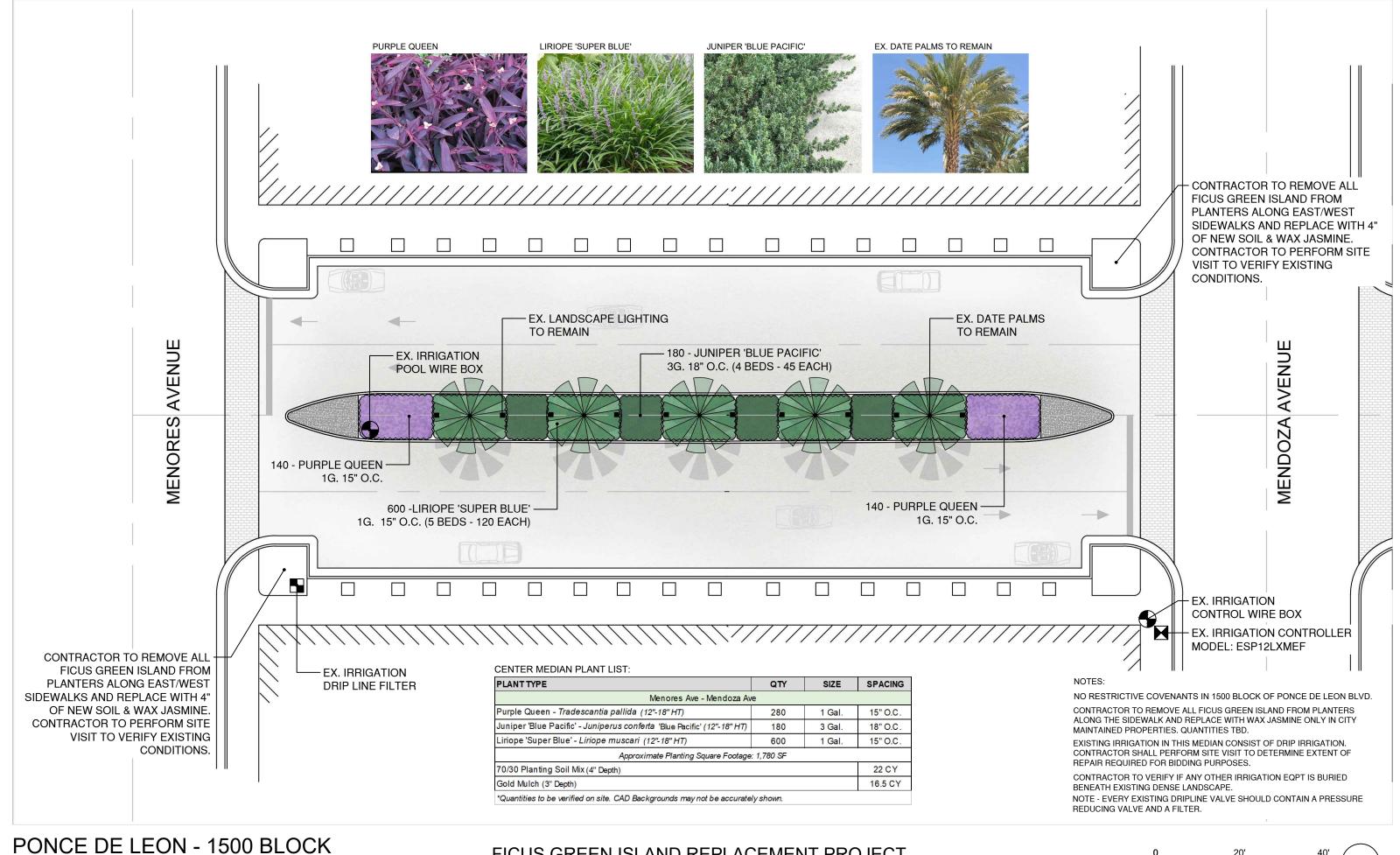
# PONCE DE LEON - MEDIANS (MENORES AVE - MIRACLE MILE) PONCE DE LEON BOULEVARD



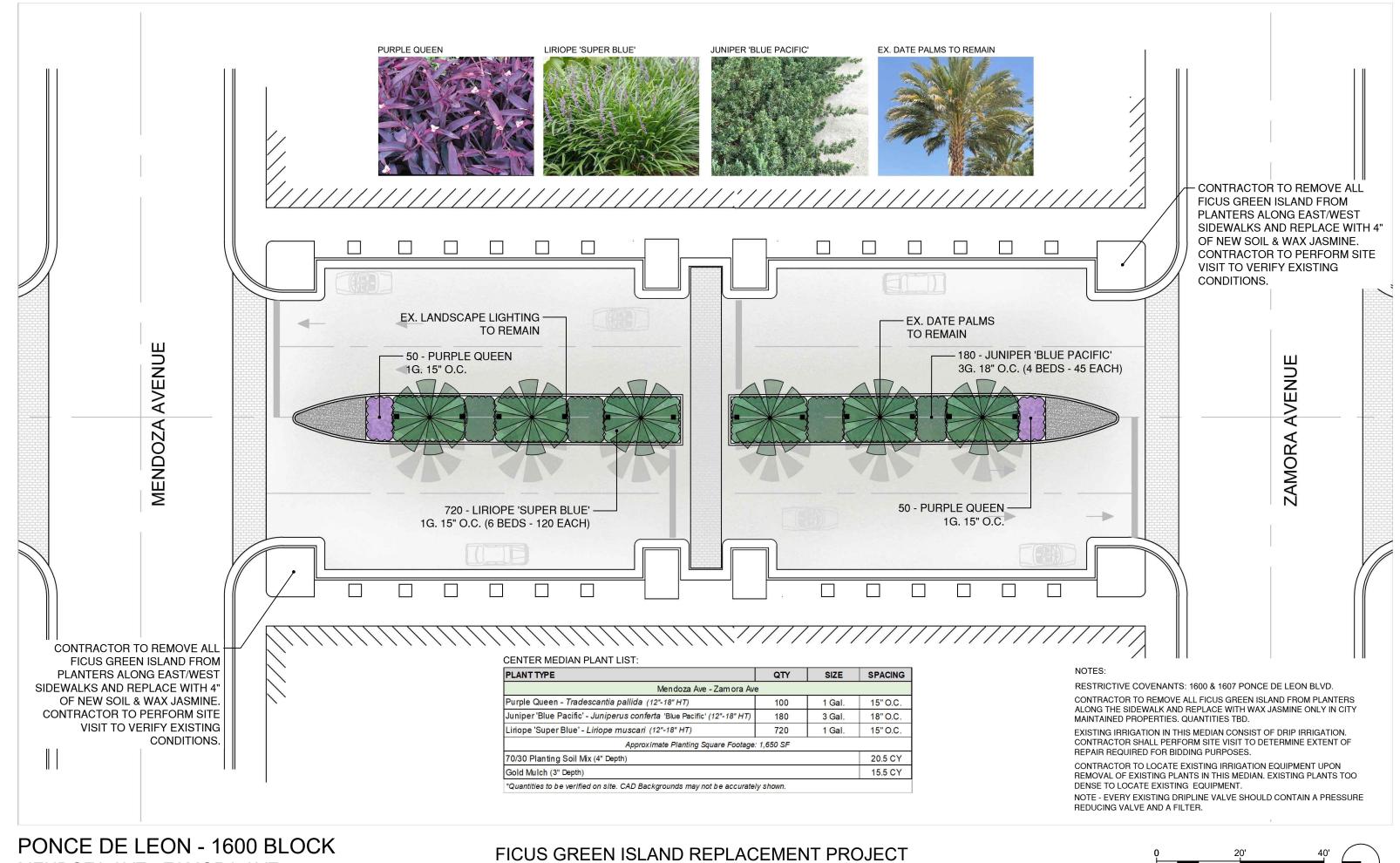




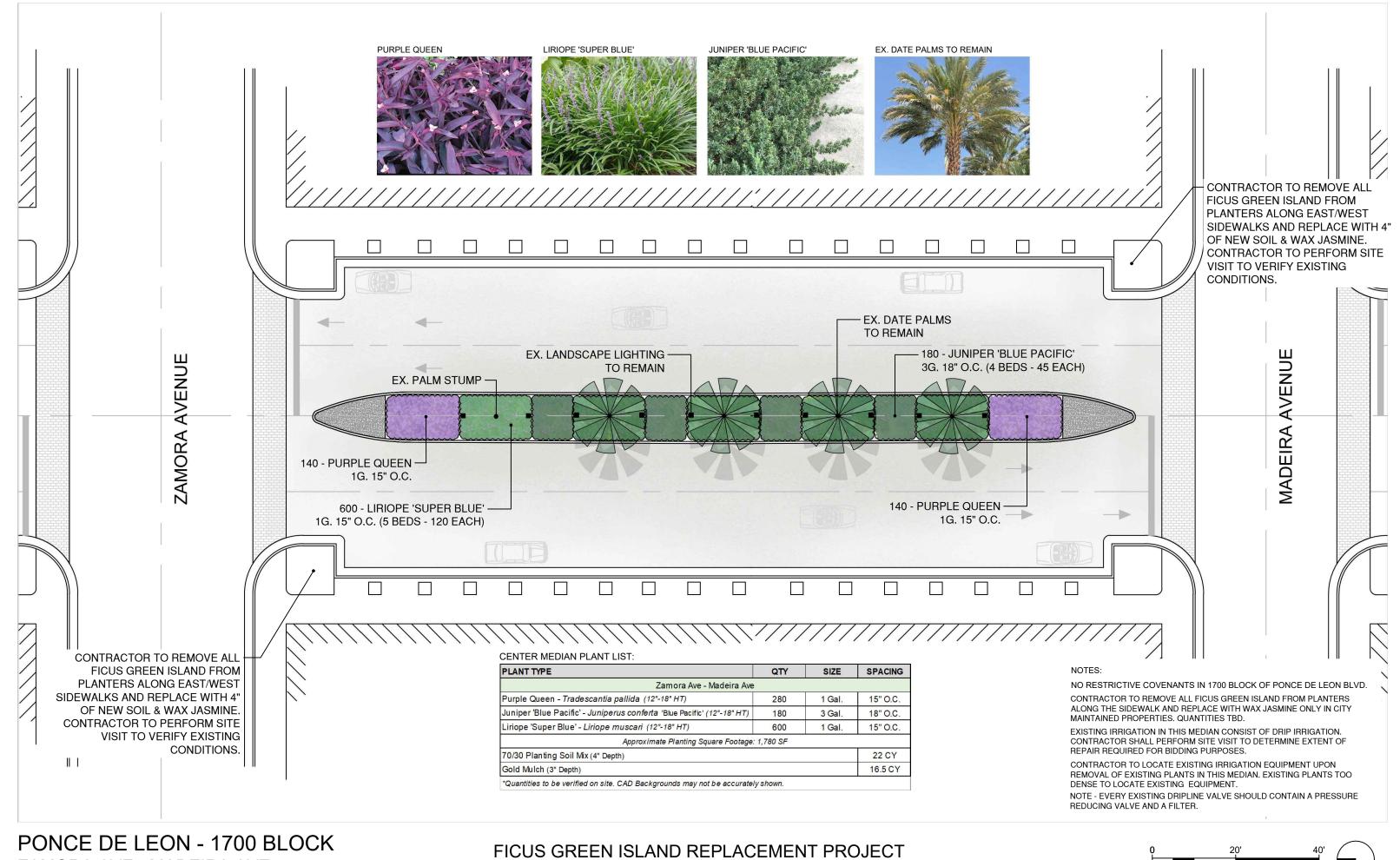
