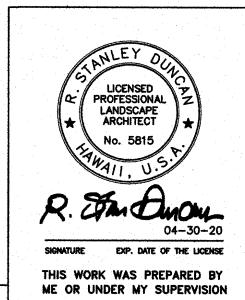
PLANTING NOTES:

- 1. Contractor shall field verify all plant quantities and dimensions prior to installation. Contractor shall determine quantities of plant materials to be provided. In all cases, Contractor shall install plant material on all areas affected by construction.
- 2. Contractor shall be responsible for locating and protecting existing utilities.
- 3. Do not perform planting operations until ground has been prepared and site is neat, orderly, and the Engineer accepts site for planting.
- 4. Notify Engineer of any discrepancies in plant locations.
- 5. The Contractor's submission of a bid shall constitute certification of availability of plants of the required type, size, and quantity. Engineer shall inspect and approve plants at time of delivery and acceptance. Plants shall meet size indicated and shall be undamaged, sound, healthy, vigorous and free of disease and insect infestation. Plants not conforming to these requirements on delivery to the project and at the end of the plant establishment period will be rejected.
- 6. Contractor shall be solely responsible for the complete removal and damages resulting from planting any plant species listed on the Hawaii Department of Agriculture 'Noxious Weed Rules' as defined in the statute, Hawaii 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.
- 7. All tree work must adhere to American National Standard Institute (or ANSI) a300 Tree Care Standards and ANSI-z133 safety standards for tree work. Work shall be contracted to arborists that have been certified in good standing as an ISA Certified Arborist for at least 10 continuous years to assure that the 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 of good standing of 10 years to the Engineer a minimum of 7 days prior to tree pruning. The cost for arborist services shall be considered incidental to Specification Section 619 - Planting.
- 8. Representative samples of soil from project site shall be submitted to Crop Nutrient Solutions Inc., the University of Hawaii Agricultural Extension Service or laboratory acceptable to the Engineer for analysis of required soil amendments. Test results and fertilization schedule shall be presented to the Engineer for review and acceptance before placing planting soil or amending existing soil. Uniformly distribute fertilizer and amendments over planting areas as recommended by the soil analysis report. Refer to Specification Section 618 - Soil Preparation.
- 9. For the duration of construction within the drip line of trees to remain there must be: no changes, alterations or disturbance to the grade by adding fill, excavating or scraping except as noted on plans; no storage of construction materials or equipment; no stockpiling of any construction material or any excavated material no disposal of any liquids (e.g. concrete slurry, gas, oil, paint; no vehicular traffic, no attachment of any wires. ropes, lights, or any other such attachment other than those of protective nature to any tree to be preserved; and no cleaning of equipment or material under the canopy of any tree or group of trees to remain.
- 10. Guy wires, flagging, stakes, windbreakers, etc. shall be maintained and replaced if necessary by the Contractor until acceptance by Engineer. The Contractor shall remove and dispose of these items at the end of plant establishment period.
- Provide water for all plant materials for the duration of the project, including plant establishment period. Water trees, shrubs, ground cover and all grassed areas. Water for planting shall not cause erosion damage to the slopes. The Contractor shall be responsible for repairing any damage caused by the watering of plants.

- FISCAL YEAR PROJ. NO. 200A-01-10 2018 140
- 12. Temporary irrigation shall be provided and installed by the Contractor for the duration of the project. Temporary irrigation system shall be considered incidental to Specification Section 619 - Planting. The Contractor shall be responsible for locating, determining, and establishing the water source and delivery method of the water to the project site. Contractor shall be responsible for obtaining and maintaining all necessary permits and agreements for the source of the water for the irrigation system as well as ensuring water is delivered to the site for the duration of the project. Replace watering equipment that cause erosion or runoff. Water will be considered an incidental cost to the project. The Contractor shall provide and maintain all equipment required to deliver water to the project site. Contractor shall also be responsible for obtaining all necessary permits and agreements for the source of water for the temporary irrigation system.
- 13. Contractor shall be responsible for weeding throughout he 9-month plant establishment period. All removed weeds shall be immediately placed in plastic bags to minimize the spread of weed seeds. Contractor shall keep all new planting areas at least 90 percent of weeds and grass considered undesirable by the Engineer. Keeping new planting areas at least 90 percent free of weeds and grass considered undesirable by the Engineer is required as a condition of acceptance for the planting period, plant establishment period, and final acceptance. Refer to Specification Sections 641.03(D), 641.03(E) and 641.03(F).
- 14. Tree roots greater than 2 inches in diameter shall not be disturbed. Cutting of tree roots larger than 2 inches in diameter must be approved by an ISA Certified Arborist with a minimum of 10 years of continuous licensure and experience, and, accepted by the Engineer. Contractor to submit arborist's qualification and a tree root assessment report to the Engineer for approval prior to cutting tree roots. Root pruning shall be done in conformance with ANSI a300 (Part 8) latest edition. Root pruning shall take place under the supervision of the approved arborist at all times.
- 16. The Contractor may procure plant material after Contract Award and prior to the agreed Notice To Proceed with approval of the Engineer. The Contractor shall present the list of plant materials for procurement to the Engineer for review and acceptance before procuring plants. Plants not conforming to contract document requirements will be rejected.
- 17. Any planting that obstructs sight distance, signs, or traffic lights shall be pruned, relocated, or removed as determined by the Engineer, at no expense to the State.
- 18. Unless specifically identified to remain, Contractor shall demolish and remove invasive and/or non-native trees and shrubs, within the project limits, with trunk caliper of less than 8-inches.



DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION

PLANTING NOTES

MAUNA KEA MAINTENANCE **BASEYARD** DANIEL K. INOUYE HIGHWAY

Project No. 200A-01-10

Scale: Not to Scale

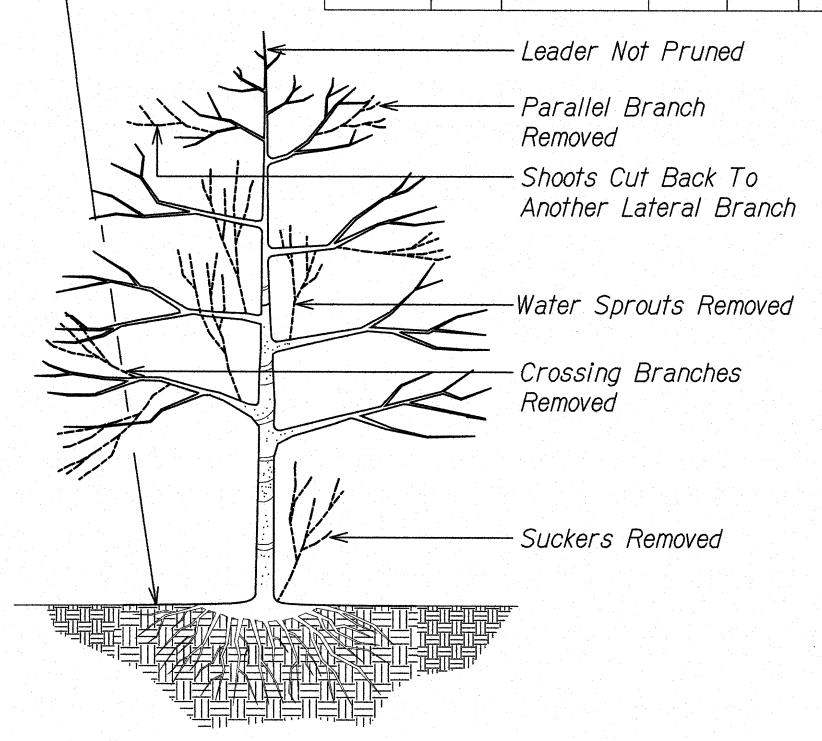
Date: April 2018 SHEET NO. L-1 OF 7 SHEETS

L-1

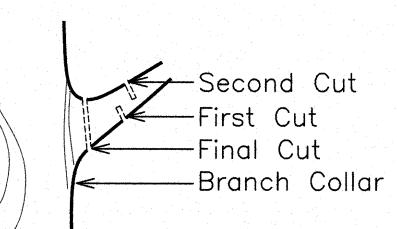
TREE PROTECTION ZONE:

- All trees identified on the plans shall be protected unless noted otherwise. If trees other than those designated for removal are damaged beyond survival condition as determined by the Engineer, the Contractor shall remove such trees and replace with a tree of the same species and size and maintain for the duration of the construction or 12 months whichever is greater at no cost to the State.
- The recommended tree protection zone should be located at the outer drip line of the canopy of the tree. However, the minimum protection zone around a tree should be at least 10 feet from the external surface of the tree's trunk. For all palms, the minimum protection zone should be at least 10 feet from the external surface of the palm's trunk. Fence location may be adjusted as directed by the Engineer.
- All underground utilities and irrigation lines should be routed outside of the tree protection zone. If utilities must traverse the tree protection zone, they shall be tunneled or bored at a depth of 4 feet or greater within the tree protection zone.
- All protected trees shall be listed on the demolition, landscape, grading and utilities plans. If there is a discrepancy with all plans, Contractor shall contact Engineer immediately.
- Protective fences shall be erected around trees identified on plan to remain and/or trees with a trunk diameter greater than 8 inches (as measured at a height of 4 ½ feet.) Protective fence shall be 4 feet high orange plastic mesh or approved equivalent supported on steel T-post a minimum of 6 feet long. Protective fence shall surround tree at a minimum of 10 feet from tree trunk with steel T-post at a minimum of 5 feet on center. Fence shall be installed prior to any demolition work and shall remain in place until site work is completed. Signs shall be posted on all four sides to read "TREE PROTECTION ZONE [TPZ] - NO GRADE CHANGE, STORAGE OR EQUIPMENT PERMITTED WITHIN TPZ."
- For the duration of construction within the drip line of the trees to remain there must be:
 - No changes, alteration or disturbance to the grade by adding fill, excavating or scraping except as noted on plans;
 - No storage on construction materials or equipment;
 - No stockpiling of any construction materials or excavated materials;
 - No disposal of any liquids (e.g. concrete slurry, gas, oil, paint);
 - No vehicular traffic, equipment er excessive pedestrian traffic;
 - 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; and
 - No cleaning of equipment or material under the canopy of any tree or group of trees to be preserved
- Contractor shall refer to Specification Section 201 Clearing And Grubbing for additional tree protection instructions.

