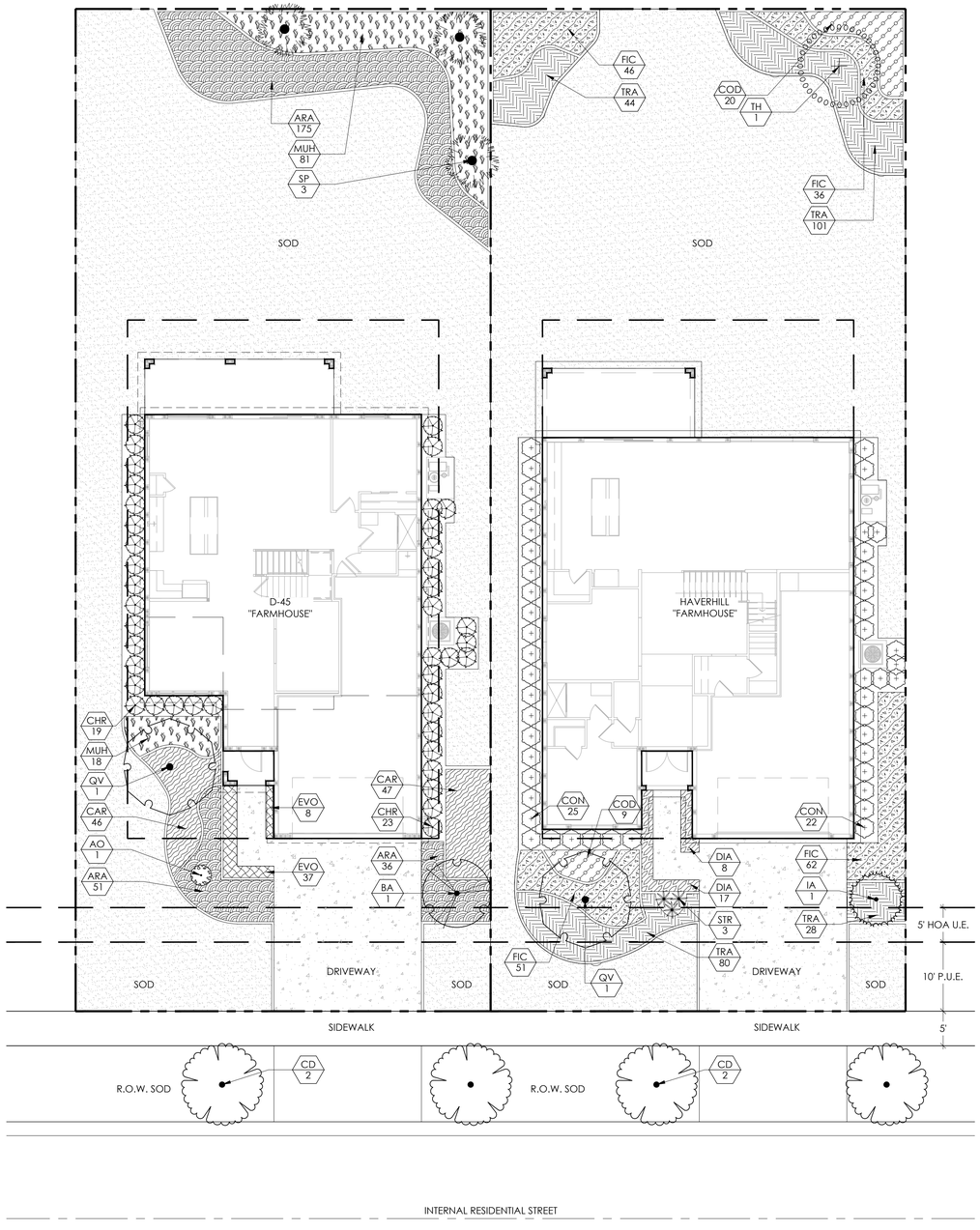

NOTES:

1. PROVIDE PIGEON PLUM (CD) STREET TREES ON AN AVERAGE OF 1 TREE PER 30 LINEAR FEET OF SWALE (MAY VARY DUE TO DRIVEWAYS & UTILITIES)