PONCE DE LEON - 1500 BLOCK MENORES AVE - MENDOZA AVE

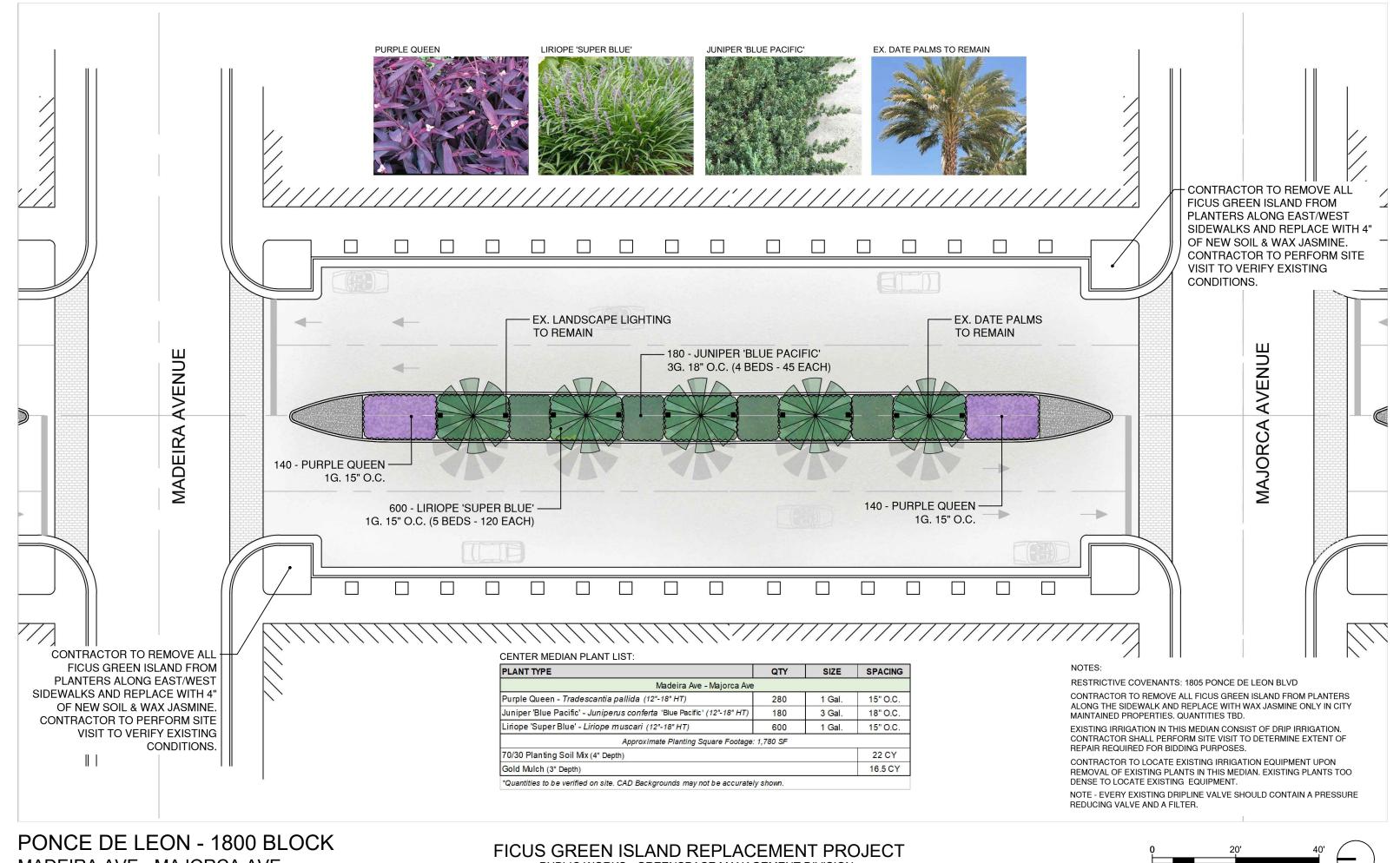
FICUS GREEN ISLAND REPLACEMENT PROJECT PUBLIC WORKS - GREENSPACE MANAGEMENT DIVISION