Tree Roots Shall Not Be Cut Unless Cutting Is Unavoidable. When Root Cutting Is Unavoidable, A Clean, Sharp Cut Shall Be Made To Avoid Shredding Or Smashing. Root Cuts Shall Be Made Back To A Lateral Root Whenever Possible. Roots 2-inches Or Greater In Diameter Shall Be Tunneled Or Bored Under And Shall Be Covered To Prevent Dehydration. Exposed Roots Shall Be Covered Immediately With Soil Or Burlap And Kept Moist. No Roots Larger Than 2-inches Shall Be Cut Unless No Other Alternative Is Feasible. Approved By A Certified Arborist, And Accepted By The Engineer. Fertilize And Water To Minimize Shock As Directed By A Certified Arborist Or Engineer.



- 1. Positions of first and second cuts may be reversed in some cases, particularly when cutting a large branch with a chainsaw.
- 2. Do not make flush cuts or leave stubs.
- 3. Do not paint cuts.
- Remove dead, broken or malformed branches.
- 5. Remove all vines entwined in the tree or around its trunk.
- 6. All pruning shall be completed using clean sharp tools. All cuts shall be clean and smooth, with the bark intact with no rough edges or tears.
- 7. Dispose of all cuttings in accordance with Specification Section 201 - Clearing And Grubbing.
- 8. Retain the normal shape of the plant.
- 9. All work shall be done in the presence of an ISA Certified Arborist.



FISCAL YEAR

2018

PROJ, NO.

200A-01-10

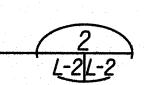
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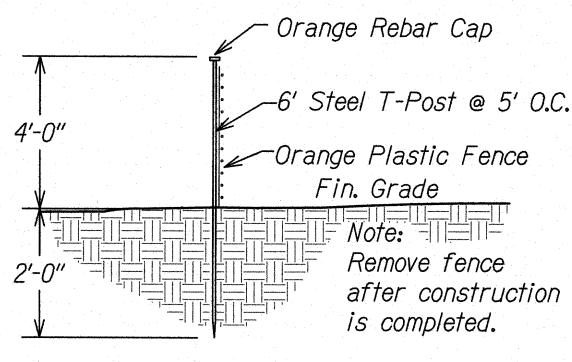
SHEET NO.

TYPICAL BRANCH REMOVAL Scale: Not To Scale

TREE PRUNING DETAIL

Scale: Not to Scale

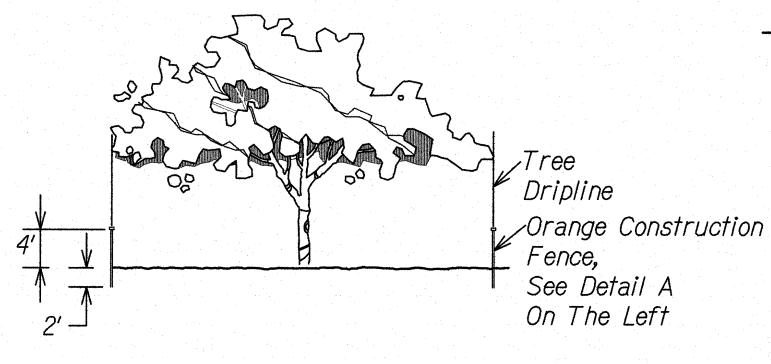




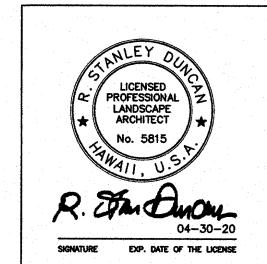
DETAIL A - ORANGE CONSTRUCTION FENCE Scale: Not To Scale

Orange Construction Fence. See Detail A On The Left. Tree Trunk -10'-0" Min. No Grading, Compaction or Construction Zone (Typ). PLAN VIEW

Scale: Not To Scale



SECTION Scale: Not To Scale



THIS WORK WAS PREPARED BY

ME OR UNDER MY SUPERVISION

STATE OF HAWAI'I **DEPARTMENT OF TRANSPORTATION** HIGHWAYS DIVISION

TREE PROTECTION DETAIL

MAUNA KEA MAINTENANCE **BASEYARD** DANIEL K. INOUYE HIGHWAY

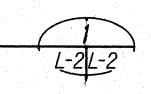
Project No. 200A-01-10

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Date: April 2018 SHEET NO. L-2 OF 7 SHEETS

