

Consultants:

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 09/09/2025 - Resubmittal
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DUNKIN DONUTS
 540 W Atlantic Avenue
 Delray Beach, Florida

ALWAYS CALL 811 TWO FULL BUSINESS DAYS BEFORE YOU DIG TO HAVE UNDERGROUND UTILITIES LOCATED AND MARKED.



Drawn By: TC
 Drawing #: 1468
 File Name: LP_1468.dwg
 Date: 09/08/2025

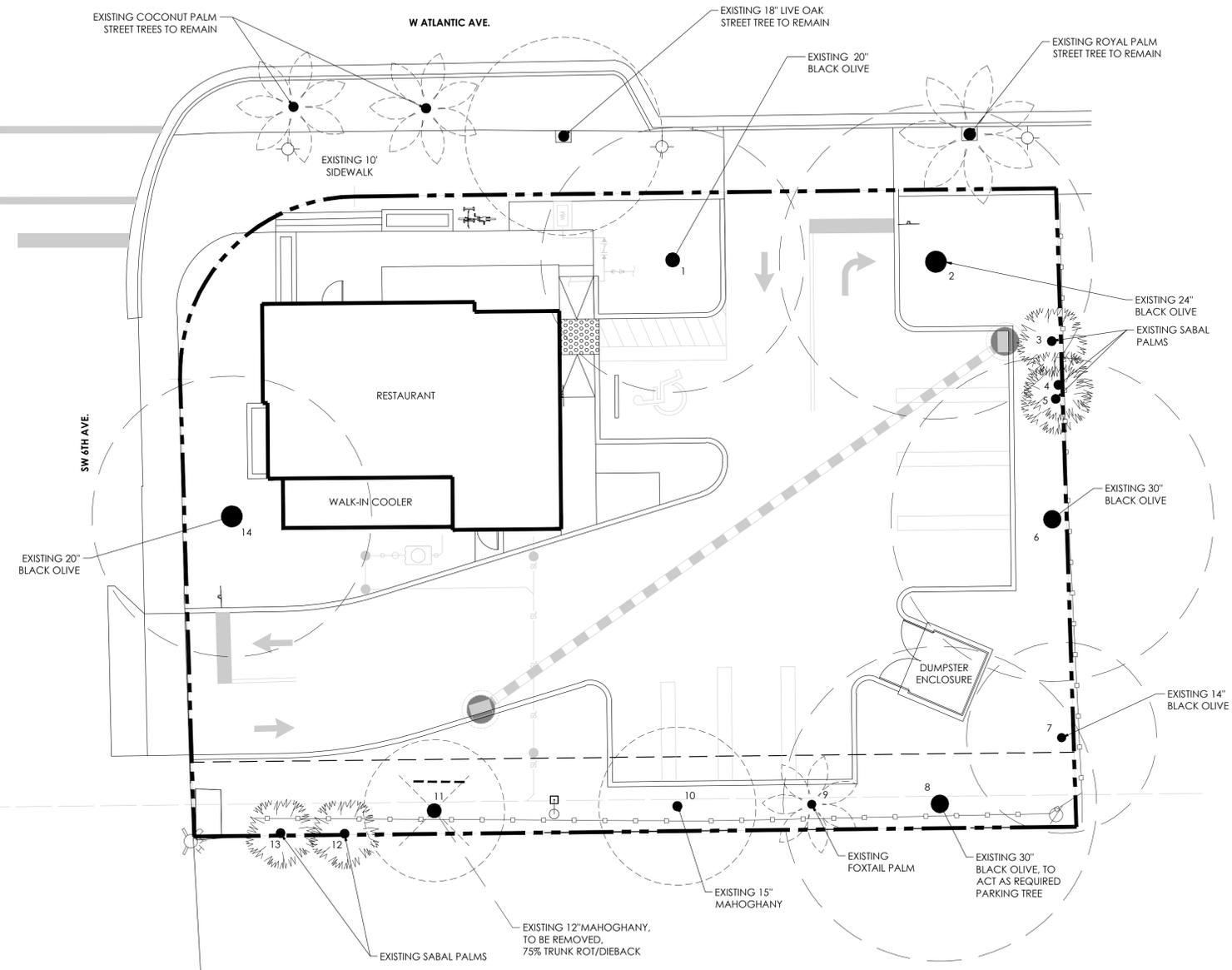
TREE DISPOSITION PLAN

SHEET #: LP.0

- ABBREVIATION LEGEND**
- P.O.C. - POINT OF COMMENCEMENT
 - P.O.B. - POINT OF BEGINNING
 - ESMT. - EASEMENT
 - CL - CENTERLINE
 - DE - DRAINAGE EASEMENT
 - LME - LAKE MAINTENANCE EASEMENT
 - LMAE - LAKE MAINTENANCE ACCESS EASEMENT
 - UE - UTILITY EASEMENT
 - L.W.D.D. - LAKE WORTH DRAINAGE DISTRICT
 - FDOT - FLORIDA DEPARTMENT OF TRANSPORTATION
 - PRAS - PRIVATE RESIDENTIAL ACCESS STREET
 - NAD - NORTH AMERICAN DATUM
 - PRM - PERMANENT REFERENCE MONUMENT
 - PBC - PALM BEACH COUNTY
 - PUD - PLANNED UNIT DEVELOPMENT
 - ROW - RIGHT-OF-WAY
 - FPL - FLORIDA POWER & LIGHT COMPANY
 - PCUE - PALM BEACH COUNTY UTILITY EASEMENT
 - PDE - PUBLIC DRAINAGE EASEMENT
 - PCP - PERMANENT CONTROL POINT NAIL METAL DISK
 - TYP. - TYPICAL
 - AC - AIR CONDITIONING UNIT/EQUIPMENT
 - PLA - PLANTING AREA
 - TBD - TO BE DETERMINED
 - EX - EXISTING
 - WM - WATER METER
 - EQ - EQUAL
 - EL - ELEVATION
 - F.F.E. - FINISH FLOOR ELEVATION
 - L.O.W. - LIMITS OF WORK

- LINETYPE LEGEND**
- PROPERTY LINE
 - - - CENTERLINE
 - - - PRIVATE ROW
 - - - EASEMENT
 - - - FENCING
 - - - WATER
 - - - STORM DRAINAGE
 - - - SANITARY SEWER
 - - - OVERHEAD ELECTRIC

- SYMBOLS LEGEND**
- PLANT CODE
 - QTY - QUANTITY
 - PRESERVED TREE
 - TYPICAL PLANT TAG
 - TREE - PALM
 - VINE
 - SHRUB OR GROUNDCOVER AREAS
 - TYP. PLANTING SYMBOLS
 - NOTE: PLANTING SYMBOLS & HATCHING VARIES GREATLY BY SPECIES AND TYPE. REFER TO PLANT TAG/CODE TO CROSS REFERENCE PLANT SCHEDULE FOR EXACT INSTALL SPECIFICATIONS