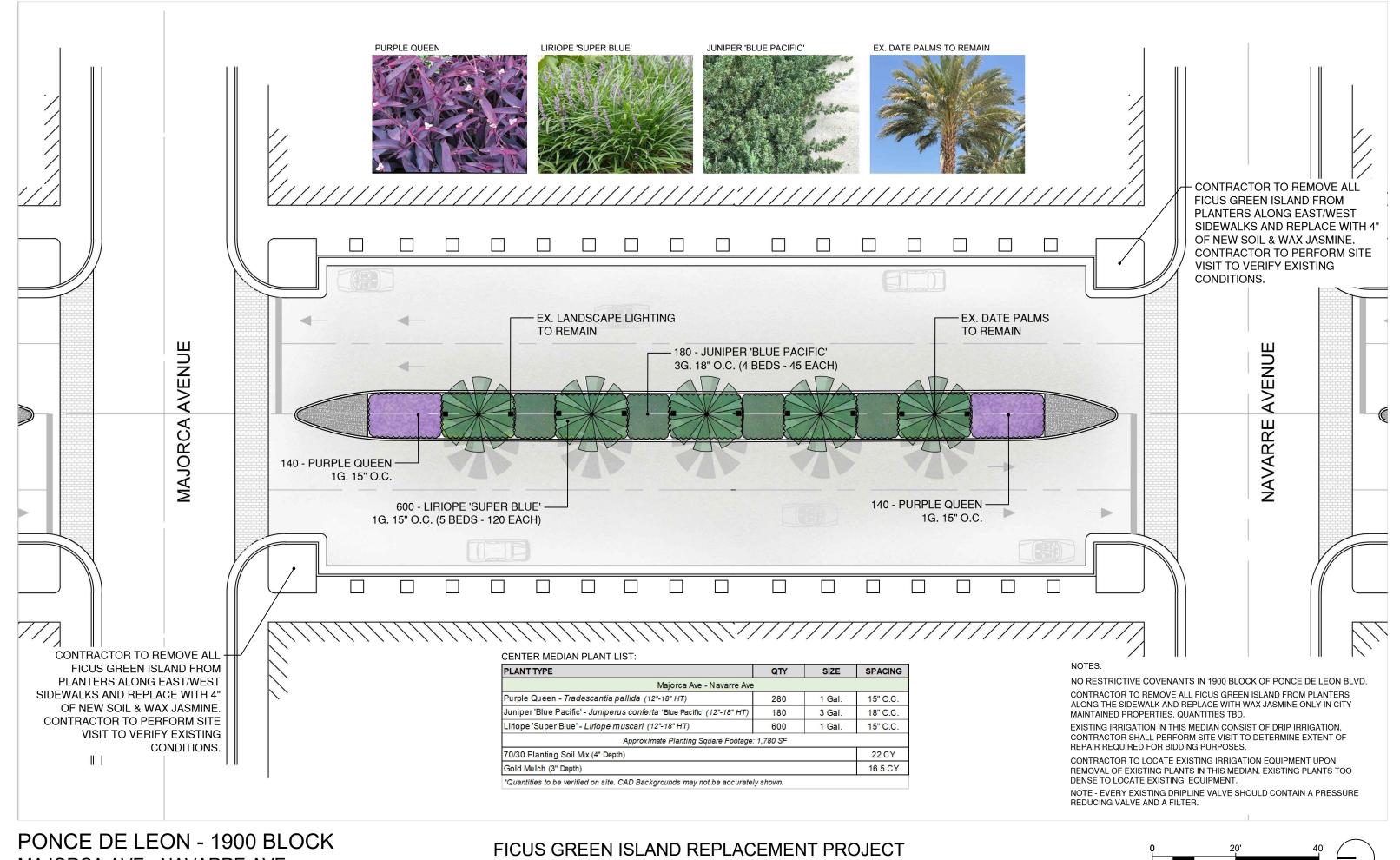




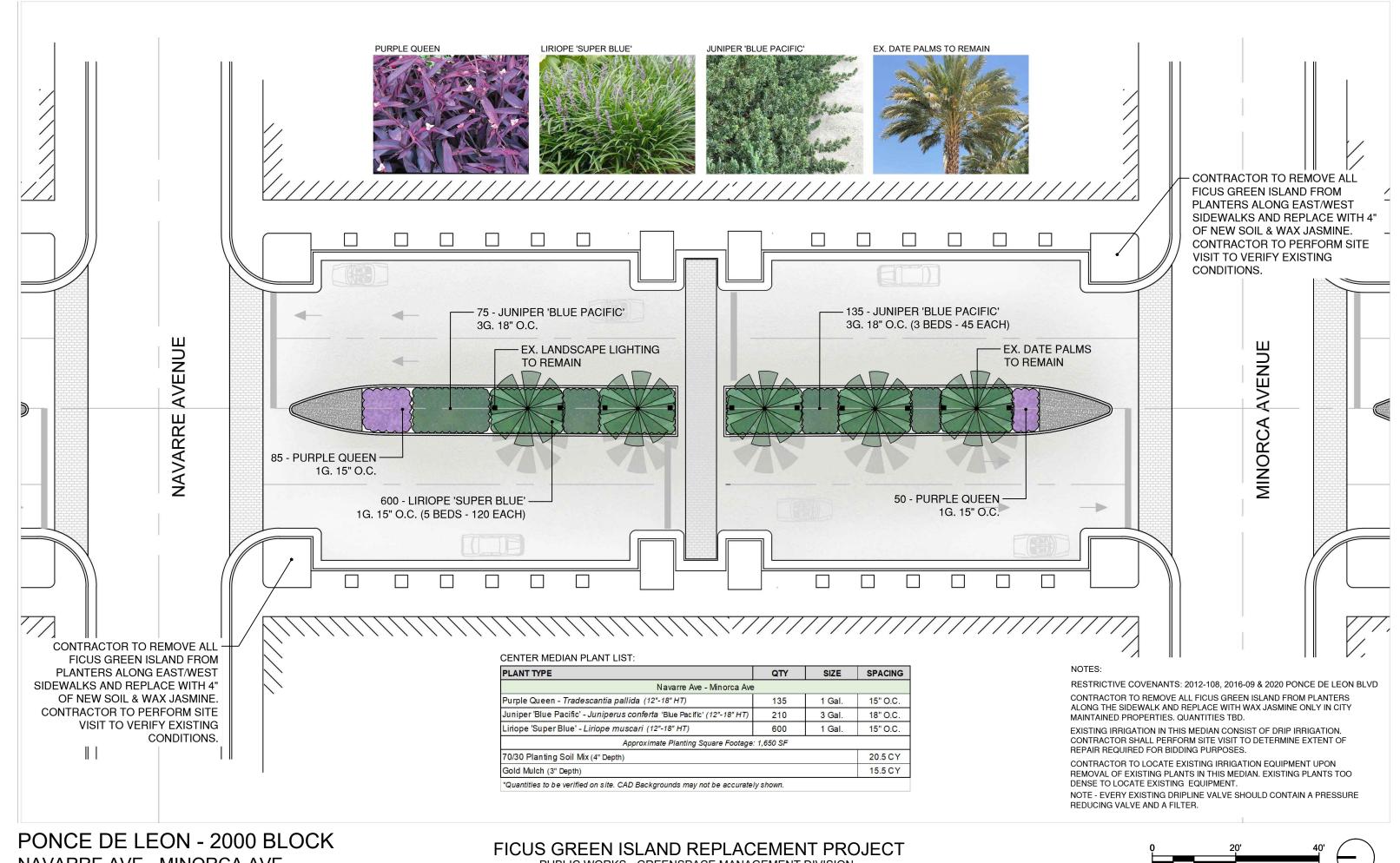


MADEIRA AVE - MAJORCA AVE

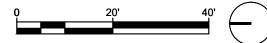


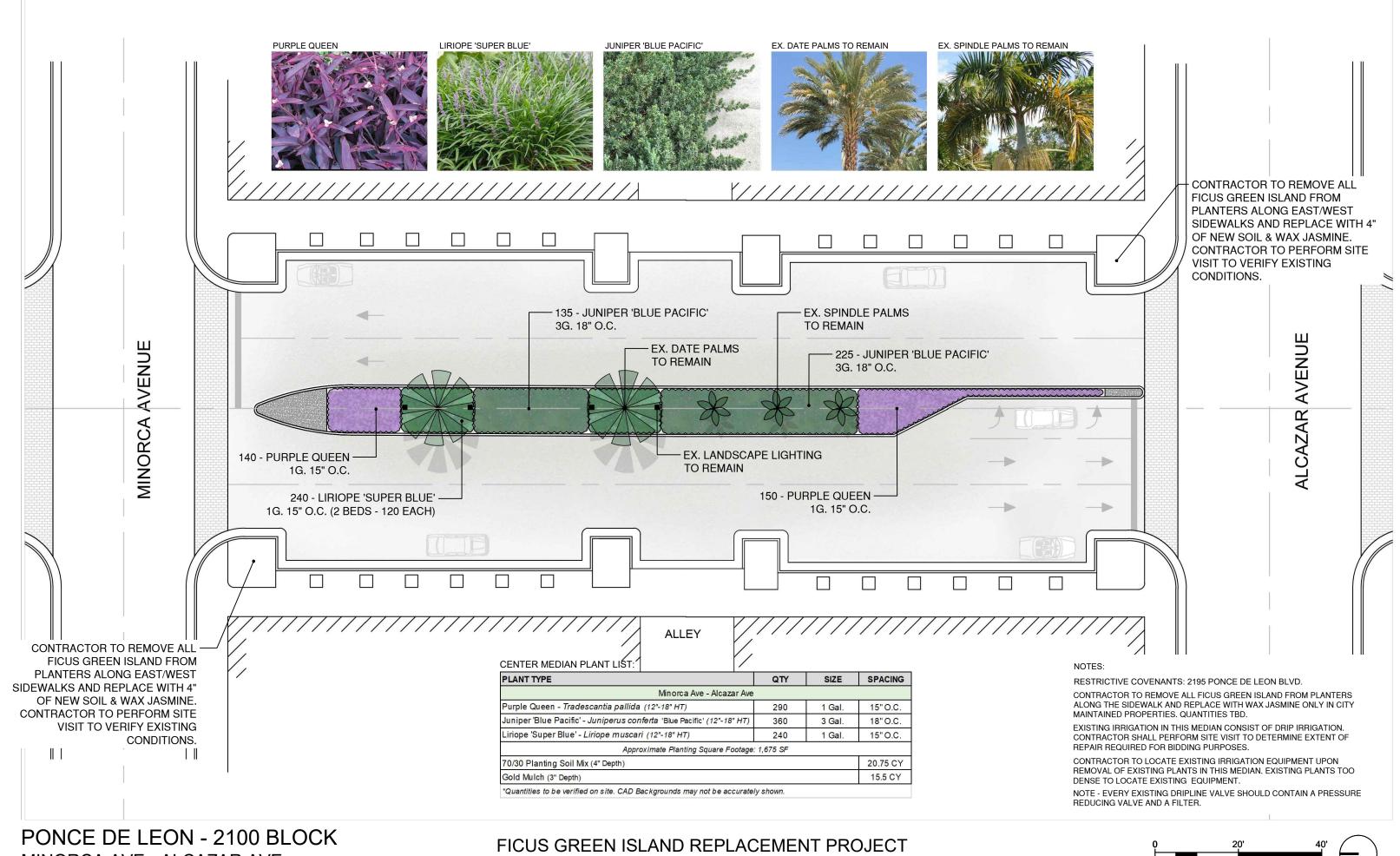




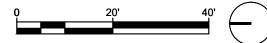


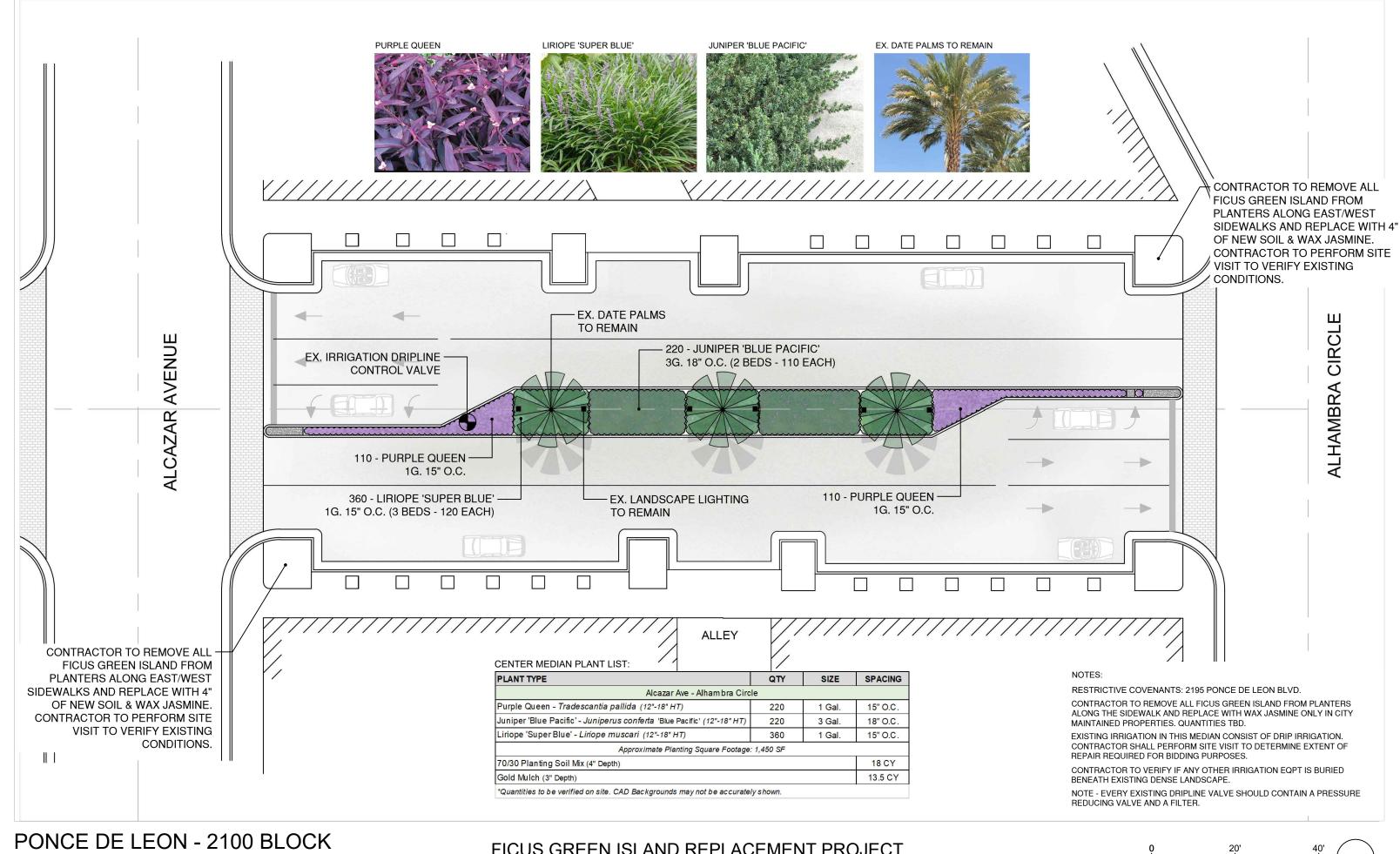
NAVARRE AVE - MINORCA AVE





MINORCA AVE - ALCAZAR AVE

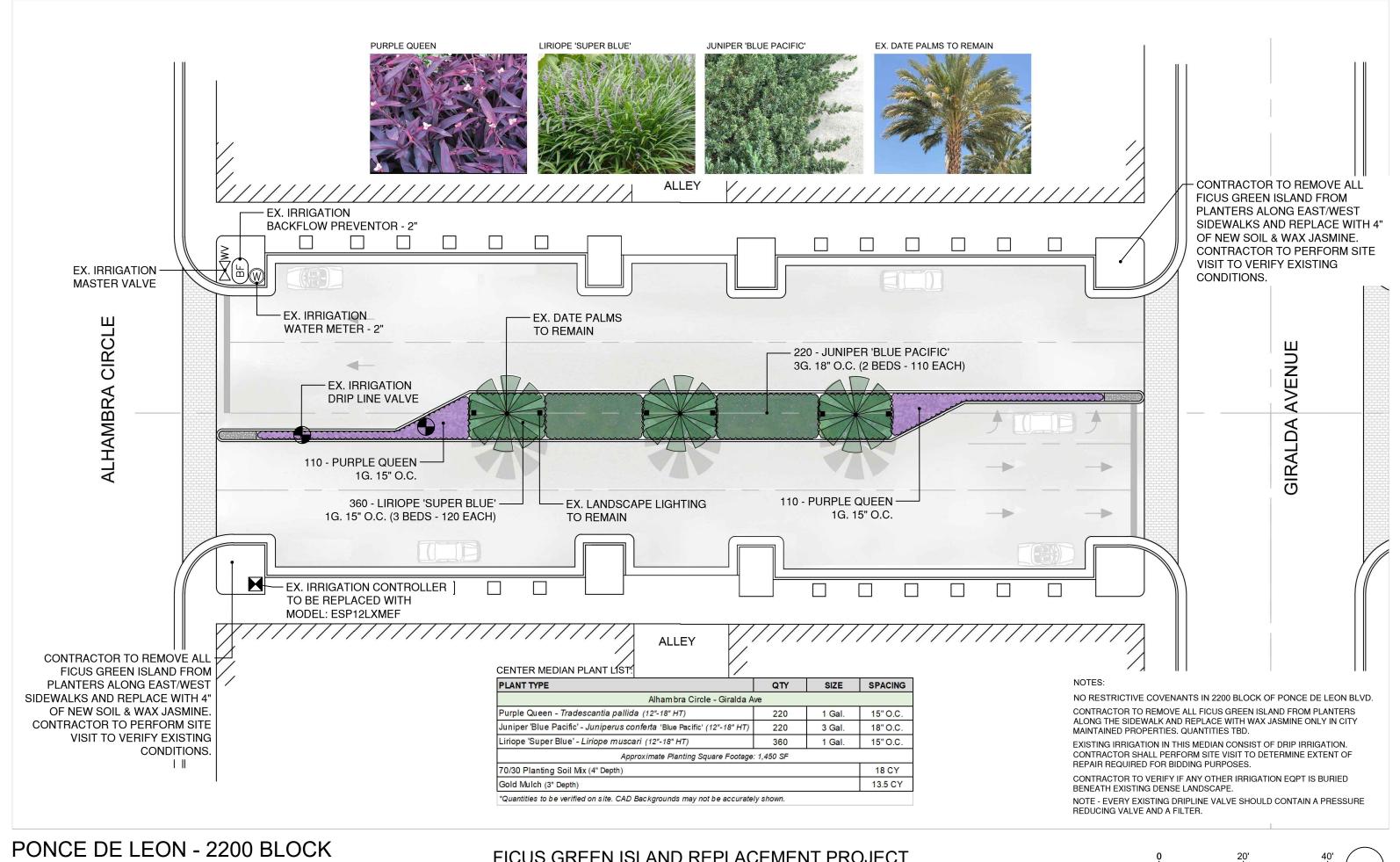


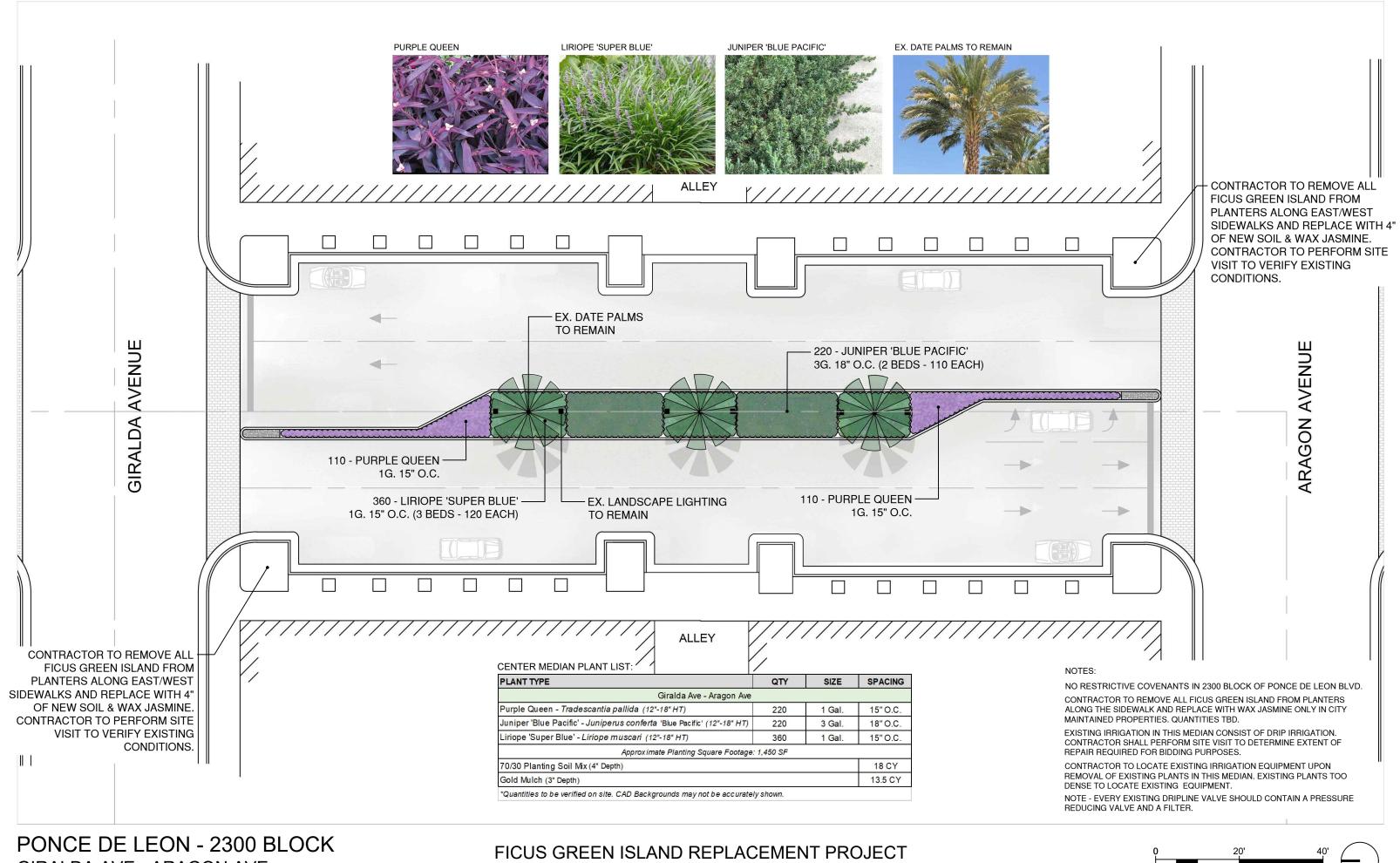


ALCAZAR AVE - ALHAMBRA CIRCLE

FICUS GREEN ISLAND REPLACEMENT PROJECT PUBLIC WORKS - GREENSPACE MANAGEMENT DIVISION

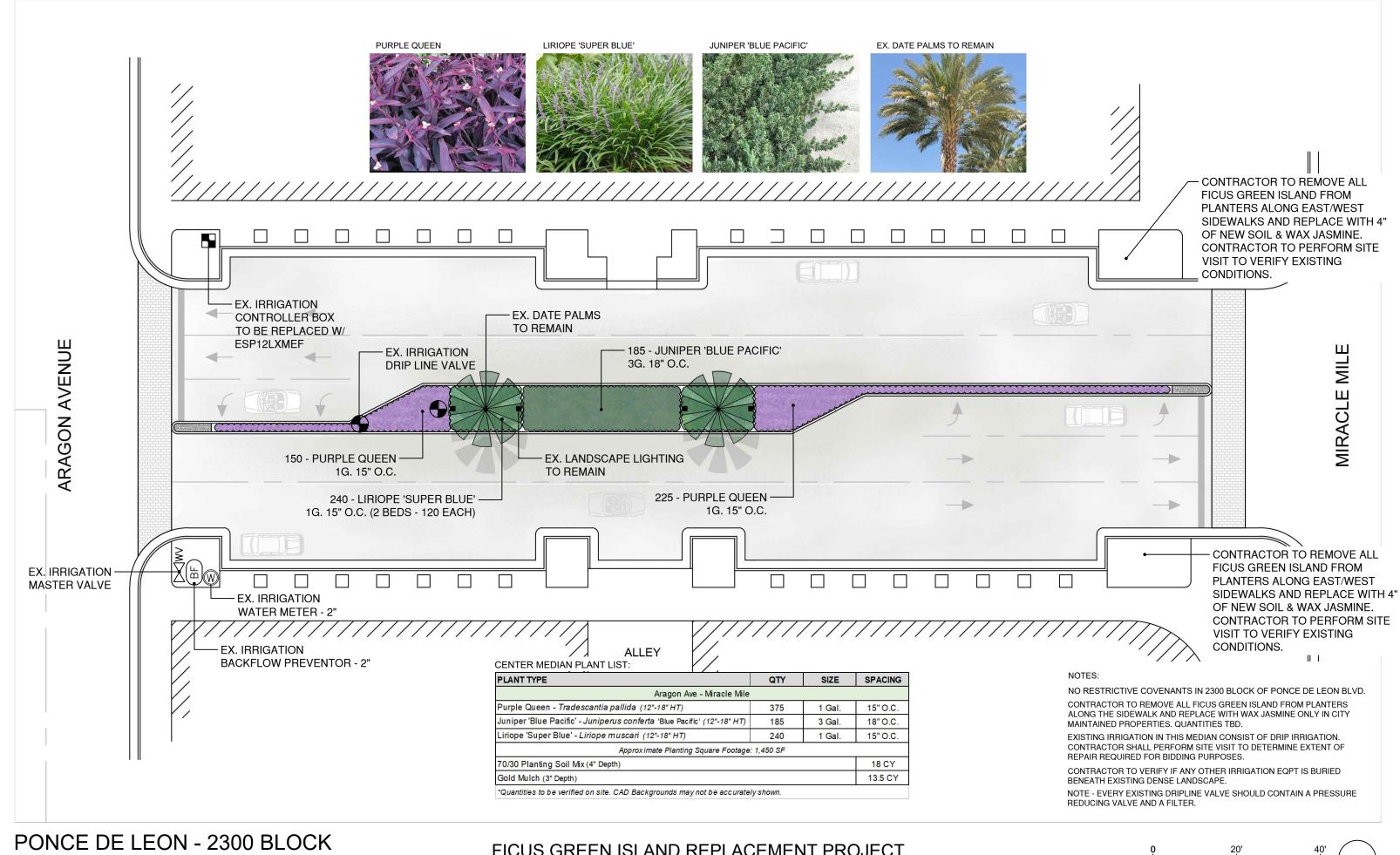






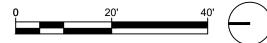
GIRALDA AVE - ARAGON AVE





ARAGON AVE - MIRACLE MILE

FICUS GREEN ISLAND REPLACEMENT PROJECT PUBLIC WORKS - GREENSPACE MANAGEMENT DIVISION



#### QUANTITIES BY BLOCKS FOR CENTER MEDIANS:

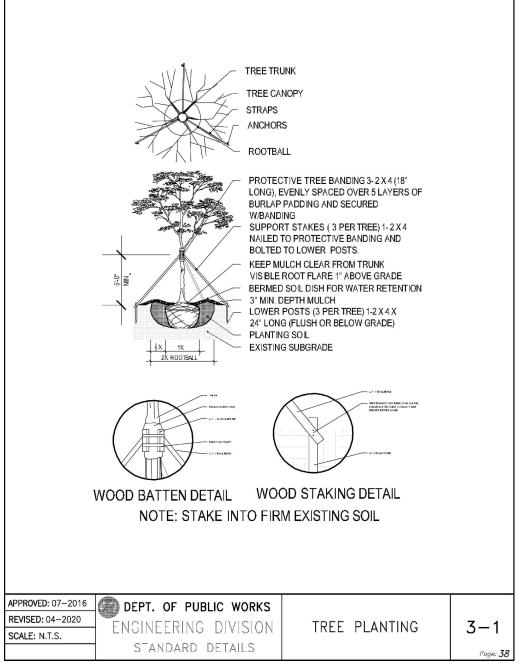
DI ANT TVDE	OTV	CIZE	CDACING
PLANT TYPE  Menores Ave - Mendoza Ave	QTY	SIZE	SPACING
Purple Queen - Tradescantia pallida (12"-18" HT)	280	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	180	3 Gal.	18" O.C.
Liriope 'Super Blue' - Liriope muscari (12"-18" HT)	600	1 Gal.	15" O.C.
Approximate Planting Square Footage:		i Gai.	15 0.0.
70/30 Planting Soil Mix (4" Depth)	1,700 31	Cubic Yards:	22
Gold Mulch (3" Depth)		Cubic Yards:	16.5
Mendoza Ave - Zamora Ave	<u> </u>	Cubic Faids.	10.5
Purple Queen - Tradescantia pallida (12"-18" HT)	100	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	180	3 Gal.	18" O.C.
Liriope 'Super Blue' - <i>Liriope muscari (12"-18" HT)</i>	720	1 Gal.	15" O.C.