2. FOR LOTS WITH CBWCD EASEMENTS, THERE SHALL BE NO TREES OR SHRUBS WITHIN THE EASEMENTS, ONLY SOD.

PLANT SCHEDULE : D-45 "FARMHOUSE"				
CODE	QTY	COMMON NAME	BOTANICAL NAME	REMARKS
TREES				
SP	3	Cabbage Palmetto	Sabal palmetto	10'-16' CT., STAGGERED HEIGHTS, NATIVE SPECIES.
CD	2	Pigeon Plum	Coccoloba diversifolia	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
QV	1	Southern Live Oak	Quercus virginiana	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
BA	1	Verawood	Bulnesia arborea	12` HT. X 4` SPR., 2" CAL.
SHRUBS				
AO	1	Giant Silver Bromeliad	Alcantarea odorata	24" HT. X 24" SPRD.
CHR	42	Horizontal Coco Plum	Chrysobalanus icaco `Horizontalis`	36" HT X 30" SPR. NATIVE SPECIES
SHRUB AREAS				
CAR	93	'Emerald Blanket' Dwarf Carissa	Carissa macrocarpa 'Emerald Blanket'	12" HT X 12" SPR. @ 18" O.C.
MUH	99	Pink Muhly	Muhlenbergia capillaris	18" HT. X 18" SPR. @ 24" O.C., NATIVE SPECIES
GROUND COVERS				
EVO	45	`Blue Daze`	Evolvulus glomeratus `Blue Daze`	8" HT. X 12" SPR. @ 12" O.C.
ARA	262	Perennial Peanut	Arachis glabrata	8" HT X 12" SPR @ 18" O.C.
SOD/SEED				
SOD	3,962 sf	St. Augustine Floratam Sod		AS SHOWN ON PLAN

D-45 "FARMHOUSE" : LANDSCAPE REQUIREMENT CHART										
LOT SIZE:	MAX. IMPERVIOUS AREA:	PROVIDED IMPERVIOUS AREA:	MAX. SOD AREA:	PROVIDED SOD AREA:	REQUIRED TREES:	PROVIDED TREES:	REQUIRED SHRUBS:	PROVIDED SHRUBS:	REQUIRED STREET TREES:	PROVIDED STREET TREES:
8,700 SQ. FT.	8,700 SQ. FT. x 55% = 4,785 SQ. FT. MAX.	3,016 SQ. FT.	PERVIOUS AREA = 5,684 SQ. FT. x 70% = 3,979 SQ. FT. MAX. SOD	3,962 SQ. FT.	2 - FRONT YARD 1- REAR YARD	2 - FRONT YARD 1- REAR YARD	15 - FRONT YARD 10 - SIDE YARD	69 - FRONT YARD 37 - SIDE YARD	1 TREE PER 30 LINEAR FEET OF SWALE	2 STREET TREES

PLANT SCHEDULE : HAVERHILL "FARMHOUSE"				
CODE	QTY	COMMON NAME	BOTANICAL NAME	REMARKS
TREES				
IA	1	East Palatka Holly	Ilex x attenuata `East Palatka`	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
CD	2	Pigeon Plum	Coccoloba diversifolia	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
QV	1	Southern Live Oak	Quercus virginiana	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
TH	1	Tabebuia	Tabebuia heterophylla	12` HT X 4` SPR, 2" CAL.
SHRUBS				
STR	3	Bird Of Paradise	Strelitzia reginae	36" HT X 30" SPR.
CON	47	Green Buttonwood	Conocarpus erectus	36" HT X 30" SPR @ 36" O.C., NATIVE SPECIES
SHRUB AREAS				
COD	29	Croton	Codiaeum variegatum `Magnificent`	24" HT X 18" SPR @ 24" O.C.
DIA	25	Flax Lily	Dianella tasmanica	18" HT. X 18" SPR. @ 18" O.C.
FIC	195	Green Island Ficus	Ficus microcarpa 'Green Island'	12" HT. X 12" SPR. @ 18" O.C.
GROUND COVERS				
TRA	253	Minima Asiatic Jasmine	Trachelospermum asiaticum 'Minima'	6" HT. X 10" SPR. @ 16" O.C.
SOD/SEED				
SOD	3,696 sf	St. Augustine Floratam Sod		AS SHOWN ON PLAN