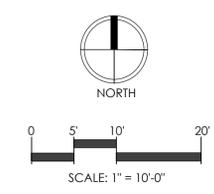


TREE DISPOSITION TABLE

TREE I.D.	SPECIES	CONDITION	SIZE	NOTES
1	BLACK OLIVE	≥50%	20"	PRESERVE
2	BLACK OLIVE	≥50%	24"	PRESERVE
3	SABAL PALM	≥50%	12"	PRESERVE
4	SABAL PALM	≥50%	12"	PRESERVE
5	SABAL PALM	≥50%	12"	PRESERVE
6	BLACK OLIVE	≥50%	30"	PRESERVE
7	BLACK OLIVE	≥50%	7"	PRESERVE
8	BLACK OLIVE	≥50%	30"	PRESERVE
9	FOXTAIL PALM	≥50%	8"	PRESERVE
10	MAHOGANY	≥50%	15"	PRESERVE
11	MAHOGANY	≤50%	12"	REMOVE/MITIGATE
12	SABAL PALM	≥50%	10"	PRESERVE
13	SABAL PALM	≥50%	10"	PRESERVE
14	BLACK OLIVE	≥50%	20"	PRESERVE

REQUIRED REPLACEMENT TABLE

REMOVAL I.D.	SPECIES	CONDITION	SIZE	REPLACEMENT	PROVIDED
11	MAHOGANY	≥50%	12"	LESS THAN 50% CONDITION, TREE FOR TREE BASIS. (MIN. 16' HT., 7" SPR., 8" C.T.)	1 - SILVER BUTTWOOD TREE



GENERAL CONDITIONS

- A. **CONTRACT DOCUMENTS:** Shall consist of specifications and its general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.
- B. **VERIFICATION:** The Contractor shall verify measurements on the drawings before beginning work. In case of error or discrepancy in the drawings or specifications or in the work of others affecting his/her work, he/she shall notify the Owner's Representative immediately. The Contractor shall be held responsible for any damages or loss due to his/her failure to observe these instructions.
- C. **MATERIALS, MACHINERY, EMPLOYEES:** Except as otherwise noted, the Contractor shall provide and pay for all materials, labor, tools, and other items necessary and incidental to the completion of his/her work.
- D. **SURVEYS, PERMITS, REGULATIONS:** The Owner shall furnish an adequate survey of the property. The Contractor shall obtain and pay for all permits and comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a variance exists therewith he/she shall promptly notify the Owner's Representative in writing and any necessary changes shall be adjusted as provided in the contract for changes in the work.
- E. **PROTECTION OF WORK, PROPERTY AND PERSON:** The Contractor shall adequately protect work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.
- F. **CHANGES IN THE WORK:** The Owner may order changes in the work, and the contract sum being adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extras must be made in writing before executing the work involved.
- G. **CORRECTION OF WORK:** The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative for a period of ninety (90) days from the date of completion of the contract.
- H. **Owner's Authorized Representative:** The Owner's authorized representative acts as the authorized representative of the Owner in conjunction with the project manager, and has authority to accept or reject materials or workmanship and to make minor changes in the work not involving extra cost. He will also interpret the meaning of the contract documents and may stop the work if necessary to ensure its proper execution.

- I. **CLARIFICATION OF DRAWINGS BEFORE BIDDING:** After reviewing the drawings thoroughly it is the Contractor's responsibility to clarify any questions the Representative any questions the Contractor may have regarding the method of construction, quantities, or quality of materials included or called out. If the Contractor cannot contact the Owner's Representative, the Contractor must qualify his/her bid or accept the interpretation of the Owner's Representative on the questionable areas as they develop during construction.
- J. **SAMPLES:** The Owner's Representative reserves the right to take and analyze samples of materials for conformity to specifications at any time. The Contractor shall furnish samples upon request by the Owner's Representative. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.
- K. **PRE-CONSTRUCTION CONFERENCE:** Schedule a pre-construction meeting with the Owner's Representative at least seven (7) days before beginning work. The purpose of this conference is to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

015639
Tree and Plant Protection

PART 1 GENERAL

1.1 SUMMARY

The scope of work includes all labor, materials, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with protection of existing trees and other plants as shown on the drawings and as specified herein.

- Provide preconstruction evaluations
- Provide tree and plant protection fencing
- Provide protection of root zones and above ground tree and plants
- Provide pruning of existing trees and plants.
- Coordinate with the requirements of Section Planting Soil for modifications to the soil within the root zone of existing trees and plants.
- Provide all insect and disease control.
- Provide maintenance of existing trees and plants including irrigation during the construction period as recommended by the arborist report.
- Provide maintenance of existing trees and plants including irrigation during the post construction plant maintenance period.
- Remove tree protection fencing and other protection from around and under trees and plants.
- Clean up and disposal of all excess and surplus material.

1.2 CONTRACT DOCUMENTS

- A. Shall consist of specifications and general conditions and the drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.
- B. It is the intent of this section that the requirements apply to all sections of the project specification such that any subcontractor must comply with the restrictions on work within designated Tree and Plant Protection Areas.

1.3 RELATED DOCUMENTS AND REFERENCES

- A. Related Documents:
- Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section.
 - Section - Planting
- B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references hereto. In the event that the requirements of the following referenced standards and specifications conflict with the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail.
- ANSI A300 [Part 5] - Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current editions.
 - Pruning practices shall conform with recommendations "Structural Pruning: A Guide For The Green Industry"; Published by Urban Tree Foundation, Visalia, California; most current edition.
 - Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition.
- A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the Owner's Representative of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the Owner's Representative.

1.5 PERMITS AND REGULATIONS

- A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the Owner's Representative in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.
- B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.
- C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or Owner's Representative shall determine which shall govern.

- 1.6 **PROTECTION OF WORK, PROPERTY AND PERSON**
- A. The Contractor shall protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.
- 1.7 **CHANGES IN THE WORK**
- A. The Owner's Representative may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

1.8 CORRECTION OF WORK

- A. The Contractor shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the Owner's Representative, at the soonest possible time that can be coordinated with other work and seasonal weather demands.
- 1.9 **DEFINITIONS**

All terms in this specification shall be as defined in the "Glossary of Arboricultural Terms" or as modified below. Owner's Representative and the Contractor shall appoint a representative to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The Owner's Representative or Owner may appoint other persons to review and approve any aspects of the work, such as the landscape architect who prepared the plans.

- B. Reasonable and reasonably: When used in this specification it is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that plants are not free of defects, and that plant conditions change with time. This specification also recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinion, the Owner's Representative expert shall determine when conditions within the plant are judged as reasonable.

- C. Shrub: Woody plants with mature height approximately less than 25 feet.
- D. Tree and Plant Protection Area: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and defined by a circle centered on the trunk with each tree with a radius equal to the crown dripline unless otherwise indicated by the Owner's representative.
- E. Tree: Single and multi-stemmed plants, including palms with anticipated mature height approximately greater than 25 feet or any plant identified on the plans as a tree.

1.10 SUBMITTALS

- A. **PRODUCT DATA:** Submit manufacturer product data and literature describing all products required by this section to the Owner's Representative for approval. Provide submittal four weeks before the start of any work at the site.

1.11 OBSERVATION OF THE WORK

- A. The Owner's Representative may inspect the work at any time.

1.12 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre - construction meeting with the Owner's Representative at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1. The following Contractors shall attend the preconstruction conference:

- General Contractor.
 - Consulting Arborist.
 - Subcontractor assigned to install Tree and Plant Protection measures.
 - Earthwork Contractor.
 - All site utility Contractors that may be required to dig or trench into the soil.
 - Landscape subcontractor.
 - Irrigation subcontractor
- B. Prior to this meeting, mark all trees and plants to remain and or to be removed as described in this specification for review and approval by the Owner's Representative.