Approximate Planting Square Footage:	S. Salarana and	i Gai.	10 0.0.
лургохинае Ранкінд Square госкаде. 70/30 Planting Soil Mix (4" Depth)	1,000 31	Cubic Yards:	20.5
		Cubic Yards:	15.5
Gold Mulch (3" Depth)  Zamora Ave - Madeira Ave		Cubic Fards.	15.5
Purple Queen - Tradescantia pallida (12"-18" HT)	280	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	180	3 Gal.	18" O.C.
Liriope 'Super Blue' - Liriope muscari (12"-18" HT)	600	1 Gal.	15" O.C.
		i Gai.	10 0.0.
Approximate Planting Square Footage:	1,700 35	Oubin Varda:	22
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	16.5
Gold Mulch (3" Depth)		Cubic Yards:	10.5
Madeira Ave - Majorca Ave Purple Queen - Tradescantia pallida (12"-18" HT)	200	1.00	15" 0 0
	280	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	180	3 Gal.	18" O.C.
Liriope 'Super Blue' - <i>Liriope muscari (12"-18" HT)</i>	600	1 Gal.	15" O.C.
Approximate Planting Square Footage:	1,780 SF		00
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	22
Gold Mulch (3" Depth)		Cubic Yards:	16.5
Majorca Ave - Navarre Ave	200	4.0-1	45".00
Purple Queen - Tradescantia pallida (12"-18" HT)	280	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	180	3 Gal.	18" O.C.
Liriope 'Super Blue' - <i>Liriope muscari (12"-18" HT)</i>	600	1 Gal.	15" O.C.
Approximate Planting Square Footage:	1,780 SF	In a control	
70/30 Planting Soil Mix (4" Depth)	Cubic Yards:	22	
Gold Mulch (3" Depth)		Cubic Yards:	16.5
Navarre Ave - Minorca Ave			450.00
Purple Queen - Tradescantia pallida (12"-18" HT)	135	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	210	3 Gal.	18" O.C.