TREE PROTECTION

Scale: Not to Scale



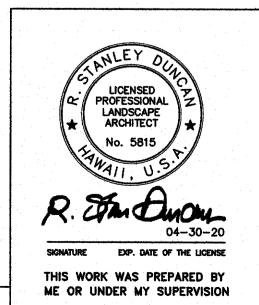
L-2

- 1. Contractor shall schedule a Preinstallation Conference prior to construction to review methods and procedures related to transplanting work. Methods and procedures shall include, but are not limited to: construction schedule, verify availability of materials, personnel, equipment, and unimpeded access needed to make progress and avoid delays; tree protection; tree maintenance; arborist's responsibilities.
- 2. Pruning Schedule: Written schedule prepared by arborist detailing scope and extent of pruning each tree in preparation for and subsequent to transplanting.
- 3. Tree-Service Firm Qualifications: An experienced landscaping contractor or tree-moving firm that has successfully completed transplanting work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
- 4. Tree-Transplanting Program: Prepare a written plan by arborist for transplanting trees for the whole Project, including each phase or process, tree maintenance, and protection of surrounding materials during operations. Describe in detail the materials, methods, and equipment to be used for each phase of the transplanting work.
- 5. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees in such a manner as to destroy their natural shape. Handle trees by root ball. Do not drop trees.
- 6. Field Measurements: Verify final grade elevations and final locations of trees and construction contiguous with trees by field measurements before proceeding with transplanting work. Perform transplanting only after finish grades are established.
- 7. Coordination with Turf Areas (Lawns): Perform transplanting before planting turf areas unless otherwise indicated. When transplanting after planting turf areas, protect turf areas, and promptly repair damage caused by transplanting operations.
- 12. Installer's Warranty: Tree-service firm agrees to repair or replace trees and related materials that fail within 12 months of transplanting. Failures include, but are not limited to: Death and unsatisfactory growth except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control; death and unsatisfactory growth is defined as more than 25 percent dead or in an unhealthy condition or failure to meet general performance requirements at end of warranty period; Structural failures including trees falling or blowing over; Faulty performance of materials and devices related to tree plantings including. In case of failure, include the following remedial actions as a minimum: remove dead trees and trees with unsatisfactory growth at end of warranty period; replace when directed; a limit of one replacement of each tree will be required except for losses or replacements due to failure to comply with requirements; replace materials and devices related to tree plantings; Provide extended warranty for period equal to original warranty period, for replaced trees.
- 13. Planting and Plant establishment Period: Provide tree maintenance by skilled employees of tree-service firm. Begin maintenance immediately after preparatory pruning and continue until plantings are healthy and well established but for not less than 12 months from the date of substantial completion. Refer to Section 642- Landscape Maintenance.
- 14. Backfill Soil: Excavated soil mixed with planting soil of suitable moisture content and granular texture for placing and compacting in planting pit around tree, and free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth. Mixture: Well-blended mix of two parts excavated soil to one part planting soil. Refer to Section 617-Planting Soil for imported planting soil material.

 15. EXECUTION:
- 15.1. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion—and sedimentation—control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross transplanting areas.
- 15.2. Weather Limitations: Proceed with transplanting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Do not transplant during excessively wet. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements. For the record, prepare written report, endorsed by arborist, listing conditions detrimental to transplanting work and tree protection and health. Proceed with transplanting only after unsatisfactory conditions have been corrected. Protect structures, utilities, sidewalks, pavements, other facilities, turf areas, and other plants and planting areas from damage caused by transplanting operations. Notify the Utility Locator Service for area where Project is located before beginning excavation.
- 15.3. Lay out individual transplant locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Engineer's acceptance of layout before transplanting. Document any adjustments.
- 15.4. Wrap trees with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during extracting, handling, and transporting.
- 16. Preparatory Pruning:
- 16.1. Root Pruning: Perform preparatory root pruning under direction of arborist as far in advance of extracting each tree as the Project Schedule allows.
- 16.1.1. Dig exploratory pits or trench by hand or with air spade around perimeter of tree at indicated root-ball width to determine locations of main lateral roots. Dig trench by hand or with tree spade around perimeter of tree at indicated root-ball width to the depth of the root system. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
- 16.1.2. Root-Ball Width: Minimum 9 inches of root-ball diameter, or least dimension for non-round root balls, for each inch of tree caliper being transplanted. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking.

	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
٠.	HAWAII	HAW.	200A-01-10	2018	142	146