HAVERHILL "FARMHOUSE" : LANDSCAPE REQUIREMENT CHART										
LOT SIZE:	MAX. IMPERVIOUS AREA:	PROVIDED IMPERVIOUS AREA:	MAX. SOD AREA:	PROVIDED SOD AREA:	REQUIRED TREES:	PROVIDED TREES:	REQUIRED SHRUBS:	PROVIDED SHRUBS:	REQUIRED STREET TREES:	PROVIDED STREET TREES:
8,700 SQ. FT.	8,700 SQ. FT. x 55% = 4,785 SQ. FT. MAX.	3,403 SQ. FT.	PERVIOUS AREA = 5,297 SQ. FT. x 70% = 3,708 SQ. FT. MAX. SOD	3,696 SQ. FT.	2 - FRONT YARD 1- REAR YARD	2 - FRONT YARD 1- REAR YARD	15 - FRONT YARD 10 - SIDE YARD	66 - FRONT YARD 41 - SIDE YARD	1 TREE PER 30 LINEAR FEET OF SWALE	2 STREET TREES

NORTH

0 5' 10' 20'

SCALE: 1" = 10'-0"

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Consultants:

Revisions:

HANSON PRESERVE - LOT TYPICAL
Cooper City, Florida

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

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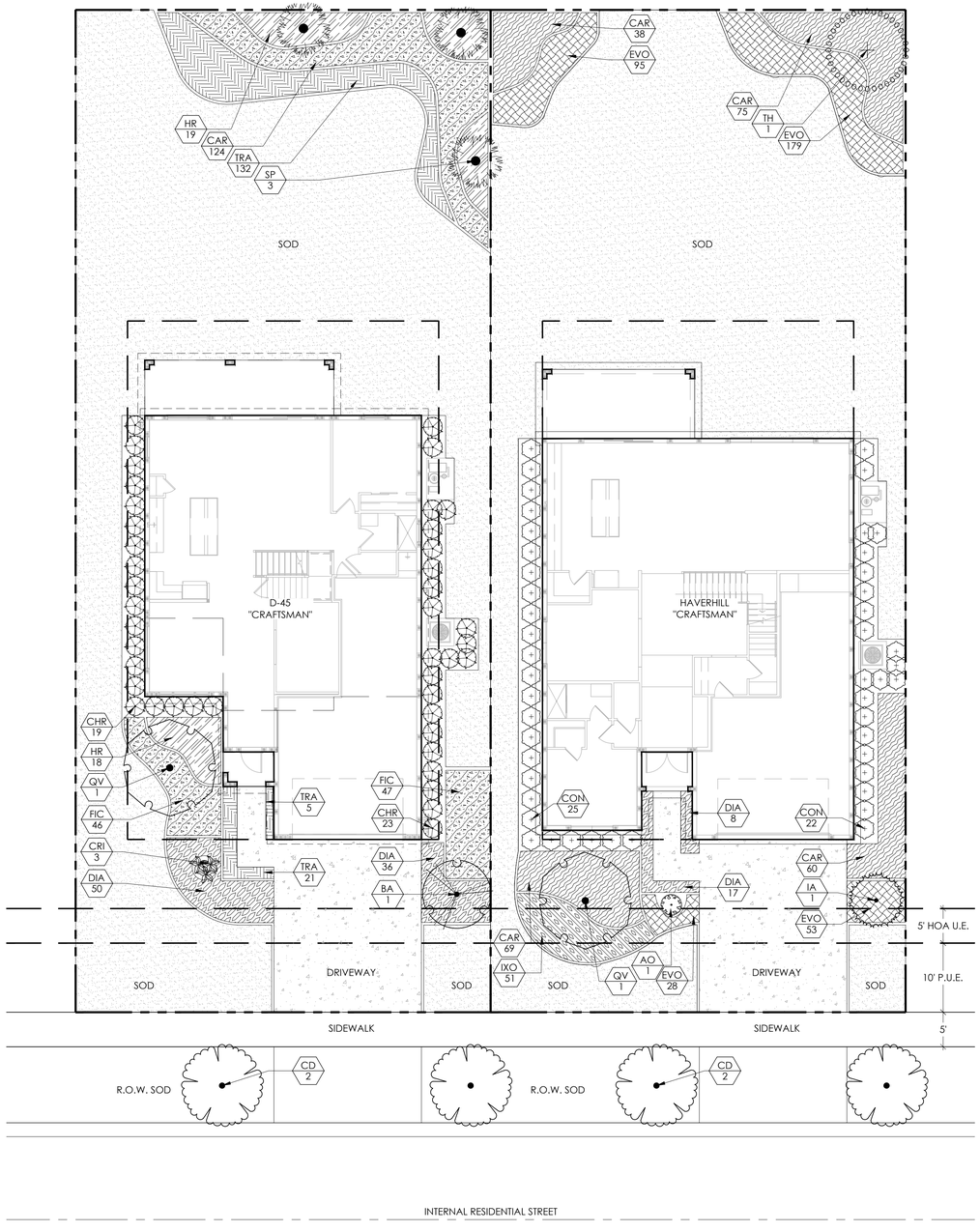
Drawn By:	SG
Checked By:	JT
Drawing #:	1471b
File Name:	LP_1471b.dwg
Date:	10/23/2025