Liriope 'Super Blue' - <i>Liriope muscari (12"-18" HT)</i>	600	1 Gal.	15" O.C.
Approximate Planting Square Footage:	1,650 SF		
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	20.5
Gold Mulch (3" Depth)		Cubic Yards:	15.5
Minorca Ave - Alcazar Ave			
Purple Queen - Tradescantia pallida (12"-18" HT)	290	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	360	3 Gal.	18" O.C.
Liriope 'Super Blue' - Liriope muscari (12"-18" HT)	240	1 Gal.	15" O.C.
Approximate Planting Square Footage:	1,675 SF		
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	20.75
Gold Mulch (3" Depth)		Cubic Yards:	15.5
Alcazar Ave - Alhambra Circ	e		
Purple Queen - Tradescantia pallida (12"-18" HT)	220	1 Gal.	15" O.C.
	220	3 Gal.	18" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)		1 Gal.	15" O.C.
Juniper 'Blue Pacific' - <i>Juniperus conferta</i> 'Blue Pacific' (12"-18" HT) Liriope 'Super Blue' - <i>Liriope muscari</i> (12"-18" HT)	360	i Gai.	
		i Gai.	
Liriope 'Super Blue' - <i>Liriope muscari (12"-18" HT)</i>		Cubic Yards:	18
Liriope 'Super Blue' - <i>Liriope muscari (12"-18" HT)</i> Approximate Planting Square Footage:			18 13.5

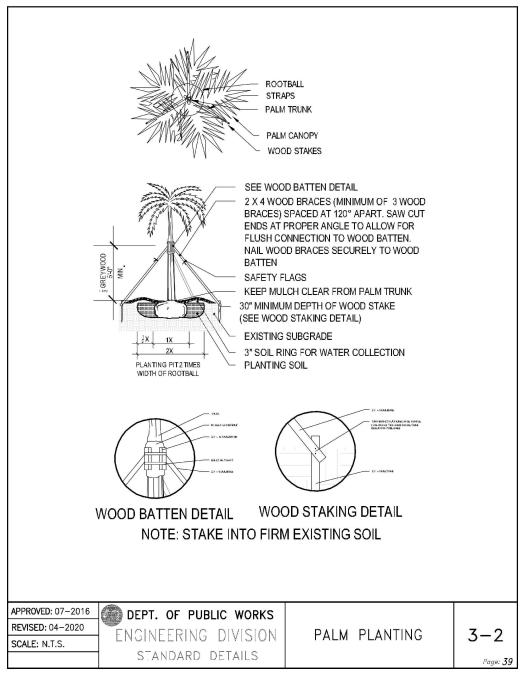
PLANT TYPE	QTY	SIZE	SPACING
Alhambra Circle - Giralda A	ve		
Purple Queen - Tradescantia pallida (12"-18" HT)	220	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	220	3 Gal.	18" O.C.
Liriope 'Super Blue' - Liriope muscari (12"-18" HT)	360	1 Gal.	15" O.C.
Approximate Planting Square Footage: 1,450 SF			
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	18
Gold Mulch (3" Depth)		Cubic Yards:	13.5
Giralda Ave - Aragon Ave		200	
