SECTION 02910 - TREE RELOCATION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes: Labor, materials, necessary equipment and services to complete the tree relocation work.

B. Related Section:

1. Section 02900 - Landscaping.

C. Before tree excavation, pruning, removal, or relocation of existing trees, contractor shall notify:

1. The Board of schedule of operation.
2. Appropriate utility companies and the Board for flagging and coordination of service disconnection as necessary to complete work.
3. Coordinate work with other trades.

1.2 REFERENCES

A. American National Standards Institute (ANSI): Z60.1 American Standard for Nursery Stock.

B. Florida Department of Agriculture and Consumer Services: "Grades and Standards for Nursery Plants".

C. National Arborist Association (NAA): Ref.1 Transplanting of Trees and Shrubs in the Southeastern United States.

1.3 DEFINITIONS

A. Toxic Substances:

1. Do not deliver any toxic substance or item as defined in Florida Statute 442.102(21) to the site without furnishing to the Board a Material Safety Data Sheet (MSDS).
2. Provide current MSDS information with each initial shipment.
3. The MSDS shall contain the following information:
   a. The chemical name and the common name of the toxic substance.
   b. The hazards or other risks in the use of the toxic substance, including:
      1) The potential for fire, explosion, corrosivity and reactivity.
      2) The known acute and chronic health effects of risks from exposure, including the medical conditions which are generally recognized as being aggravated by exposure to the toxic substance.
      3) The primary routes of entry and symptoms of overexposure.
   c. The proper precautions, handling practices, necessary personal protective equipment, any other safety precautions in the use of or exposure to the toxic substance including appropriate emergency treatment in case of overexposure.
   d. The emergency procedure for spills, fire disposal, and first aid.
   e. A description in lay terms of the known specific potential health risks posed by the toxic substance intended to alert any person reading this information.
   f. The year and month, if available, that the information was compiled and the name, address, and emergency telephone number of the manufacturer responsible for preparing the information.

1.4 DESCRIPTION

A. Protect existing trees to remain during construction phases. Provide tree protection barriers for those existing trees adjacent to tree transplantation operations. Any trees scarred or destroyed, designated to remain, will be replaced at the Contractor's expense, with similar species, size, and quality.

B. Remove other vegetation as necessary and as directed by the A/E to accommodate new plantings. Prepare areas to be planted according to Section 02900.

C. Resulting tree pits of relocated material shall be backfilled with clean fill and brought back flush with surrounding grade, unless the pits are to be immediately replanted. Stabilize grade if required. Correct problems caused by erosion, wind, etc., in the reclaimed area. Pits to be quickly replanted shall be surrounded by safety barricades to prevent accidental falls into pits.

1. In areas where new plant material will replace relocated plant material, appropriate planting soil mix shall be used as backfill.

1.5 SUBMITTALS

A. Submit a list of equipment, procedure, and labor force anticipated for use for tree relocation for approval by the Board.

B. Submit a schedule by day indicating units to be dug and relocated. Note materials requiring root pruning, and that the relocation schedule is to begin at the end of the specified root pruning period.

C. Obtain permits required by authority having jurisdiction.

D. Submit written certification that trees indicated to remain have been protected during the course of construction according to recognized standards of the industry. Certify that where damage did occur:

1. Trees were promptly and properly treated.
2. Indicate which damaged trees (if any) are incapable of retaining full growth potential and are recommended to be replaced.

E. Submit for approval, proposed methods, and schedule for effecting tree and plant protection.

1.6 QUALITY ASSURANCE

A. The Contractor's crew used for the relocation of existing trees shall have minimum 10 years experience in relocation of existing plant materials and be recognized by the American Association of Nurserymen.

B. Unless otherwise specified, tree transplanting shall comply with NAA Ref.1.

C. Comply with NAA standards for pruning and remove branches from trees to remain to clear new construction.

D. Recommend procedures to compensate for loss of roots (if any) and perform initial pruning of branches and stimulation of root growth where removed to accommodate new construction.