1.13 QUALITY ASSURANCE

- A. Contractor qualifications:
- All pruning, branch tie back, tree removal, root pruning, and fertilizing required by this section shall be performed by or under the direct supervision of ISA Certified Arborist Submit aforementioned individual's qualifications for approval by the Owner's Representative.
 - All applications of pesticide or herbicide shall be performed by a person maintaining a current state license to apply chemical pesticides valid in the jurisdiction of the project. Submit copies of all required state licensing certificates including applicable chemical applicator licenses.

PART 2 PRODUCTS

2.3 TREE PROTECTION FENCING:

- B. **PLASTIC MESH FENCE:** Heavy - duty orange plastic mesh fencing fabric 48 inches wide. Fencing shall be attached to metal "U" or "T" post or wooden post driven into the ground of sufficient depth to hold the fabric tightly in place with out sagging. The fabric shall be attached to the post using attachment ties of sufficient number and strength to hold up the fabric without sagging. The Owner's Representative may request, at any time, additional post, deeper post depths and or additional fabric attachments if the fabric begins to sag, lean or otherwise not present a sufficient barrier to access.
- C. **GATES:** For each fence type and in each separate fenced area, provide a minimum of one 3 foot wide gate. Gates shall be lockable. The location of the gates shall be approved by the Owner's Representative.
- D. Submit suppliers product data that product meets the requirements for approval.

2.4 Tree protection sign:

- A. Heavy-duty cardboard signs, 8.5 inches x 11 inches, white colored background with black 2 inch high or larger letters block letters. The signs shall be attached to the tree protection fence every 50 feet o.c. The tree protection sign shall read "Tree and Plant Protection Area- Keep Out".

2.5 TREE GROWTH REGULATOR (TGR)

- A. Combalstat 25C.
- B. Submit suppliers product data that product meets the requirements for approval.

2.6 MATTING

- A. Matting for vehicle and work protection shall be heavy duty matting designed for vehicle loading over tree roots, Allumants as manufactured by Allumants, Inc. Franklin, PA 15323 approved equal.
- B. Submit suppliers product data that product meets the requirements for approval.

2.7 GEGRID

- A. Geogrid shall be woven polyester fabric with PVC coating, Uni-axial or biaxial geogrid, inert to biological degradation, resistant to naturally occurring chemicals, alcohols, acids.

1. Geogrid shall be Miragrid 2XT as manufactured by Ten Cate Nicolon, Norcross, GA. <http://www.tencate.com> or approved equal.

2.8 FILTER FABRIC

- A. Filter fabric shall be nonwoven polypropylene fibers, inert to biological degradation and resistant to naturally occurring chemicals, alcohols and acids.
1. Mirafi 135 N as manufactured by Ten Cate Nicolon, Norcross, GA. <http://www.tencate.com> or approved equal.

- B. Submit suppliers product data that product meets the requirements for approval.

PART 3 EXECUTION

3.1 SITE EXAMINATION

- A. Examine the site, tree, plant and soil conditions. Notify the Owner's Representative in writing of any conditions that may impact the successful Tree and Plant Protection Areas that is the intent of this section.
- 3.2 **COORDINATION WITH PROJECT WORK**
- A. The Contractor shall coordinate with all other work that may impact the completion of the work.
- B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.
- C. Coordinate the relocation of any irrigation lines currently present on the irrigation plan, heads or the conduits of other utility lines or structures that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts immediately.

- 3.3 **TREE AND PLANT PROTECTION AREA:** The Tree and Plant Protection Area is defined as all areas indicated on the tree protection plan. Where no limit of the Tree and Plant Protection area is defined on the drawings, the limit shall be the drip line (outer edge of the branch crown) of each tree.
- 3.4 **Preparation:**
- A. Prior to the preconstruction meeting, layout the limits of the Tree and Plant Protection Area and then alignments of required Tree and Plant Protection Fencing and root pruning. Obtain the Owner's Representative's approval of the limits of the protection area and the alignment of all fencing and root pruning.
- B. Flag all trees and shrubs to be removed by wrapping orange plastic ribbon around the trunk and obtain the Owner's Representative's approval of all trees and shrubs to be removed prior to the start of tree and shrub removal. After approval, mark all trees and shrubs to be removed with orange paint in a band completely around the base of the tree or shrub 4.5 feet above the ground.
- C. Flag all trees and shrubs to remain with white plastic ribbon fed completely around the trunk or each tree and on a prominent branch for each shrub. Obtain the Owner's Representative's approval of all trees and shrubs to be remain prior to the start of tree and shrub removal.
- D. Prior to any construction activity at the site including utility work, grading, storage of materials, or installation of temporary construction facilities, install all tree protection fencing, Filter Fabric, sill fence, tree protection signs, Geogrid, Mulch and or Wood Chips as shown on the drawings.

3.5 SOIL MOISTURE

- A. Volumetric soil moisture level, in all soils within the Tree and Plant Protection Area shall be maintained above permanent wilting point to a depth of at least 8 inches. No soil work or other activity shall be permitted within the Tree and Plant Protection Area when the volumetric soil moisture is above field capacity. The permanent wilting point and field capacity for each type of soil texture shall be defined as follows (numbers indicate percentage volumetric soil moisture).
- | Soil type | Permanent wilting point v/v | Field capacity v/v |
|-----------------------------------|-----------------------------|--------------------|
| Sand, Loamy sand, Sandy loam | 5 -8% | 12 - 18% |
| Loam, Sandy clay, Sandy clay loam | 14 -25% | 27 - 36% |
| Clay loam, Silt loam | 11 -22% | 31 - 36% |
| Silt clay, silty clay loam | 22 - 28% | 41 - 48% |
1. Volumetric soil moisture shall be measured with a digital, electric conductivity meter. The meter shall be the Digital Soil Moisture Meter, DSM5000 by General Specialty Tools and Instruments, or approved equivalent meter.
- B. The Contractor shall confirm the soil moisture levels with a moisture meter, if the moisture is too high, suspend operations until the soil moisture drains to below field capacity.

3.6 ROOT PRUNING:

- A. Prior to any excavating into the existing soil grade within 25 feet of the limit of the Tree and Plant Protection Area or trees to remain, root prune oil existing trees to a depth of 24 inches below existing grade in alignment: following the edges of the Tree and Plant Protection Area or as directed by the Owner's Representative. Root pruning shall be in conformance with ANSI A300 [part 8] latest edition.
1. Using a rock saw, chain trimmer or similar trenching device, make a vertical cut within 2 feet of the limit of grading.
2. After completion of the cut, make clean cuts with a lopper, saw or pruner to remove all root tool ends on the tree side of the excavation, and backfill the trench immediately with existing soil, filling all voids.

- 3.7 **INSTALLATION OF GEORGRIDS, FILTER FABRIC, MATTING, WOOD CHIPS AND OR MULCH**
- A. Install Geogrids, Filter Fabric, matting, Wood Chips and or Mulch in areas and depths shown on the plans and details or as directed by the Owner's Representative. In general it is the intent of this specification to provide the following levels of protection:

- All areas within the Tree and Plant Protection area provide a minimum of 5 inches of Wood Chips or Mulch.
 - Areas where foot traffic or storage of lightweight materials is anticipated to be unavoidable provide a layer of Filter Fabric under the 5 inches of Wood Chips or Mulch.
 - Areas where occasional light vehicle traffic is anticipated to be unavoidable provide a layer of Geogrids under 8 inches of Wood Chips or Mulch.
 - Areas where heavy vehicle traffic is unavoidable provide a layer of Geogrids under 8 - 12 inches of Wood Chips or Mulch and a layer of matting over the Wood Chips or Mulch.
- B. The Owner's Representative shall approve the appropriate level of protection.
- C. In the above requirements, light vehicle is defined as a truck skid steer with a ground pressure of 4 psi or lighter. A heavy vehicle is any vehicle with a tire or track pressure of greater than 4 psi. Lightweight materials are any packaged materials that can be physically moved by hand into the location. Bulk materials such as soil, or aggregate shall never be stored within the Tree and Plant Protection Area.