Purple Queen - Tradescantia pallida (12"-18" HT)	220	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	220	3 Gal.	18" O.C.
Liriope 'Super Blue' - Liriope muscari (12"-18" HT)	360	1 Gal.	15" O.C.
Approximate Planting Square Footage: 1,450 SF			
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	18
Gold Mulch (3" Depth)		Cubic Yards:	13.5
Aragon Ave - Miracle Mile			
Purple Queen - Tradescantia pallida (12"-18" HT)	375	1 Gal.	15" O.C.
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT)	185	3 Gal.	18" O.C.
Liriope 'Super Blue' - Liriope muscari (12"-18" HT)	240	1 Gal.	15" O.C.
Approximate Planting Square Footage: 1,450 SF			
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	18
Gold Mulch (3" Depth)		Cubic Yards:	13.5
*Quantities to be verified on site. CAD Backgrounds ma	ay not be accu	ırately shown.	

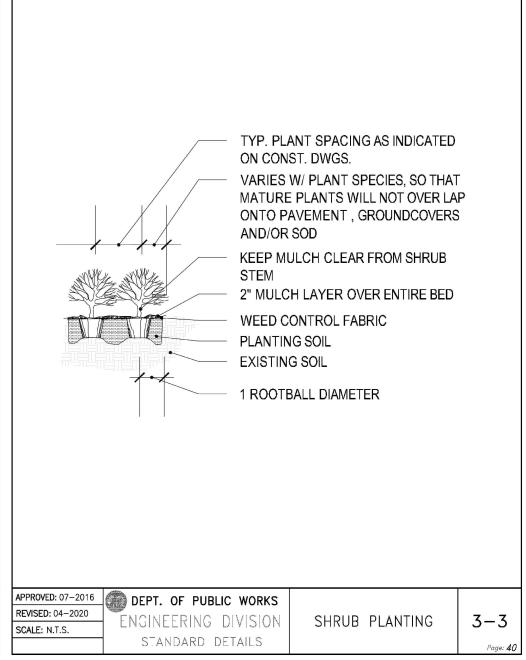
# TOTAL PROJECT PLANT LIST (INCLUDING EAST/WEST SIDEWALK):

PLANT TYPE	QTY	SIZE	SPACING	
Total Quantities: Menores Ave - Alhambra Circle				
Purple Queen - Tradescantia pallida (12"-18" HT) 2,680		1 Gal.	15" O.C.	
Juniper 'Blue Pacific' - Juniperus conferta 'Blue Pacific' (12"-18" HT) 2,315			18" O.C.	
Liriope 'Super Blue' - Liriope muscari (12"-18" HT)		1 Gal.	15" O.C.	
Wax Jas mine - Jasminum volubile (18"-24" HT) *maintained.	3,800	3 Gal.	18" O.C.	
Total Approximate Planting Square Footage: 17,895 SF				
70/30 Planting Soil Mix (4" Depth)		Cubic Yards:	221.75	
Gold Mulch (3" Depth)		Cubic Yards:	166.5	

<sup>\*</sup>CONTRACTOR TO DETERMINE SOIL AND MULCH TOTALS FOR PLANTS ALONG THE EAST/WEST SIDEWALK PLANTERS.