- 16.1.3. Use narrow-tine spading forks to comb soil to expose roots with minimal damage to root system.
- 16.1.4. Cut exposed roots manually with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
- 16.1.5. Temporarily support and protect exposed roots from damage until they are permanently redirected and covered with soil. Cover roots with burlap and keep them moist until planted. Do not paint or apply sealants on cut root ends. 16.1.6. Backfill trench with excavated soil.
- 16.2. Crown Pruning (Tip Pruning): Perform preparatory crown pruning as shown on Drawings, under direction of arborist.
- 17. EXCAVATION AND PLANTING EQUIPMENT
- 17.1. Tree Spade: Track-mounted mechanized tree mover; sized according to manufacturer's size recommendation for each tree being transplanted.
- 18. EXCAVATING PLANTING PITS
- 18.1. General: Excavate under supervision of the arborist. Refer to detail 2/L-4 Field Stock Tree Planting detail
- 18.2. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees are encountered in excavations.
- 19. EXTRACTING TREES
- 19.1. General: Extract trees under supervision of the arborist.
- 19.2. Orientation Marking: Mark the north side of each tree with non-permanent paint before extracting.
- 19.3. Root-Ball Depth: As determined by the arborist for each species and size of tree and for site conditions at original and planting locations.
- 19.4. Extracting with Tree Spade: Use the same tree spade to extract the tree as will be used to transport and plant the tree. Do not use tree spade to move trees larger than the manufacturer's maximum size recommendation for the tree spade being used. When extracting the tree, center the trunk within the tree spade and move tree with a solid ball of earth.
- 20. PLANTING
- 20.1. Planting Standard: Perform planting according to ANSI A300 (Part 6) unless otherwise indicated. Ensure that root flare is visible after planting.
- 20.2. Orientation: Position the tree so that its north side, marked before extracting, is facing north in its new location.
- 20.3. Set tree plumb and in center of planting pit with top of root flare 2 inches above adjacent finish grades.
- 20.4. Backfill Soil: Excavated soil mixed with planting soil of suitable moisture content and granular texture for placing and compacting in planting pit around tree, and free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth. Mixture: Well-blended mix of two parts excavated soil to one part planting soil. Refer to Section 617-Planting Soil for imported planting soil material.
- 20.4.1. If area under the tree was initially dug too deep, add backfill to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
- 20.4.2. After placing some backfill around root ball to stabilize plant, begin backfilling.
- 20.4.3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Redirect exposed root ends downward in backfill areas where possible. Hand-expose roots as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.
- 20.4.4.Place planting tablets in each planting pit when pit is approximately one-half filled; in amounts recommended by arborist. Place tablets beside the root ball about 1 inch (25 mm) from root tips; do not place tablets in bottom of the hole.
- 20.4.5. Continue backfilling process. Water again after placing and tamping final layer of soil.
- 21. CROWN PRUNING
- 21.1. Prune branches as shown on Drawings, under direction of arborist. Prune to remove only injured, broken, dying, or dead branches. Do not prune for shape. Do not remove or reduce living branches to compensate for root loss caused by cutting root system or to improve natural tree form. Pruning Standards: Perform pruning according to ANSI A300 (Part1). Unless otherwise directed by arborist and acceptable to Architect, do not cut tree leaders.



STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TREE RELOCATION - 1

MAUNA KEA MAINTENANCE BASEYARD DANIEL K. INOUYE HIGHWAY

Project No. 200A-01-10

Scale: Not to Scale Date: April 2018
SHEET NO. L-3 OF 7 SHEETS

L-3

142

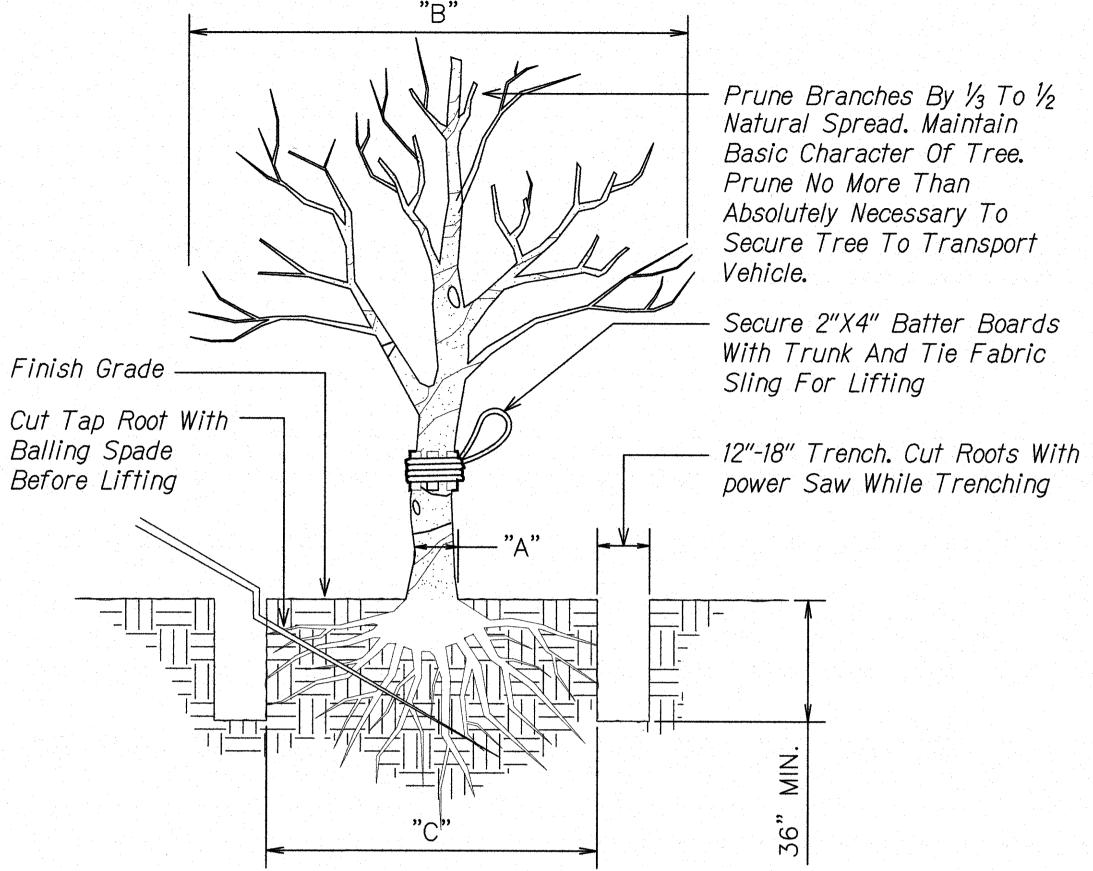
TREE RELOCATION NOTES (CONTINUED)