E. Perform tree repair work for damage incurred by new construction.

F. Provide routine progress evaluation reports on relocated trees until the end of the maintenance period.

G. Evaluate existing trees and verify trees are free of disease and ready to survive relocation from the site to their new location on-site or off-site.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Properly handle trees and palms during moving so trunks will not be scarred or damaged and to avoid broken limbs. Broken limbs not causing the tree to be rejected shall be repaired as follows:

1. Properly prune dead, dying, or damaged branches with clean, sharp equipment.
2. Remove injured bark and wood of a tree would with a clean, sharp knife to a point where healthy bark and wood make contact at their margins.
3. Inspect and treat wound for insect and disease.
4. Seal wounds with bituminous base wound paint for all oak limbs greater than 3 inch diameter.

B. Transport trees on vehicles of adequate size to prevent overcrowding, broken limbs, foliage damage, or root ball damage.

C. Keep root balls moist during relocation.

D. Protect tree crowns with shade cloth to prevent desiccation and wind burn. Crowns shall be periodically sprayed with water to help ensure against desiccation.

E. Handle plant material only in ways and means accepted by the landscaping industry and accepted by the Board.

F. Plant material shall be planted the same day it is dug. Coordinate preparation of planting pits or beds to ensure this schedule.

1.8 WARRANTY

A. Relocated plant material does not fall under the standard 12 month guarantee.

B. For relocated trees or palms that die, replace their canopy area with new trees as specified.

1. Canopy spread for all palms and trees shall be listed on proposal when submitted for relocation work.
2. Replacements (mitigation plantings) shall be provided at no additional cost to the Board.
3. Submit the attached form to the Board for review and approval.
4. Proposed replacement canopy tree species shall be Board accepted trees and palms.
5. See list at the end of this section.
6. The specification requirements for these trees and palms are according to Section 02900.

C. Repair damage to other plants and lawn or construction work within the relocation area during tree transplantation at no cost to the Board. This includes, but is not limited to, damage to curbs, walks, roads, fences, site furnishings, etc. Replacing and replanting of damaged trees, shrubs or turf shall be according to Section 02900.

1.9 MAINTENANCE

A. Maintain relocated plant materials immediately after each item is planted and continued until the 90 day watering period is completed, upon which time the Board will take over maintenance of materials following procedures and recommendations of contractor and specifications.

B. During the maintenance period, maintain relocated plant materials according to procedures described in Section 02900.

PART 2 PRODUCTS

2.1 MATERIALS

A. Bone meal shall be readily available steamed bone meal, useable as a natural organic nitrogen fertilizer.

B. Peat moss, topsoil, planting soil, mulch, staking, and guying, shall be as specified in section 02900.

C. Fill materials shall be as specified in Section 02900.

PART 3 EXECUTION

3.1 TRANSPLANTATION

A. Transplanting shall consist of on-site or off-site transplanting of existing trees or palms from proposed school construction areas to permanent positions as noted on the drawings.

B. Digging, Wrapping, and Handling: Plants shall be dug and prepared for moving in a manner that will not cause damage to branches, shape, root system, and development.

C. Balled and Burlapped Plants:

1. Balls shall be firmly wrapped with burlap or accepted cloth substitute.
2. No balled plant will be acceptable if the ball is cracked and broken or if the stem or trunk is loose in the ball, either before or during transplanting.
3. Balled plants shall be lifted and handled from the bottom of the ball.
4. Protect ball and deliver to the site, plant immediately, and water thoroughly.
5. Ball sizes shall be as recommended in ANSI Z60.1

3.2 PLANTING

A. Relocated Material:

1. Relocated trees/palms shall be planted according to procedures described for new material, Section 02900. Verify final grades have been established before planting operations. Ensure proposed planting pits drain by test-filling with water before transplantation.
2. Continue watering and caring for relocated material as specified.
3. Mulch tree pit areas to reduce weeds, discourage foot traffic, conserve moisture, and minimize temperature fluctuations.
4. Brace trunk and leave in place for approximately one year until trees are wind firm.
5. Wrap trunks and structural branches of thin-barked trees to protect against sun scald and dehydration. Retain through at least one growing season, and through cold season.
6. Feed with a diluted solution of N-P-K in solution form with a soil needle, providing water, air, and nutrients.
7. Where foliage is retarded, spray with one of the soluble types of foliage feeders.
8. At time of planting, fill air pockets and keep roots, especially feeder roots, moist, live, and healthy. Use soil needles for watering new transplants. Direct fine spray at foliage to help harden-off new leaves.