#### 1. GENERAL

- 1.01 The contractor shall obtain and pay for all permits related to this section of work unless previously excluded
- 1.02 Before changes or substitutions can be made due to unavailability of plant material, submit evidence of having undertaken methods of locating plant material that is acceptable to the City.
- 1.03 In the case of discrepancy in the plant quantities between the plan drawings, plant call outs, plant list or plant schedule, the number of plants or square footage of the planting bed actually drawn on the plan drawings shall be deemed correct and prevail.
- 1.04 Evidence of inadequate protection following digging, carelessness in transit, or improper storage or handling shall be cause for rejection.
- 1.05 Submittals: Contractor to submit all product submittals 4 weeks prior to installation of plantings.
- a) Product Data: submit manufacturer product data and literature describing all products required by this section to the City for approval.
- b) Samples: Submit samples of each product and material where required, to the City for approval. Label samples to indicate product, characteristics and locations in the work.
- c) Plant sources: submit sources of plants to the City for approval.
- 1.06 Pre-Construction Conference: Contractor shall schedule a pre-construction conference with the City prior to bidding, as specified in the procurement documents.
- 1.07 The City shall be informed of the progress of the work so that the work may be observed at the following key times in the construction process.
- a) Site Conditions Prior to Start of Planting to review soil and drainage conditions
- b) Completion of Plant layout staking- review of plant layout
- c) Plant Quality- Review of plant quality at time of delivery and prior to installation. The City reserves the right to select and observe all plants at the nursery prior to delivery. If a particular defect or substandard element can be corrected at the nursery as determined by the landscape architect, the agreed upon remedy may be applied by the nursery or contractor provided that the correction allows the plant to meet the requirements stipulated in this section. Any work to correct defects shall be at the contractor's expense.
- 1.08 The City shall inspect all work for substantial completion upon notice of completion. Upon completion and re-inspection of all repairs or renewals necessary in the judgement of the City, the City will recommend to the Owner the Acceptance of the work.
- 1.09 Following acceptance, maintenance of the plant material shall become the responsibility of the contractor during the guarantee period. The Contractor shall provide the City with a typewritten recommended maintenance program at the time of acceptance, make periodic inspections of the maintenance during the guarantee period, and submit written reports to the City of any corrective measures required to keep the guarantee valid.
- 1.10 It is the responsibility of the contractor to be aware of all surface and subsurface conditions, and to notify the City in writing of any circumstances that would negatively impact the health of plantings. Do not proceed with work until satisfactory conditions have been corrected.
- 1.11 All plant material shall be guaranteed for a period of one (1) year from the time of Acceptance.
- 1.12 Sod shall be guaranteed for a period of 90 days from the time of Acceptance. Replacement sod under this guarantee shall be guaranteed for an additional 90 days from the date of installation. Repair any damage caused by sod replacement at no cost to the City.
- 1.13 Plants shall be healthy, free of pests and disease, and in flourishing condition at the end of the guarantee period. Plants shall be free of dead and dying branches and branch tips, and shall bear foliage of normal density, size and color.
- 1.14 Replace dead plants and all plants not in a vigorous, thriving condition, as determined by the City, during and at the end of the guarantee period, without cost to the City.
- a. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in these specifications.
- b. Make all necessary repairs caused by plant replacement activities.
- c. The guarantee of all replacement plants shall extend for an additional one year period from the date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at the end of the said extended guarantee period, the City may elect either one more replacement, without guarantee, or credit for each item.
- 1.15 At the end of the guarantee period, the City will inspect the work for final acceptance. Upon completion of all repairs or replacements necessary, in the judgement of the City, the work will be recommended for final acceptance.
- 1.16 Contractor shall inspect all rootballs prior to installation. If any circling roots are found they shall follow the corrective actions shown in the details on these drawings. If the roots cannot be corrected the plant will be rejected.
- 1.17 No substitutions of plant material shall be allowed without prior written authorization from the City.
- 1.18 All areas not covered by buildings, shrubs, groundcovers, or paving shall be sodded with St. Augustine Sod (or whatever sod is adjacent) and Irrigated with whichever system is specified for this project.

#### II PRODUCTS

2.01 All plant material shall be Florida No. 1, as specified in the Grades and Standards for Nursery Plants, 2015 or latest edition unless otherwise noted.

2.02 All plant material shall meet or exceed the size requirements as specified in the plant list. No substitutions shall be accepted without City approval. If a range of size is given, no plant shall be less than the minimum size given.

2.03 Contractor shall schedule with City a time in which to view plant material in the nursery prior to installation. Photos of plant materials in the nursery should be submitted by email prior to inspection. 2.04 Planting soil shall consist of a mixture of 70% sand and 30% muck with a PH between 5.5 and 6.5. 2.05 Mulch shall be shredded Grade "A" Eucalyptus or City supplied recycled mulch in public right of way and parks. In certain downtown areas, 'Gold' or decorative mulch may be specified. Submit suppliers product specification data sheet and a photo for approval prior to installation.

2.06 Fertilizer for planting shall be Agriform planting tablets 20-10-5 formula, 21 gram. Fertilizer for palms shall be "Palm Special" - from AFEC 8-4-12. Submit suppliers product specification data sheet.

2.07 Fertilizer for sod shall be granular fertilizer having a 12-6-8 analysis. Submit suppliers product specification data sheet.

2.08 Weed control fabric shall be Pro5 Weed barrier by Dewitt or approved equal. Submit suppliers product specification data sheet.

2.09 Sod shall be free of weeds and the roots shall be thoroughly knit to the soil. At Substantial completion all areas shall show a uniform stand of the specified grass in a healthy condition with no visible gaps or joints. Roll sod, except on pegged areas, with roller weighing no more than 150 lbs. per foot of roller width to eliminate air pockets. Sod shall be irrigated immediately before and/or after rolling. Topdressing to fill cracks and low spots shall be repeated throughout the guarantee period as needed. 2.10 Tree guying and staking material shall be as shown in the details. Submit manufacturer's product data for approval.

2.11 Watering Bags: Plastic watering bags holding a minimum of 25 gallons of water and with a slow drip hole water release system, specifically designed to water establishing trees. Water should release over a several day period, not within a few hours. Watering bags shall be Treegator Irrigation Bags sized to appropriate model for the requirements of the plant, as manufactured by Spectrum Products, Inc,. Youngsville, NC. 27596, or approved equal. Submit suppliers product specification data sheet and a 2 bag-samples for approval.

#### III EXECUTION

3.01 Contractor is responsible for verifying all underground utilities and obtaining the necessary permits and clearances prior to planting.

3.02 Contractor shall examine subgrade and rough grade before planting and alert the City of any unacceptable subgrade or rough grade. The Contractor shall notify the City, in writing, of all soil or drainage conditions that he/she considers detrimental to growth of plant material. If the contractor fails to notify the City of such conditions, he/she shall remain responsible for the plant material through the guarantee period.

3.03 Volumetric soil moisture level, in both the planting soil and the root balls of all plants, prior to, during and after planting shall be above permanent wilting point and below field capacity for each type of soil texture within the following ranges.

Soil Type	Permanent Wilting Point	Field Capacity
Loam		12-18%
Loam, Sandy Clay, Sandy Clay Loam	14-25%	27-36%

Volumetric soil moisture shall be measured with a digital moisture meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 by General Specialty Tools and Instruments, or approved equivalent. The Contractor shall confirm the soil moisture levels with a moisture meter. If the moisture is too high, suspend planting operations until the soil moisture drains to below field capacity.

3.04 Subgrade of planting areas shall be loosened or scarified to a minimum depth of 6 inches prior to spreading planting soil. Subgrade shall be brought to true and uniform grade and shall be cleared of stones greater than 2 inch, sticks and other extraneous material.

3.05 Excavation of the Planting Space: Using hand tools or tracked mini-excavator, excavate the planting hole into the existing soil to the depth of the root ball measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing or as noted below.

SPECIFICATION CONTINUED ON NEXT PAGE

- 1. For trees and shrubs planted in soil areas that are not tilled or otherwise modified to a depth of at least
- 12 inches over a distance of more than 10 feet radius from each tree, or 5 feet radius from each shrub, the soil around the root ball shall be loosened as defined below or as indicated on the drawings.
- a. The area of loosening shall be a minimum of 3 times the diameter of the root ball at the surface sloping
- to 2 times the diameter of the root ball at the depth of the root ball.
- b. Loosening is defined as digging into the soil and turning the soil to reduce the compaction. The soil does not have to be removed from the hole, just dug, lifted and turned. Lifting and turning may be accomplished with a tracked mini excavator, or hand shovels.
- 2. If an auger is used to dig the initial planting hole, the soil around the auger hole shall be loosened as defined above for trees and shrubs planted in soil areas that are not tilled or otherwise modified.
- 3. The measuring point for root ball depth shall be the average height of the outer edge of the root ball after any required root ball modification.
- 4. If motorized equipment is used to deliver plants to the planting area over exposed planting beds, or used to loosen the soil or dig the planting holes, all soil that has been driven over shall be tilled to a depth of 6 inches.
- 3.06 For trees to be planted in prepared planting soil that is deeper than the root ball depth, compact the soil under the root ball using a mechanical tamper to assure a firm bedding for the root ball. If there is more than 12 inches of planting soil under the root ball excavate and tamp the planting soil in lifts not to exceed 12 inches.
- 3.07 Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space. See Planting Soil- above, for requirements to modify the soil within the planting bed
- A. When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. If the soil is above field capacity, allow the soil to drain to below field capacity before finishing the planting. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.
- B. Where indicated on the drawings, build a 4 inch high, level berm of planting soil around the outside of the root ball to retain water. Tamp the berm to reduce leaking and erosion of the saucer.
- C. Thoroughly water the planting soil and root ball immediately after planting.
- 3.08 All areas to receive shrub planting shall be prepared with planting soil.
- 3.09 All areas to receive sod shall have a minimum of 2" of planting soil.
- 3.10 New trees, palms, shrubs and groundcovers shall be fertilized in accordance with manufacturers recommendations.
- 3.11 Sodded areas shall be fertilized with granular fertilizer at a rate of 12 lbs per 1000 S.F. of lawn and in accordance with the manufacturer's recommendations.
- 3.12 After planting, smooth out all grades between plants before mulching. Separate the edges of planting beds and lawn areas with a smooth, formed edge cut into the turf with the bed mulch level slightly lower, 1 and 2 inches, than the adjacent turf sod or as directed by Landscape Architect. Bed edge lines shall be a depicted on the drawings.
- 3.13 All planted areas are to receive a 2" layer of mulch.
- 3.13 Weed control fabric shall be installed as per manufacturer's recommendations.
- 3.14 Do not stake or guy trees unless specifically required by the Contract Documents, or in the event that the Contractor feels that staking is the only alternative way to keep particular trees plumb.
- 1. The City shall have the authority to require that trees are staked or to reject staking as an alternative way to stabilize the tree.
- 2. Trees that required heavily modified root balls to meet the root quality standards may become unstable. The City may choose to reject these trees rather than utilize staking to temporarily support the tree.
- A. Trees that are guyed shall have their guys and stakes removed after one full growing season or at other times as required by the City.
- B. If tree guying is necessary, Contractor shall utilize the tree staking and guying materials specified.