TYPICAL LOT LANDSCAPE PLAN - FARMHOUSE

SHEET #: LP.1



NOTES:

1. PROVIDE PIGEON PLUM (CD) STREET TREES ON AN AVERAGE OF 1 TREE PER 30 LINEAR FEET OF SWALE (MAY VARY DUE TO DRIVEWAYS & UTILITIES)

2. FOR LOTS WITH CBWCD EASEMENTS, THERE SHALL BE NO TREES OR SHRUBS WITHIN THE EASEMENTS, ONLY SOD.

PLANT SCHEDULE : D-45 "CRAFTSMAN"

CODE	QTY	COMMON NAME	BOTANICAL NAME	REMARKS
TREES				
SP	3	Cabbage Palmetto	Sabal palmetto	10'-16' CT., STAGGERED HEIGHTS, NATIVE SPECIES.
CD	2	Pigeon Plum	Coccoloba diversifolia	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
QV	1	Southern Live Oak	Quercus virginiana	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
BA	1	Verawood	Bulnesia arborea	12` HT. X 4` SPR., 2" CAL.
SHRUBS				
CHR	42	Horizontal Coco Plum	Chrysobalanus icaco `Horizontalis`	36" HT X 30" SPR. NATIVE SPECIES
CRI	3	Queen Emma Crinum Lily	Crinum augustum 'Queen Emma'	36" HT X 30" SPR.
SHRUB AREAS				
DIA	86	Flax Lily	Dianella tasmanica	18" HT. X 18" SPR. @ 18" O.C.
FIC	217	Green Island Ficus	Ficus microcarpa 'Green Island'	12" HT. X 12" SPR. @ 18" O.C.
HR	65	Hibiscus	Hibiscus rosa-sinensis	18" HT. X 18" SPR. @ 24" O.C.
GROUND COVERS				
TRA	158	Minima Asiatic Jasmine	Trachelospermum asiaticum 'Minima'	6" HT, X 10" SPR. @ 16" O.C.
SOD/SEED				
SOD	3,962 sf	St. Augustine Floratam Sod		AS SHOWN ON PLAN

D-45 "CRAFTSMAN" : LANDSCAPE REQUIREMENT CHART										
LOT SIZE:	MAX. IMPERVIOUS AREA:	PROVIDED IMPERVIOUS AREA:	MAX. SOD AREA:	PROVIDED SOD AREA:	REQUIRED TREES:	PROVIDED TREES:	REQUIRED SHRUBS:	PROVIDED SHRUBS:	REQUIRED STREET TREES:	PROVIDED STREET TREES:
8,700 SQ. FT.	8,700 SQ. FT. x 55% = 4,785 SQ. FT. MAX.	3,016 SQ. FT.	PERVIOUS AREA = 5,684 SQ. FT. x 70% = 3,979 SQ. FT. MAX. SOD	3,962 SQ. FT.	2 - FRONT YARD 1- REAR YARD	2 - FRONT YARD 1- REAR YARD	15 - FRONT YARD 10 - SIDE YARD	69 - FRONT YARD 37 - SIDE YARD	1 TREE PER 30 LINEAR FEET OF SWALE	2 STREET TREES

PLANT SCHEDULE : HAVERHILL "CRAFTSMAN"