3.3 STAKING AND GUYING

A. Stake and guy designated material according to procedures described for new plant materials, Section 02900.

3.4 WATERING

A. Following transplantation, water trees daily for the first two weeks, every other day for the next three weeks, and every third day for the balance of the three month watering/maintenance period. Such watering shall thoroughly saturate the root ball to its full depth.

B. Following relocation, trees designated for transplanting shall be watered as specified in this section. Such watering shall thoroughly saturate the root ball to its full depth.

C. Provide manual watering of relocated plant materials for 90 days. If used, after watering period, Contractor shall be responsible for the complete removal of all temporary watering systems.

3.5 TAGGING

A. Trees within the designated areas for relocation shall be clearly marked by means of yellow plastic surveyor's ribbons and coordinated with, inspected, and accepted by the Board before root pruning and digging.

3.6 ROOT PREPARATION

A. Trees to be relocated shall be root pruned at least 45 days before digging with clean, sharp equipment.

1. Maintain root pruned materials by watering, weeding, mowing, spraying, fertilizing, and other horticulture practices.
2. After root pruning, backfill with good rooting medium, fertilize with organic fertilizer to promote root growth.
3. Mulch to reduce weeds, discourage foot traffic, conserve moisture, and minimize temperature fluctuation.

B. Root Ball Size Chart: Root ball sizes shall be according to minimum standards set forth in Grades and Standards for Nursery Plants Part II, Palms and Trees, Florida Department of Agriculture.

1. Trees-Minimum Ball Sizes:

Caliper	Minimum Ball Diameter
3-1/2" to 4"	28"
4" to 4-1/2"	30"
4-1/2" to 5"	32"
5" to 5-1/2"	34"

Larger sizes increase proportionally.

2. Minimum Ball Depth:

Ball Diameter	Depth
Less than 20"	Not less than 75 percent of diameter.
20" to 30"	Not less than 65 percent of diameter.
30" to 48"	Not less than 60 percent of diameter.

3.7 CROWN PREPARATION

A. Shade and Flowering Trees:

1. Shade Trees: Selectively prune and thin crown to remove approximately one third of the branches. Preserve the basic shape and form of the tree, eliminate cross-branching and dead or diseased branches.
2. Hand strip selected species of all leaves following pruning and before moving.

B. Palms: Follow standard procedure for transplantation of palms.

3.8 HAND DIGGING

A. Burlapping is required. Trees that are burlapped for relocation shall comply and be handled in same manner as new plant material specified in Section 02900.

3.9 SPECIAL CONDITIONS

A. Multi-Trunk Trees: Relocate multi-trunk tree as one unit. Measure unit by taking the aggregate total of all DBH measurements.

B. Multi-Trunk Palms: Relocate multi-trunk palms as one unit. Unit shall be measured as follows:

1. 50 percent of the value in dollars of the largest trunk in the grouping times the number of trunks in the clump.

C. On-site relocation:

1. On-site relocation shall include root pruning, canopy pruning, on-site transportation, hauling and dumping of debris, and 90-day maintenance.
2. If the tree or palm should die within the 90 day maintenance period, remove the tree, replace the material, and restore the site at no additional cost to the Board.

3.10 CLEANING

A. Site Clean-up:

1. Upon completion of the work, thoroughly clean up the project site.
2. Remove equipment, unused materials, deleterious material, and surplus excavated material.
3. Fine grade all disturbed areas and the areas adjacent to the transplanted material to provide a neat and uniform site.
4. All damaged or altered existing structures, as a result of the landscape work, shall be corrected.

END OF SECTION 02910

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TREE
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