3.8 PROTECTION:

- A. Protect live Tree and Plant Protection Area at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves and roots of all plants; and contamination of the soil, bark or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Owner's Representative of any spills, compaction or damage and take corrective action immediately using methods approved by the Owner's Representative.

3.9 GENERAL REQUIREMENTS AND LIMITATIONS FOR OPERATIONS WITHN THE TREE AND PLANT PROTECTION AREA:

- A. The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity is any work within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

- B. In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner's Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following:

- In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tool, directional boring and or Air Knife excavation where indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.
- When encountered, exposed roots, 1 inches and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Mound Chips and shall be maintained above permanent wilting point at all times. Roots one inch and larger in diameter shall not be cut with out the approval of the owners representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.
- Tree branches that interfere with the construction may be fed back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices (ANSI A300, part 8) and be performed under supervision of the arborist.

- 1.13 **QUALITY ASSURANCE**
- A. Contractor qualifications:
- All pruning, branch tie back, tree removal, root pruning, and fertilizing required by this section shall be performed by or under the direct supervision of ISA Certified Arborist Submit aforementioned individual's qualifications for approval by the Owner's Representative.
 - All applications of pesticide or herbicide shall be performed by a person maintaining a current state license to apply chemical pesticides valid in the jurisdiction of the project. Submit copies of all required state licensing certificates including applicable chemical applicator licenses.

2. All applications of pesticide or herbicide shall be performed by a person maintaining a current state license to apply chemical pesticides valid in the jurisdiction of the project. Submit copies of all required state licensing certificates including applicable chemical applicator licenses.

3. Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 8 foot long 2 inch x 6 -inch planks loosely banded onto the tree with 3 steel bands. Staple the bands to the trunk in necessary areas to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

4. Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.
- a. Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheathing to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic stays toward the excavation.

- b. Using a sprinker or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity of the beginning of the work. For excavations that go beyond the damp soil, rewet the soil as necessary to keep soil moisture near field capacity.

- c. Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at low air pressures and using techniques that do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

- 1.) The air excavation tool shall be "Air-Spade" as manufactured by Concept Engineering Group, Inc., Verona, PA 4172 826-8800, or Air Knife as manufactured by Easy Use Air Tools, Inc. Allison Park, Pa [866] 328-5723 or approved equal.

- d. Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

- e. Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.
- f. Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mix the roots several times during the day. If the excavated area must remain open over night, mist the roots and cover the excavation with plastic.

- g. Dispose of all soil in a manner that meets local laws and regulations.
- h. Restore soil and lightly compact the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

- i. Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area.

3.10 TREE REMOVAL:

- A. Remove all trees indicated by the drawings and specifications, as requiring removal, in a manner that will not damage adjacent trees or structures or composts the soil.
- B. Remove trees that are adjacent to trees or structures to remain, in sections, to limit the opportunity of damage to adjacent crowns, trunks, ground plane elements and structures.

- C. Do not drop trees with a single cut unless the tree will fall in an area not included in the Tree and Plant Protection Area. No tree to be removed within 50 feet of the Tree and Plant Protection Area shall be pushed over or root-pruned using a piece of grading equipment.
- D. Protect adjacent paving, soil, trees, shrubs, ground cover plantings and understory plants to remain from damage during all tree removal operations, and from construction operations. Protection shall include the root system, trunk, limbs, and crown. Breakage or scoring, and the soil from compaction.

- E. Remove stumps and immediate root plate from existing trees to be removed. Grind trunk bases and large buttress roots to a depth of the largest buttress root or at least 18 inches below the top most roots which ever is less and over the area of three times the diameter of the trunk (DBH).

1. For trees where the stump will fall under new paved areas, grind roots to a total depth of 18 inches below the existing grade. If the sides of the stump hole still have greater than approximately 20% wood visible, continue grinding operation deeper and or wider until the resulting hole has less than 20% wood. Remove all wood chips produced by the grinding operation and back fill 8 inch layers with controlled fill of a quality acceptable to the site engineer for fill material under structures, compacted to 95% of the maximum dry density standard proctor. The Owner's Representative shall approve each hole at the end of the grinding operation.

2. In areas where the tree location is to be a planting bed or lawn, remove all woodchips and backfill stump holes with planting soil as defined in Specification Section Planting Soil, in maximum of 12 inch layers and compact to 80 - 85% of the maximum dry density standard proctor.

3.11 PRUNING:

- A. Within six months of the estimated date of substantial completion, prune all dead or hazardous branches larger than 2 inch in diameter from all trees to remain.
- B. Implement all pruning recommendations found in the arborist report.
- C. Prune any low, hanging branches and vines from existing trees and shrubs that overhang walks, streets and drives, or parking areas as follows:
- Walks - within 8 feet vertically of the proposed walk elevation.
 - Parking areas - within 12 feet vertically of the proposed parking surface elevation.
 - Streets and drives - within 14 feet vertically of the proposed driving surface elevation.

- D. All pruning shall be done in accordance with ANSI A300 [part 1], ISA BMP Tree Pruning [latest edition, and the "Structural Pruning: A Guide for the Green Industry", Edward Gilman, Brian Kempf, Nelda Matheny and Jim Clark, 2013 Urban Tree Foundation, Visalia CA.
- E. Perform other pruning tasks as indicated on the drawings or requested by the Owner's Representative.
- F. Where tree specific disease vectors require, sterilize all pruning tools between the work in individual trees.

3.13 WATERING

- A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants to be preserved during the entire construction period. Adequate water is defined to be maintaining soil moisture above the permanent wilting point to a depth of 8 inches or greater.
- B. The Contractor shall adjust the automatic irrigation system, if available, and apply additional water, using hoses or water tanks as required.
- C. Periodically test the moisture content in the soil within the root zone to determine the water content.

3.14 WEED REMOVAL

- A. During the construction period, control any plants that seed in and around the fenced Tree and Plant Protection area at least three times a year.
- All plants that are not shown on the planting plan or on the Tree and Plant Protection Plan to remain shall be considered as weeds.

- B. At the end of the construction period provide one final weeding of the Tree and Plant Protection Area.
- 3.15 **INSECT AND DISEASE CONTROLLER**
- A. Monitor all plants to remain for disease and insect infestations during the entire construction period. Provide all disease and insect control required to keep the plants in a healthy state using the principles of Integrated Plant Management (IPM). All pesticides shall be applied by a certified pesticide applicator.

3.16 CLEAN UP

- A. During tree and plant protection work, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
- Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris contained by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

- B. Once free protection work is complete, wash oil soil from pavements and other structures. Ensure that Mulch is confined to planting beds.
- C. Make all repairs to grades, nuts, and damage to the work or other work at the site.

- D. Remove and dispose of all excess Mulch, Wood Chips, packaging, and other material brought to the site by the Contractor.
- 3.17 **Removal of fencing and other Tree and plant protection**
- A. At the end of the construction period or when requested by the Owner's Representative remove all fencing, Wood Chips or Mulch, Geogrids and Filter Fabric, trunk protection and or any other Tree and Plant Protection material.