CODE	QTY	COMMON NAME	BOTANICAL NAME	REMARKS
TREES				
IA	1	East Palatka Holly	Ilex x attenuata `East Palatka`	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
CD	2	Pigeon Plum	Coccoloba diversifolia	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
QV	1	Southern Live Oak	Quercus virginiana	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES.
TH	1	Tabebuia	Tabebuia heterophylla	12` HT X 4` SPR, 2" CAL.
SHRUBS				
AO	1	Giant Silver Bromeliad	Alcantarea odorata	24" HT. X 24" SPRD.
CON	47	Green Buttonwood	Conocarpus erectus	36" HT X 30" SPR @ 36" O.C., NATIVE SPECIES
SHRUB AREAS				
CAR	242	'Emerald Blanket' Dwarf Carissa	Carissa macrocarpa 'Emerald Blanket'	12" HT X 12" SPR. @ 18" O.C.
IXO	51	Dwarf Pink Ixora	Ixora x 'Petite Pink'	12" HT. X 12" SPR. @ 18" O.C.
DIA	25	Flax Lily	Dianella tasmanica	18" HT. X 18" SPR. @ 18" O.C.
GROUND COVERS				
EVO	355	`Blue Daze`	Evolvulus glomeratus `Blue Daze`	8" HT. X 12" SPR. @ 12" O.C.
SOD/SEED				
SOD	3,700 sf	St. Augustine Floratam Sod		AS SHOWN ON PLAN

HAVERHILL "CRAFTSMAN" : LANDSCAPE REQUIREMENT CHART										
LOT SIZE:	MAX. IMPERVIOUS AREA:	PROVIDED IMPERVIOUS AREA:	MAX. SOD AREA:	PROVIDED SOD AREA:	REQUIRED TREES:	PROVIDED TREES:	REQUIRED SHRUBS:	PROVIDED SHRUBS:	REQUIRED STREET TREES:	PROVIDED STREET TREES:
8,700 SQ. FT.	8,700 SQ. FT. x 55% = 4,785 SQ. FT. MAX.	3,403 SQ. FT.	PERVIOUS AREA = 5,297 SQ. FT. x 70% = 3,708 SQ. FT. MAX. SOD	3,700 SQ. FT.	2 - FRONT YARD 1- REAR YARD	2 - FRONT YARD 1- REAR YARD	15 - FRONT YARD 10 - SIDE YARD	75 - FRONT YARD 41 - SIDE YARD	1 TREE PER 30 LINEAR FEET OF SWALE	2 STREET TREES

NORTH

0 5' 10' 20'

SCALE: 1" = 10'-0"

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Consultants:

Revisions:

HANSON PRESERVE - LOT TYPICAL
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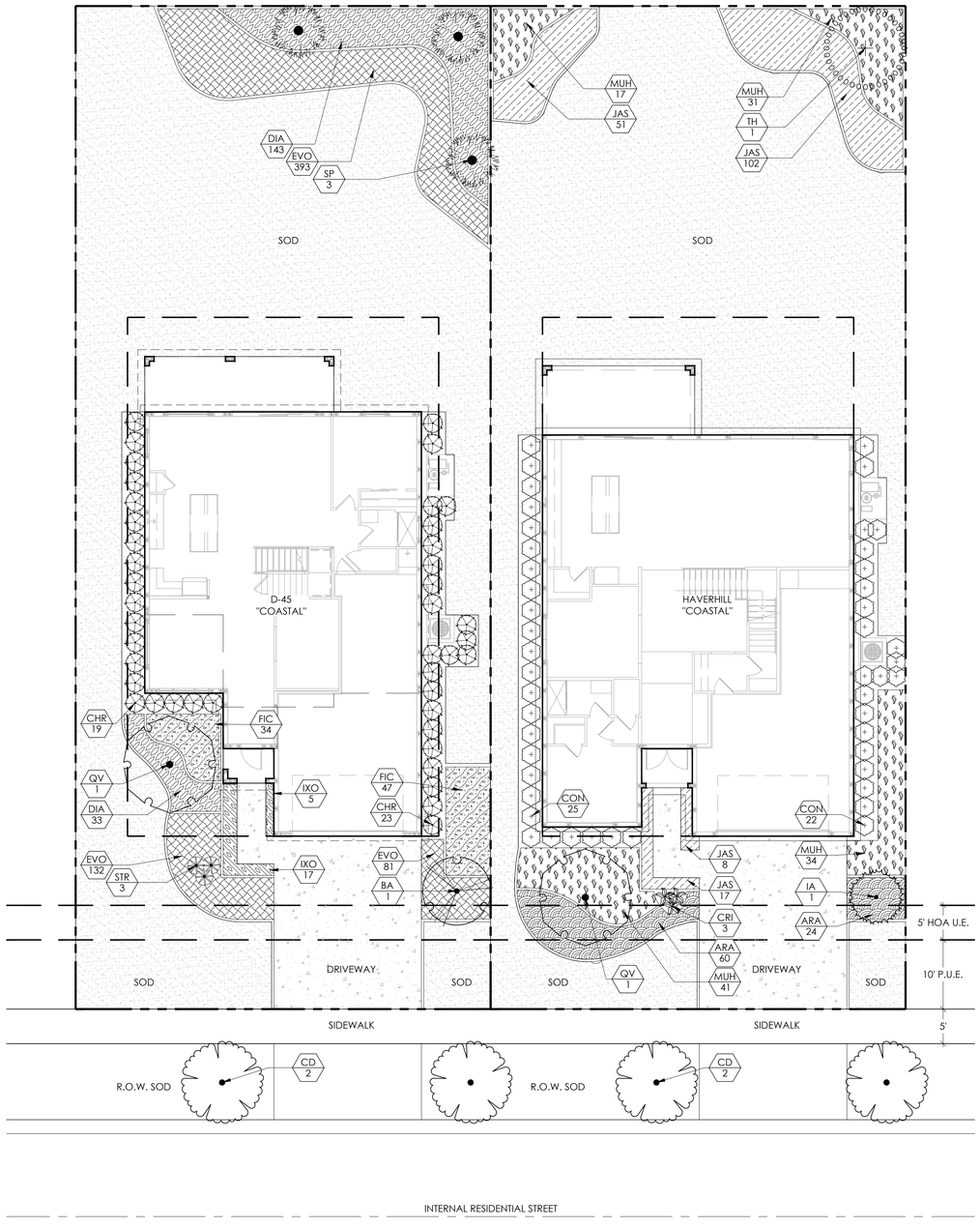
Drawn By:	SG
Checked By:	JT
Drawing #:	1471b
File Name:	LP_1471b.dwg
Date:	10/23/2025