- 21.2. Cut branches with sharp pruning instruments; do not break or chop. Do not paint or apply sealants to wounds.
- 21.3. Chip removed branches and spread over areas identified and approved by Engineer.
- TREE STABILIZATION
- 22.1. Trunk Stabilization by Staking and Guying: Install trunk stabilization as follows.
- 22.2. Site-Fabricated Staking-and-Guying Method: Install no fewer than three guys spaced equally around tree. Refer to Field Stock Tree Planting detail.
- 22.3. Securely attach guys to stakes 36 inches long, driven to grade. Adjust spacing to avoid penetrating root balls or root masses. Provide turnbuckle for each guy wire and tighten securely.
- 22.4. For trees more than 6 inches in caliper, anchor guys to wood deadmen buried at least 36 inches below grade. Provide turnbuckle for each guy wire and tighten securely.
- 22.5. Retain one of first two subparagraphs below.
- 22.6. Support trees with bands of flexible ties at contact points with tree trunk and reaching to a turnbuckle. Allow enough slack to avoid rigid restraint of tree.
- 22.7. Attach flags to each guy wire, 30 inches above finish grade.
- 22.8. Proprietary Staking and Guying Device: Install staking and guying system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.
- 23. MULCHING
- 23.1. Organic Mulch: Apply 2-inch average thickness of organic mulch extending 12 inches beyond edge of individual planting pit and over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.
- INSTALLING SLOW-RELEASE WATERING DEVICE
- 24.1. Provide one device for each tree. Place device on top of the mulch at base of tree and fill with water according to manufacturer's written instructions.
- TREE MAINTENANCE
- 25.1. Perform tree maintenance as recommended by arborist. Maintain arborist observation of transplanting work.
- 25.2. Maintain trees by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings. Treat as required to keep trees free of insects and disease.
- 25.3. From time of preparatory root pruning measure soil moisture adjacent to edge of each root ball weekly. Record findings and weather conditions.
- 25.4. Fill areas of soil subsidence with backfill soil. Replenish mulch materials damaged or lost in areas of subsidence.
- 25.5. Apply treatments as required to keep tree materials, planted areas, and soils free of pests and pathogens or disease.
- 26. REPAIR AND REPLACEMENT
- 26.1. General: Repair or replace transplanted trees and other plants indicated to remain or be relocated that are damaged by construction operations, in a manner recommended by the arborist and approved by Engineer.
- 26.2. Submit details of proposed pruning and repairs.
- 26.3. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
- 26.4. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Engineer.
- 26.5. Remove and replace trees that are more than 25% percent dead or in an unhealthy condition or are damaged during construction operations that Engineer determines are incapable of restoring to normal growth pattern.
- 26.6. Provide new trees of same size as those being replaced for each tree of 4 inches or smaller in caliper size.
- 26.7. Provide two of 4-inch caliper size for each tree being replaced that measures more than 4 inches in caliper
- 26.8. Species of Replacement Trees: Same species being replaced or species selected by Architect.
- 27. CLEANUP AND PROTECTION

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- 27.1. During transplanting, keep adjacent paving and construction clean and work area in an orderly condition.
- 27.2. Protect trees from damage due to transplanting operations and operations of other contractors and trades. Maintain protection during transplanting and maintenance periods. Treat, repair, or replace damaged plantings.
- 27.3 After planting period, remove tags, markings, tie tape, labels, wire, burlap, and other debris from transplanted trees, planting areas, and Project site.
- 28. DISPOSAL OF SURPLUS AND WASTE MATERIALS
- 28.1. Except for materials indicated to be recycled, remove surplus soil, excess excavated material, waste materials, displaced plants, trash, and debris, and legally dispose of them off Owner's property.
- 28.2. Transport surplus satisfactory soil to designated storage areas on Owner's property. Stockpile or spread soil as directed by Engineer.
- 28.3. Except for materials indicated to be retained on Owner's property or recycled, remove excess excavated material, waste materials, displaced plants, trash, and debris, and legally dispose of them off Owner's property.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	143	146

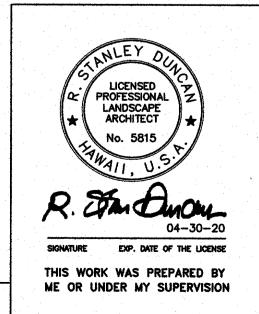


NOTES:

- To reduce shock, prune roots and branches of trees well in advance of moving (preferably during dormant season).
- All relocation and pruning work shall be done under the supervision of an experienced and licensed arborist.