3.18 DAMAGE OR LOSS TO EXISTING PLANTS TO REMAIN

- B. Any trees or plants designated to remain and which are damaged by the Contractor shall be replaced in kind by the Contractor at their own expense. Trees shall be replaced with a tree of similar species and of equal size or 6 inch caliper which ever is less. Shrubs shall be replaced with a plant of similar species and equal size or the largest size plants reasonably available which ever is less. Where replacement plants are to be less than the size of the plant that is damaged, the Owner's Representative shall approve the size and quality of the replacement plant.

1. All trees and plants shall be installed per the requirements of Specification Section Planting.
- C. Plants that are damaged shall be considered as requiring replacement or approval in the event that the damage affects more than 25 % of the crown, 25% of the trunk circumference, or root protection area, or the tree is damaged in such a manner that the tree could develop into a potential hazard. Trees and shrubs to be replaced shall be removed by the Contractor at his own expense.

1. The Owner's Representative may engage an independent arborist to assess any tree or plant that appears to have been damaged to determine their health or condition.
- C. Any tree that is determined to be dead, damaged or potentially hazardous by the Owner's arborist and upon the request of the Owner's Representative shall be immediately removed by the Contractor at no additional expense to the Owner. Tree removal shall include all clean up of all wood parts and grinding of the stump to a depth sufficient to plant the replacement tree or plant, removal of all chips from the stump site and filling the resulting hole with topsoil.

- D. Any remedial work on damaged existing plants recommended by the consulting arborist shall be completed by the Contractor at no cost to the Owner. Remedial work shall include but is not limited to: soil compaction remediation and vertical mulching, pruning and or cabling, insect and disease control including injections, compensatory watering, additional mulching, and could include application free growth regulators [TGR].

- E. Remedial work may extend up to two years following the completion of construction to allow for any requirements of multiple applicators or the need to undertake applications of required seasons of the year.

- F. Any remedial work on damaged existing plants recommended by the consulting arborist shall be completed by the Contractor at no cost to the Owner. Remedial work shall include but is not limited to: soil compaction remediation and vertical mulching, pruning and or cabling, insect and disease control including injections, compensatory watering, additional mulching, and could include application free growth regulators [TGR].

END OF SECTION 015639

SECTION 32 9300

PLANTING

PART 1 GENERAL

1.1 SUMMARY

- A. The scope of work includes all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of plant (also known as "landscaping") complete as shown on the drawings and as specified herein.
- B. The scope of work in this section includes, but is not limited to, the following:

- Locate, purchase, deliver and install all specified plants.
- Water all specified plants.
- Mulch, fertilize, stake, and prune all specified plants.
- Maintenance of all specified plants until the beginning of the warranty period.

- Plant warranty.
- Clean up and disposal of all excess and surplus material.
- Maintenance of all specified plants during the warranty period.

1.2 CONTRACT DOCUMENTS

- A. Shall consist of specifications and general conditions and the construction drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

1.3 RELATED DOCUMENTS AND REFERENCES

A. Related Documents:

- Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section
- Related Specification Sections

a. Section - Tree Protection and Plant Protection

- B. References: The following specifications and standards of the organizations and documents listed in this paragraph form a part of the specification to the extent required by the references hereto. In the event that the requirements of the following referenced standards and specification conflict with this specification section the requirements of this specification shall prevail. In the event that the requirements of any of the following referenced standards and specifications conflict with each other the more stringent requirement shall prevail or as determined by the Owner's Representative.

- State of California, Department of Food and Agriculture, Regulations for Nursery Inspectors, Rules and Grading.
- ANSI Z60.1 American Standard for Nursery Stock, most current edition.
- ANSI A300 - Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current edition and parts.
- Florida Grades and Standards for Nursery Stock, current edition (Florida Department

1.15 SELECTION AND OBSERVATION OF PLANTS

A. The Owner's Representative may review all plants subject to approval of site, health, quality, character, etc. Review or approval of any plant during the process of selection, delivery, installation and establishment period shall not prevent that plant from later rejection in the event that the plant quality changes or previously existing defects become apparent that were not observed.

B. Plant Selection: The Owner's Representative reserves the right to select and observe all plants of the nursery prior to delivery and to reject plants that do not meet specifications as set forth in this specification. If a particular defect or substantial element can be corrected at the nursery, as determined by the Owner's Representative, the agreed upon remedy may be applied by the nursery or the Contractor provided that the correction allows the plant to meet the requirements set forth in this specification. Any work to correct plant defects shall be at the contractor's expense.

1. The Owner's Representative may make invasive observation of the plant's root system in the area of the root collar and the top of the root ball in general in order to determine that the plant meets the quality requirements for depth of the root collar and presence of roots above the root collar. Such observations will not harm the plant.

2. Corrections are to be undertaken at the nursery prior to shipping.

C. The Contractor shall bear all cost related to plant corrections.

D. All plants that are rejected shall be immediately removed from the site and acceptable replacement plants provided at no cost to the Owner.

E. Submit to the Owner's Representative, for approval, plant sources including the names and locations of nurseries proposed as sources of acceptable plants, and a list of the plants they will provide. The plant list shall include the botanical and common name and the size at the time of selection. Observe all nursery materials to determine that the materials meet the requirements of this section.

F. The Contractor shall require the grower or re-wholesale supplier to permit the Owner's Representative to observe the root system of all plants at the nursery or job site prior to planting including random removal of soil or substrate around the base of the plant. Observation may be as frequent and as extensive as needed to verify that the plants meet the requirements of the specifications and conform to requirements.

G. Where requested by the Owner's Representative, submit photographs of plants or representative samples of plants. Photographs shall be legible and clearly depict the plant specimen. Each submitted image shall contain a height reference scale, an measuring stick. The approval of plants by the Owner's Representative via photograph does not preclude the Owner's Representative's right to reject material while on site.

1.16 PLANT SUBSTITUTIONS FOR PLANTS NOT AVAILABLE

A. Submit all requests for substitutions of plant species, or size to the Owner's Representative, for approval, prior to purchasing the proposed substitution. Request for substitution shall be accompanied with a list of nurseries contacted in the search for the required plant and a record of other attempts to locate the required material. Requests shall also include sources of plants found that may be of a smaller or larger size, or a different shape or habit than specified, or plants of the same genus and species but different cultivar origin, or which may otherwise not meet the requirements of the specifications, but which may be available for substitution.

1.17 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the Owner's Representative, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.

B. Soil subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the Owner's Representative in writing, stating the conditions and submit a proposed covering soil or corrective action. If the Contractor fails to notify the Owner's Representative of such conditions, he/she shall remain responsible for plant material under the warranty clause of the specifications.

B. If it is the responsibility of the Contractor to be familiar with the local growing conditions, and if any specified plants will be in conflict with these conditions. Report any potential conflicts, in writing, to the Owner's Representative.

C. This specification requires that all Planting Soil and Irrigation (if applicable) work be completed and accepted prior to the installation of any plants.

1. Planting operations shall not begin until such time that the irrigation system is completely operational for the area(s) to be planted, and the irrigation system for that area has been preliminarily observed and approved by the Owner's Representative.

D. Actual planting shall be performed during those periods when weather and soil conditions are observed in accordance with locally accepted horticultural practices.