  3.15 The contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of substantial completion acceptance. The contractor shall adjust the automatic irrigation system, if available, and apply additional or adjust for less water using hoses as
- required.
  3.16. Contractor shall maintain all plant material including sod until acceptance. Maintenance shall consist of mowing, edging, pruning, watering, weeding, mulching, removal of dead material, maintaining plants in a plumb position, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plants free of insects and disease, and in a healthy growing condition.

### **IRRIGATION NOTES & SPECIFICATIONS**

Automatic irrigation system Water demand/ zone - refer to plan Water source - city water meter Pressure required - 55 psi

### **GENERAL**

Irrigation shall be installed in accordance with local codes, contract drawings, and contract specifications.

Irrigation shall be installed in accordance with appendix "f" of the south florida building code.

Irrigation design based on landscape plans. Contractor shall refer to this plan to coordinate sprinkler locations and pipe routing with new and existing plant locations.

This irrigation plan shall be used as a guide only. Contractor shall irrigation to match on site conditions and to overcome the inherent inaccuracies that result when designing from base plans.

This irrigation shall be designed as a typical block valve type using rainbird spray sprinklers, in-line valves, and automatic control systems. Rain sensors shall be installed to conserve water.

The water sources shall be city water meters (installed by others). Contractor shall test city water pressure at the source prior to installation and shall verify that city pressure is mantained above 55 psi when irrigation is programmed to operate.

Backflow prevention shall be installed (by others) to meet local code requirements for cross connection control.

Contractor is advised to study the plans for additional information and to visit the site to become familiar with existing conditions.

To ensure proper operation, pressure required, source size, valve sizes, zone capacities, sprinkler spacing, pipe and wire sizes, installation notes and details, and specifications shall be followed as shown.

Any damage to existing structures and utilities due to construction activities shall be repaired by the contractor at no additional cost to the owner.

Contractor shall provide as-built drawings for city review.

# **PIPING**

Pipe routing is schematic only and shall be adjusted for on site conditions.

Pipe shall be installed in accordance with local codes and pipe manufacturer's instructions.

Pipe routed under hardscaped areas shall be sleeved in sch 40 pvc. Each sleeve shall: (1) be buried to a minimum depth of 18", (2) be two pipe sizes larger than the carrier pipe, and (3) extend 3' beyond hardscaped area. Contractor shall verify the size. Depth and location of all existing sleeves.

Pipe installed above grade for the backflow preventers shall be sch 40 galvanized steel. All other piping shall be sch 40 pvc. Pipe sized to limit flow velocities to 5 feet/second and to limit friction loss in the piping network.

Pipe shall be installed at sufficient depth below ground to protect it from hazard such as vehicular traffic or routine occurrences which occur in the normal use and maintenance of the property. Depths of cover shall meet or exceed scs code 430-dd. Refer to the applicable detail for additional information.

Backfill shall be of suitable material, free of rocks, stones, and other debris that would damage irrigation system components.

The backflow preventers shall be installed (by others) in accordance with local codes and shall be located to be concealed from view. Backflow preventer enclosure shall be installed to prevent damaged or vandalism.

Gate valves shall be installed for isolation. These valves shall be to line size and installed in valve boxes. Porous material shall be installed per box to promote drainage.

Flush irrigation system with water to clear lines of foreign material after system assembly is complete and prior to installation of sprinkler heads. Cap and plug outlets and fill lines with water. Pressurize assembly to 100 psi and shut off pump. System shall hold at 100 psi for one hour at no loss of pressure. Install sprinkler heads after approval of test results.

### SPRINKLERS

Sprinkler locations are schematic only and shall be adjusted for landscaping, site lighting, prevailing wind, mounding, signage, etc. To insure proper coverage with minimal undesirable overthrow onto walkways.

Spray heads shall be rainbird six inch pop-up type and shall be installed in areas landscaped with sod and mulch, twelve inch pop up type shall be installed in areas landscaped with groundcover and low Shrubs and shrub heads and bubblers shall be installed in areas landscaped with tall shrubs and palms.

Pop-up type shall be installed on flexible swing joints consisting of thick walled poly pipe and 1/2" insert elbows

Shrub type and bubblers shall be installed on 1/2" sch 40 pvc risers. Shrub heads shall be installed a standard height of 6" above plants and shall be installed within plants to be concealed from view. Bubblers shall be installed at the base of tall shrubs for low level watering. Risers shall be painted flat black to be less visible.

Each spray head shall be equipped with the appropriate he-van nozzle.

Adjustment features of sprinklers specified shall be utilized to insure proper coverage with minimal undesirable overthrow. Low angle, flat spray, and adjustable arc nozzles shall be used to minimize overthrow.

Sprinklers located adjacent to hardscaped areas shall be installed away from hardscaped areas to minimize overthrow and the chance of damage by vehicles, pedestrians, and lawn maintenance personnel. As a general rule, 4" pop-up spray heads shall be installed in 4", shrub heads and 12" pop-up spray heads shall be installed in 12".

#### **CONTROL SYSTEM**

Rain bird battery operated series control systems shall be installed. One valve shall be controlled per station except as noted. A rain sensor shall be installed with each controller to conserve water.

Each controller shall be installed in a separate valve box in accordance with local codes and manufacturer's instructions. Proper grounding equipment shall be provided.

Controller locations shall be approved by the owner's representative. A 120 vac electric source is required per location

Control lines from each automatic controller to in-line automatic valves shall be #14 awg direct burial underground feed type which shall be: (1) installed in accordance with local codes, (2) sleeved when routed under pavement, (3) buried to a minimum depth of 15", (4) color coded to facilitate troubleshooting and, (5) spliced mostly at valve locations. Splices shall be made waterproof using approved methods. Spare wires shall be routed from each controller in all directions to the farthest valves controlled.

An individual control wire shall be routed to each valve and valves which operate simultaneously shall be teed together at the controllers.

Automatic valve locations are schematic only and shall be adjusted for on site conditions. Each valve shall be installed in a valve box. A minimum of one cubic foot of gravel shall be provided per box to promote drainage.

Water conservation equipment shall be installed in accordance with manufacturer's instructions. The rain sensor shall be placed on a stationary structure, minimum of 5' clearance from other outdoor equipment, free and clear of any tree canopy or other overhead obstruction, and above the height of sprinkler coverage

SPECIFICATION CONTINUED ON NEXT PAGE

# **TIMING AND PRECIPITATION**

Timing of each station shall be set in the field to match local requirements. Refer to zone summary chart for recommended run times to apply 1.5 inches/week.

# **IRRIGATION PARTS TO BE USED ON NEW PROJECTS**

Controllers to be used in areas with power.

- 1. Rain bird ESP-12LXEMF
- 2. Rain bird ESP-LX

Controllers to be used without power.

1. Rain bird TBOS-II (note only 1 and 2 zone units are to be used)

When using the TBOS-II the field transmitter will be supplied with project.

When using the TBOS-II Rain bird potted latching solenoids are to be used.

# Irrigation central control.

- 1. Rain bird IQ36-USA 3G network communication cartridge with 1 year service is to be used.
- 2. Rain bird IQEXTANTGP external antenna is to be used.
- 3. Rain bird flow sensors:
- a. FS150P
- b. FS200P c. FS300P
- d. FS400P

is to be used per flow rates on system.

#### Rain sensor

Rain bird WR2-RFC wireless rain sensor is to be used.

#### Control valves.

1. Rain bird PEB

a. 100 b. 150

c. 200

#### Rotor heads

1. Rain bird 5000 series

a. 5004 b. 5006 c. 5012

# Spray heads

1. Rain bird 1800 series

a. 1802 b. 1804 c. 1806

d. 1812

Drip tubing (Not recommended due to maintenance issues).

1. Rain bird XFS-09-12-100 XFS subsurface dripline.

Dripline shall be spaced at 12 inch spacing, will have an air relief valve on the PVC header, will have a flush valve at the end point of the system, and will have a drip filter before the drip grid. May be installed no more than 6 inches below surface.

## Filter and control kit for drip zones

1. Rain bird XCZ-PRB-100-com

# Piping

1. All piping will be schedule 40

#### Back flow preventers

1. Watts or Wilkins shall be used.

All back flow preventers will be piper in galvanize pipe with schedule 80 nipples at end elbows and installed with a concrete pad per county code.

Nozzles.

- 1. Rain bird HE-VAN-08
- 2. Rain bird HE-VAN-10
- 3. Rain bird HE-VAN-12
- 4. Rain bird HE-VAN-15

For more information please contact the City Irrigation Foreman, Christopher Grant, at 305-460-5132