"A"	"B"	"C"
Caliper Size	Spread (Side)	Rootball Size
2"-6" (50-150mm)	14"-26" (350-650mm)	15"-24" (375-600mm)
6"-8" (150-200mm)	30"-48" (750-1200mm)	30"-36" (750-900mm)
18"-30" (450-750mm)	60"-96" (1.5-2.4M)	36"-96" (900-2400mm)
30" (750mm) AND OVER	120"-144" (3.0-3.6M)	120"-240" (3.0-6.0M)





DEPARTMENT OF TRANSPORTATION

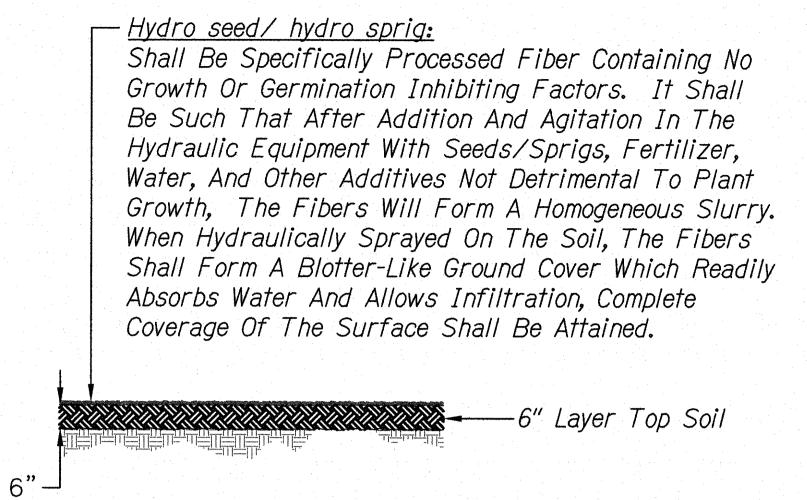
HIGHWAYS DIVISION TREE RELOCATION - 2

> MAUNA KEA MAINTENANCE BASEYARD DANIEL K. INOUYE HIGHWAY

Project No. 200A-01-10

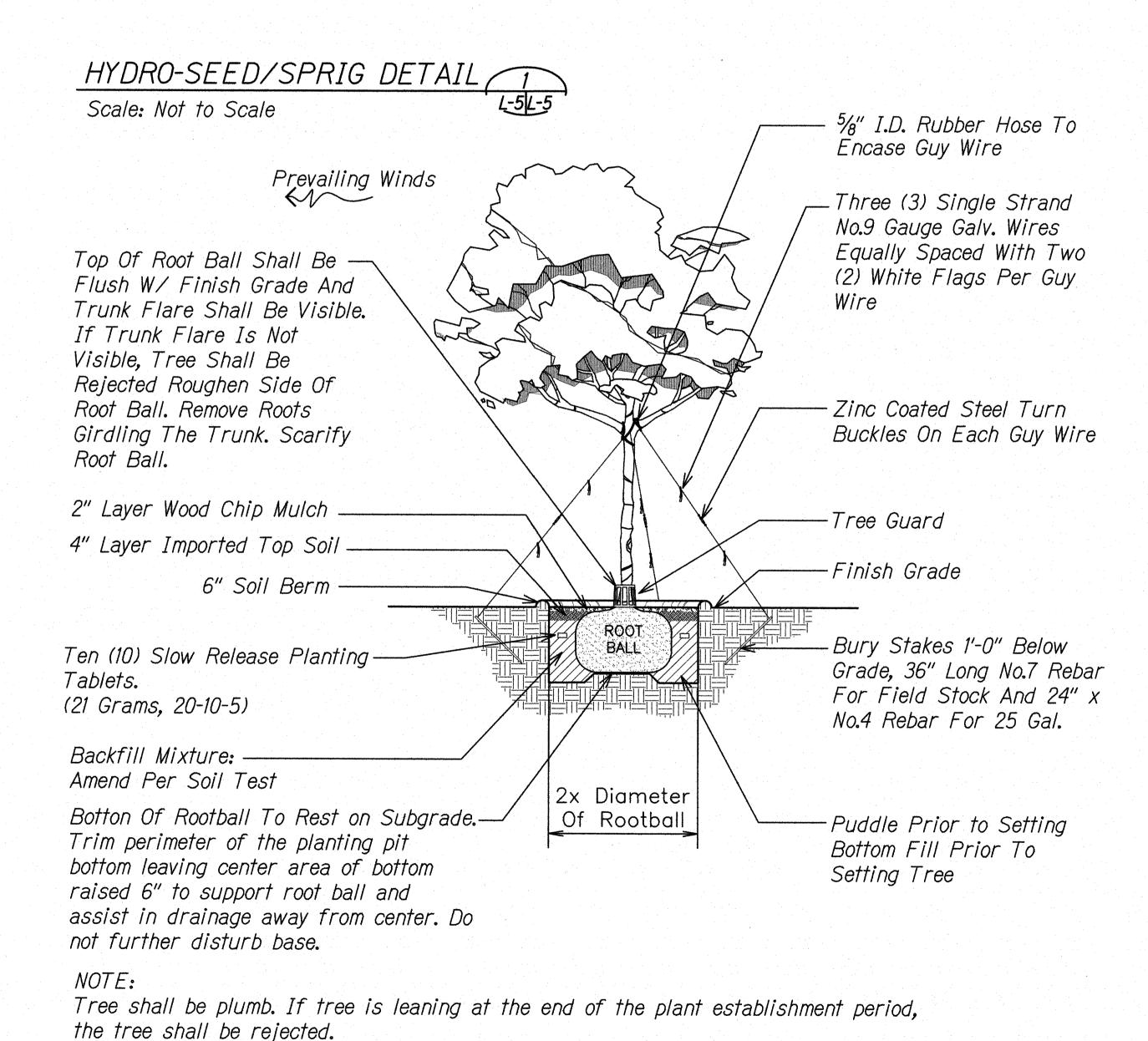
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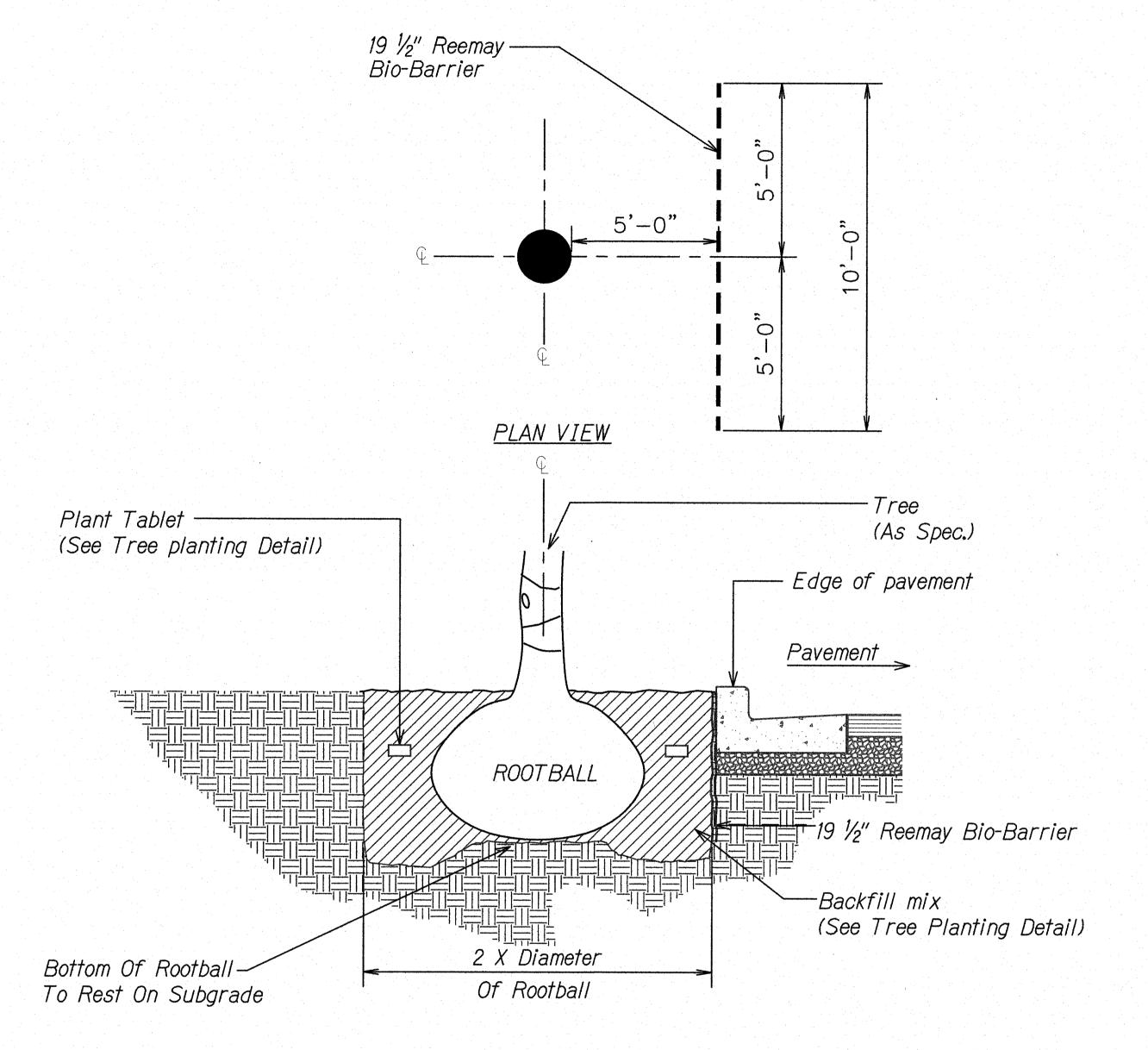
Date: April 2018 SHEET NO. L-4 OF 7 SHEETS



FIELD STOCK TREE PLANTING DETAIL

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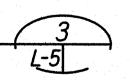


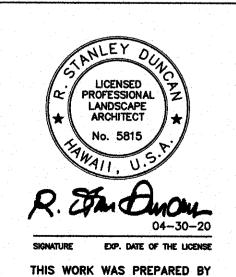
NOTE:

Nodules to face tree. Place top edge of bio-barrier at finish grade and secure w/manufacturer provided pins. Seams shall have minimum 3" overlap. Refer to manufacturer instructions for bonding the seam. Do not allow gaps in fabric during installation or backfilling. Bio-barrier should not be left exposed to surface water or sunlight for more than 12 hours since high temperatures and sunlight reduce effective life of product. Refer to product label and MSDS sheet for safety information.

ROOT BARRIER DETAIL

Scale: Not to Scale





DEPARTMENT OF TRANSPORTATION

PLANTING DETAILS

MAUNA KEA MAINTENANCE **BASEYARD** DANIEL K. INOUYE HIGHWAY

Project No. 200A-01-10

Scale: Not to Scale

Date: April 2018 SHEET NO. L-5 OF 7 SHEETS

L-5

144