1. Do not install plants into saturated or frozen soils. Do not install plants during inclement weather, such as rain or snow or during extremely hot, cold or windy conditions.

1.18 PLANTING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

B. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until parties concerned mutually agree upon removal.

C. Notification of Local Utility Locator Service, Sunshine 811, is required for all planting areas; the Contractor is responsible for knowing the location and avoiding utilities that are not covered by Sunshine 811.

PART 2 PRODUCTS

2.1 PLANTS: GENERAL

A. Standards and measurement: Provide plants of quantity, size, genus, species, and variety or cultivars as shown and scheduled in contract documents.

1. All plants including the root ball dimensions or container size to trunk caliper ratio shall conform to ANSI Z60.1 "American Standard for Nursery Stock" latest edition, unless modified by provisions in this specification. When there is a conflict between this specification and ANSI Z60.1, this specification section shall be considered correct.

2. Plants larger than specified may be used if acceptable to the Owner's Representative. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be in accordance with ANSI Z60.1. Larger plants may not be acceptable if the resulting root ball cannot fit into the required planting space.

3. If a range of size is given, no plant shall be less than the minimum size and not less than 50 percent of the plants shall be as large as the maximum size specified. The measurements specified are the minimum and maximum size acceptable and are the measurements after pruning, where pruning is required.

8. Proper identification: All trees shall be true to name as ordered or shown on planting plans.

C. Compliance: All trees shall comply with federal and state laws and regulations requiring observation for plant disease, pest, and weeds. Observation certificates required by law shall accompany each shipment of plants.

D. Plant Quality:

1. General: Provide healthy stock, grown in a nursery and reasonably free of die-back, disease, insects, eggs, borers, and other pests. All plants shall have a strong, stem, and branch form that will not restrict normal growth, stability and health for the expected life of the plant.

2. Plant quality above the soil line:

a. Plants shall be healthy with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified. Tree quality above the soil line shall comply with the Florida Grades and Standards, Free grade Florida Fancy or Florida #1 and the following:

- 1. Crown: The form and density of the crown shall be typical for a young specimen of the species or cultivar pruned to a central and dominant leader.
a.) Crown specifications do not apply to plants that have been specifically trained in the nursery as topiary, espalier, multi-trunk, clump, or unique selections such as contorted or weeping cultivars.
2. Leaves: The size, color, and appearance of leaves shall be typical for the time of year and stage of growth of the species or cultivar. Trees shall not show signs of prolonged moisture stress or over watering as indicated by wilted, shriveled, or dead leaves.
3. Branches: Shoot growth (length and diameter) throughout the crown should be appropriate for the age and size of the species or cultivar. Trees shall not have dead, diseased, broken, distorted, or otherwise injured branches.
a.) Main branches shall be distributed along the central leader but not clustered together. They shall form a balanced crown appropriate for the cultivar/species.
b.) Branch diameter shall be no larger than two-thirds (one-half is preferred) the diameter of the central leader measured 1 inch above the branch union.
c.) The attachment of the largest branches (scaffold branches) shall be free of included bark.
4. Trunk: The tree trunk shall be relatively straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable and are not considered wounds), sunburned areas, cork (flaking/bulging barks), wood rot/cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury).

3. Trees shall have one central leader. If the leader was headed, a new leader (with a live terminal bud) of at least one-half the diameter of the pruning cut shall be present.

1.) All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings.

4. All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.

5. Trunk caliper and taper shall be sufficient so that the lower five feet of the trunk remains vertical without a stake. Auxiliary stake may be used to maintain a straight leader in the upper half of the tree.

3. Plant quality at or below the soil line:
a. Plant roots shall be normal to the plant type specified. Root observations shall take place without inspecting tree health. Root quality at or below the soil line shall comply with the project Root Acceptance details and the following:
1.) The roots shall be reasonably free of scrapes, broken or split wood.
2.) The root system shall be reasonably free of injury from biotic (e.g., insects and pathogens) and abiotic (e.g., herbicide toxicity and salt injury) agents. Wounds resulting from root pruning used to produce a high quality root system are not considered injuries.
3.) A minimum of three structural roots reasonably distributed around the trunk (not clustered on one side) shall be found in the soil. Root distribution shall be uniform throughout the root ball, and growth shall be appropriate for the species.
a.) Plants with structural roots on only one side of the trunk (J roots) shall be rejected.
4.) The root collar shall be within the upper 2 inches of the substrate/soil. Two structural roots shall reach the side of the root ball near the top surface of the root ball. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that

the grower removes all stem girdling roots above the structural roots across the top of the root ball.

5.) The root system shall be reasonably free of stem girdling roots over the root collar or kninked roots from nursery production practices.
6.) All plant materials must be available for observation prior to planting.
2. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered. Volumetric soil moisture shall be maintained above wilting point and below field capacity for the root ball substrate or soil.
8. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote storage area for plants and other supplies.
1. The Owner's Representative or Contractor shall approve the duration, method and location of storage of plants.
C. Provide protective covering over all plants during transporting.
3.2 ADVERSE WEATHER CONDITIONS
A. No planting shall take place during extremely hot, dry, windy or freezing weather.
3.3 COORDINATION WITH PROJECT WORK
A. The Contractor shall coordinate with all other work that may impact the completion of the work.
B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.
C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.
3.4 LAYOUT AND PLANTING SEQUENCE
A. Relative positions of all plants and trees are subject to approval of the Owner's Representative.
B. Notify the Owner's Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with the Owner's Representative's approval. Secure the Owner's Representative's acceptance before digging and start of planting work.
C. When applicable, plant trees before other plants are installed.
D. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by the Owner's Representative including relocating previously installed plants.
3.5 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION
A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.
1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and filling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.
2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.
3. Trees shall be moved and planted within 48 hours of the initial harvesting and shall remain in the spade machine until planted.
C. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS
4. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Owner's Representative.
5. Provide plants shall be established and well rooted in removable containers.
6. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.
D. BARE ROOT PLANTS
7. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).
8. The root spread dimensions of the harvested plants shall conform to ANSI Z60.1 for nursery grown bare root plants for each size and type of plant. Just prior to shipping to the job site, dip the root system into a slurry of hydrogel (cross linked polyacrylamide) and water mixed at a rate of 15 oz. of hydrogel in 25 gallons of water. Do not shake off the excess hydrogel. Place the root system in a pleated black plastic bag and tie the bag snugly around the trunk. Bundle and tie the upper branches together.
9. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).
8. The root spread dimensions of the harvested plants shall conform to ANSI Z60.1 for nursery grown bare root plants for each size and type of plant. Just prior to shipping to the job site, dip the root system into a slurry of hydrogel (cross linked polyacrylamide) and water mixed at a rate of 15 oz. of hydrogel in 25 gallons of water. Do not shake off the excess hydrogel. Place the root system in a pleated black plastic bag and tie the bag snugly around the trunk. Bundle and tie the upper branches together.
9. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).
10. Where possible, plant time of planting to be before bud break. For trees to be planted after bud break, place the trees before bud break in an irrigated bed of peat gravel.
a. The peat gravel bed shall be 18 inches deep over a sheet of plastic.
b. Spade trees to allow the unbundled branches to grow without shading each other.
c. Once trees are in peat gravel, allow the trees sufficient time for the new root system to flush and spring growth of leaves to fully develop before planting.
d. Pea gravel stored trees may be kept for up to one growing season.
e. Pea gravel stored trees shall be dipped, packaged and shipped similar to the requirements for freshly dug bare root trees above.
2.3 ANNUAL FLOWERING AND SEASONAL COLOR PLANTS
E. Container or flat-grown plants should be staked as noted in the planting plan. Plants shall be well-rooted and healthy.
2.4 PALMS
F. Except as modified below or where the requirements are not appropriate to the specification of palms, palms shall meet all the requirements of the plant quality section above.
G. Defroning, tying, and hedging:
5. In preparing palm trees for relocation, all dead fronds shall be removed.
6. All remaining fronds above horizontal shall be lifted up and tied together around the crown in an upright position. Do not tie too tightly, bind or injure the bud. Jute binder twine shall be used in tying up the fronds; wire will not be permitted. Fronds shall be untied immediately after planting.
C. Digging the root ball:
1. When digging out the root ball, no excavation shall be done closer than 24 inches to the trunk at ground level and the excavation shall extend below the major root system to a minimum depth of 3.5 feet. The bottom of the root ball shall be cut off square and perpendicular to the trunk below the major root system.
D. The Contractor shall not free-fall, drop, roll or abuse the tree or put a strain on the crown (bud area) at any time. A protective device shall be used around the trunk of the tree while lifting and relocating so as not to injure the bud, or scar or skin the trunk in any way.
2.5 PLANTING SOIL
Planting Soil shall contain a mixture of 1/3 sand, 1/3 peat humus. Sand shall be clean, salt-free and containing no extraneous matter. Topsoil shall be friable fertile soil with representative characteristics of area soils. It should be free of heavy silt, stone, excess lime, shell rock, plant roots, debris or other foreign matter. If shell rock contain noxious plant growth (such as Bermuda, Torpedoo or nut grass), it shall test between the pH range of 5.0 to 7.0 unless otherwise specified and contain no toxic residue or substances that would endanger plant growth. If topsoil is not available on site, it shall be imported from local sources with similar soil characteristics to that found at project site, obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth not less than 4". Peat humus shall be decomposed peat with no identifiable fibers or if available, muck may be substituted and shall be free from stones, excessive plant roots, debris or other foreign matter. Muck shall not be overly saturated with water.
2.6 MULCH
A. Mulch shall be Melaleuca or Eucalyptus and shall cover all landscape bed areas in a 3" minimum layer. Do not let mulch pile up on root ball or around trunks of trees plants. Submit supplier's product specification data sheet and a one gallon sample for approval.
2.7 TREE STAKING AND GUYING MATERIAL
A. Tree guying to be flit woven polypropylene material, 3/4 inch wide, and 900 lb. break strength. Color to be Green. Product to be Arbotile manufactured by Deep Root Partners, LP, or approved equal.
B. Stakes shall be lodge pole stakes free of knots and of diameters and lengths appropriate to the size of plant as required to adequately support the plant.
C. Below ground anchor systems to be constructed of 2 x 2 dimensional untreated wood securing (using 3 inch long screws) horizontal portions to 4 feet long vertical stakes driven straight into the ground outside the root ball.
D. Submit manufacturer's product data for approval.
2.8 WATERING BAGS
E. Plastic tie watering bags holding a minimum of 1.5 gallons of water and with a slow drip hole(s) water release system, specifically designed to water establishing trees. Water shall release over a several day period, not within a few hours.
F. Watering bags shall be:
1. Tregator irrigation Bags sized to the appropriate model for the requirements of the plant, manufactured by Spectrum Products, Inc., Youngville, NC 27596.
2. Ooze Tube sized to the appropriate model for the requirements of the plant, manufactured by Engineered Water Solutions, Atlanta, GA.
3. Or approved equal.
C. Submit manufacturer's product data for approval.
PART 3 EXECUTION
3.1 DELIVERY, STORAGE AND HANDLING
A. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind or extremes of heat and cold temperatures. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.
1. All plant materials must be available for observation prior to planting.
2. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered. Volumetric soil moisture shall be maintained above wilting point and below field capacity for the root ball substrate or soil.
8. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote storage area for plants and other supplies.
1. The Owner's Representative or Contractor shall approve the duration, method and location of storage of plants.
C. Provide protective covering over all plants during transporting.
3.2 ADVERSE WEATHER CONDITIONS
A. No planting shall take place during extremely hot, dry, windy or freezing weather.
3.3 COORDINATION WITH PROJECT WORK
A. The Contractor shall coordinate with all other work that may impact the completion of the work.
B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.
C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.
3.4 LAYOUT AND PLANTING SEQUENCE
A. Relative positions of all plants and trees are subject to approval of the Owner's Representative.
B. Notify the Owner's Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with the Owner's Representative's approval. Secure the Owner's Representative's acceptance before digging and start of planting work.
C. When applicable, plant trees before other plants are installed.
D. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by the Owner's Representative including relocating previously installed plants.
3.5 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION
A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.
1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and filling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.
2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.
3. Trees shall be moved and planted within 48 hours of the initial harvesting and shall remain in the spade machine until planted.
C. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS
4. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Owner's Representative.
5. Provide plants shall be established and well rooted in removable containers.
6. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.
D. BARE ROOT PLANTS
7. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).
8. The root spread dimensions of the harvested plants shall conform to ANSI Z60.1 for nursery grown bare root plants for each size and type of plant. Just prior to shipping to the job site, dip the root system into a slurry of hydrogel (cross linked polyacrylamide) and water mixed at a rate of 15 oz. of hydrogel in 25 gallons of water. Do not shake off the excess hydrogel. Place the root system in a pleated black plastic bag and tie the bag snugly around the trunk. Bundle and tie the upper branches together.
9. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).
10. Where possible, plant time of planting to be before bud break. For trees to be planted after bud break, place the trees before bud break in an irrigated bed of peat gravel.
a. The peat gravel bed shall be 18 inches deep over a sheet of plastic.
b. Spade trees to allow the unbundled branches to grow without shading each other.
c. Once trees are in peat gravel, allow the trees sufficient time for the new root system to flush and spring growth of leaves to fully develop before planting.
d. Pea gravel stored trees may be kept for up to one growing season.
e. Pea gravel stored trees shall be dipped, packaged and shipped similar to the requirements for freshly dug bare root trees above.
2.3 ANNUAL FLOWERING AND SEASONAL COLOR PLANTS
E. Container or flat-grown plants should be staked as noted in the planting plan. Plants shall be well-rooted and healthy.
2.4 PALMS
F. Except as modified below or where the requirements are not appropriate to the specification of palms, palms shall meet all the requirements of the plant quality section above.
G. Defroning, tying, and hedging:
5. In preparing palm trees for relocation, all dead fronds shall be removed.
6. All remaining fronds above horizontal shall be lifted up and tied together around the crown in an upright position. Do not tie too tightly, bind or injure the bud. Jute binder twine shall be used in tying up the fronds; wire will not be permitted. Fronds shall be untied immediately after planting.
C. Digging the root ball:
1. When digging out the root ball, no excavation shall be done closer than 24 inches to the trunk at ground level and the excavation shall extend below the major root system to a minimum depth of 3.5 feet. The bottom of the root ball shall be cut off square and perpendicular to the trunk below the major root system.
D. The Contractor shall not free-fall, drop, roll or abuse the tree or put a strain on the crown (bud area) at any time. A protective device shall be used around the trunk of the tree while lifting and relocating so as not to injure the bud, or scar or skin the trunk in any way.
2.5 PLANTING SOIL
Planting Soil shall contain a mixture of 1/3 sand, 1/3 peat humus. Sand shall be clean, salt-free and containing no extraneous matter. Topsoil shall be friable fertile soil with representative characteristics of area soils. It should be free of heavy silt, stone, excess lime, shell rock, plant roots, debris or other foreign matter. If shell rock contain noxious plant growth (such as Bermuda, Torpedoo or nut grass), it shall test between the pH range of 5.0 to 7.0 unless otherwise specified and contain no toxic residue or substances that would endanger plant growth. If topsoil is not available on site, it shall be imported from local sources with similar soil characteristics to that found at project site, obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth not less than 4". Peat humus shall be decomposed peat with no identifiable fibers or if available, muck may be substituted and shall be free from stones, excessive plant roots, debris or other foreign matter. Muck shall not be overly saturated with water.
2.6 MULCH
A. Mulch shall be Melaleuca or Eucalyptus and shall cover all landscape bed areas in a 3" minimum layer. Do not let mulch pile up on root ball or around trunks of trees plants. Submit supplier's product specification data sheet and a one gallon sample for approval.
2.7 TREE STAKING AND GUYING MATERIAL
A. Tree guying to be flit woven polypropylene material, 3/4 inch wide, and 900 lb. break strength. Color to be Green. Product to be Arbotile manufactured by Deep Root Partners, LP, or approved equal.
B. Stakes shall be lodge pole stakes free of knots and of diameters and lengths appropriate to the size of plant as required to adequately support the plant.
C. Below ground anchor systems to be constructed of 2 x 2 dimensional untreated wood securing (using 3 inch long screws) horizontal portions to 4 feet long vertical stakes driven straight into the ground outside the root ball.
D. Submit manufacturer's product data for approval.
2.8 WATERING BAGS
E. Plastic tie watering bags holding a minimum of 1.5 gallons of water and with a slow drip hole(s) water release system, specifically designed to water establishing trees. Water shall release over a several day period, not within a few hours.
F. Watering bags shall be:
1. Tregator irrigation Bags sized to the appropriate model for the requirements of the plant, manufactured by Spectrum Products, Inc., Youngville, NC 27596.
2. Ooze Tube sized to the appropriate model for the requirements of the plant, manufactured by Engineered Water Solutions, Atlanta, GA.
3. Or approved equal.
C. Submit manufacturer's product data for approval.
PART 3 EXECUTION
3.1 DELIVERY, STORAGE AND HANDLING
A. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind or extremes of heat and cold temperatures. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.
1. All plant materials must be available for observation prior to planting.
2. Using a soil moisture meter, periodically check the soil moisture in the root balls of all plants to assure that the plants are being adequately watered. Volumetric soil moisture shall be maintained above wilting point and below field capacity for the root ball substrate or soil.
8. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote storage area for plants and other supplies.
1. The Owner's Representative or Contractor shall approve the duration, method and location of storage of plants.
C. Provide protective covering over all plants during transporting.
3.2 ADVERSE WEATHER CONDITIONS
A. No planting shall take place during extremely hot, dry, windy or freezing weather.
3.3 COORDINATION WITH PROJECT WORK
A. The Contractor shall coordinate with all other work that may impact the completion of the work.
B. Prior to the start of work, prepare a detailed schedule of the work for coordination with other trades.
C. Coordinate the relocation of any irrigation lines, heads or the conduits of other utility lines that are in conflict with tree locations. Root balls shall not be altered to fit around lines. Notify the Owner's Representative of any conflicts encountered.
3.4 LAYOUT AND PLANTING SEQUENCE
A. Relative positions of all plants and trees are subject to approval of the Owner's Representative.
B. Notify the Owner's Representative, one (1) week prior to layout. Layout all individual tree and shrub locations. Place plants above surface at planting location or place a labeled stake at planting location. Layout bed lines with the Owner's Representative's approval. Secure the Owner's Representative's acceptance before digging and start of planting work.
C. When applicable, plant trees before other plants are installed.
D. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent until some or all of the plants are installed. Make adjustments as required by the Owner's Representative including relocating previously installed plants.
3.5 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION
A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.
1. Where possible deliver and plant trees that require the use of heavy mechanized equipment prior to final soil preparation and filling. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.
2. Till to a depth of 6 inches, all soil that has been driven over during the installation of plants.
3. Trees shall be moved and planted within 48 hours of the initial harvesting and shall remain in the spade machine until planted.
C. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS
4. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the Owner's Representative.
5. Provide plants shall be established and well rooted in removable containers.
6. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.
D. BARE ROOT PLANTS
7. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).
8. The root spread dimensions of the harvested plants shall conform to ANSI Z60.1 for nursery grown bare root plants for each size and type of plant. Just prior to shipping to the job site, dip the root system into a slurry of hydrogel (cross linked polyacrylamide) and water mixed at a rate of 15 oz. of hydrogel in 25 gallons of water. Do not shake off the excess hydrogel. Place the root system in a pleated black plastic bag and tie the bag snugly around the trunk. Bundle and tie the upper branches together.
9. Harvest bare root plants while the plant is dormant and a minimum of 4 weeks prior to leaf out (bud break).
10. Where possible, plant time of planting to be before bud break. For trees to be planted after bud break, place the trees before bud break in an irrigated bed of peat gravel.
a. The peat gravel bed shall be 18 inches deep over a sheet of plastic.
b. Spade trees to allow the unbundled branches to grow without shading each other.
c. Once trees are in peat gravel, allow the trees sufficient time for the new root system to flush and spring growth of leaves to fully develop before planting.
d. Pea gravel stored trees may be kept for up to one growing season.
e. Pea gravel stored trees shall be dipped, packaged and shipped similar to the requirements for freshly dug bare root trees above.
2.3 ANNUAL FLOWERING AND SEASONAL COLOR PLANTS
E. Container or flat-grown plants should be staked as noted in the planting plan. Plants shall be well-rooted and healthy.
2.4 PALMS
F. Except as modified below or where the requirements are not appropriate to the specification of palms, palms shall meet all the requirements of the plant quality section above.
G. Defroning, tying, and hedging:
5. In preparing palm trees for relocation, all dead fronds shall be removed.
6. All remaining fronds above horizontal shall be lifted up and tied together around the crown in an upright position. Do not tie too tightly, bind or injure the bud. Jute binder twine shall be used in tying up the fronds; wire will not be permitted. Fronds shall be untied immediately after planting.
C. Digging the root ball:
1. When digging out the root ball, no excavation shall be done closer than 24 inches to the trunk at ground level and the excavation shall extend below the major root system to a minimum depth of 3.5 feet. The bottom of the root ball shall be cut off square and perpendicular to the trunk below the major root system.
D. The Contractor shall not free-fall, drop, roll or abuse the tree or put a strain on the crown (bud area) at any time. A protective device shall be used around the trunk of the tree while lifting and relocating so as not to injure the bud, or scar or skin the trunk in any way.
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A. Mulch shall be Melaleuca or Eucalyptus and shall cover all landscape bed areas in a 3" minimum layer. Do not let mulch pile up on root ball or around trunks of trees plants. Submit supplier's product specification data sheet and a one gallon sample for approval.
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C. Below ground anchor systems to be constructed of 2 x 2 dimensional untreated wood securing (using 3 inch long screws) horizontal portions to 4 feet long vertical stakes driven straight into the ground outside the root ball.
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