TYPICAL LOT LANDSCAPE PLAN - CRAFTSMAN

SHEET #: LP.2



NOTES:

1. PROVIDE PIGEON PLUM (CD) STREET TREES ON AN AVERAGE OF 1 TREE PER 30 LINEAR FEET OF SWALE (MAY VARY DUE TO DRIVEWAYS & UTILITIES)
2. FOR LOTS WITH CBWCD EASEMENTS, THERE SHALL BE NO TREES OR SHRUBS WITHIN THE EASEMENTS, ONLY SOD.

PLANT SCHEDULE : D-45 "COASTAL"

CODE	QTY	COMMON NAME	BOTANICAL NAME	REMARKS
TREES				
SP	3	Cabbage Palmetto	Sabal palmetto	10'-16' CT., STAGGERED HEIGHTS, NATIVE SPECIES.
CD	2	Pigeon Plum	Coccoloba diversifolia	12` HT X 4` SPR. 2" CAL. NATIVE SPECIES.
QV	1	Southern Live Oak	Quercus virginiana	12` HT X 4` SPR. 2" CAL. NATIVE SPECIES.
BA	1	Verawood	Bulnesia arborea	12` HT. X 4` SPR., 2" CAL.
SHRUBS				
STR	3	Bird Of Paradise	Strelitzia reginae	36" HT X 30" SPR.
CHR	42	Horizontal Coco Plum	Chrysobalanus icaco `Horizontalis`	36" HT X 30" SPR. NATIVE SPECIES
SHRUB AREAS				
IXO	22	Dwarf Pink Ixora	Ixora x 'Petite Pink'	12" HT. X 12" SPR. @ 18" O.C.
DIA	176	Flax Lily	Dianella tasmanica	18" HT. X 18" SPR. @ 18" O.C.
FIC	81	Green Island Ficus	Ficus microcarpa 'Green Island'	12" HT. X 12" SPR. @ 18" O.C.
GROUND COVERS				
EVO	606	`Blue Daze`	Evolvulus glomeratus `Blue Daze`	8" HT. X 12" SPR. @ 12" O.C.
SOD/SEED				
SOD	3,962 sf	St. Augustine Floratam Sod		AS SHOWN ON PLAN

D-45 "COASTAL" : LANDSCAPE REQUIREMENT CHART

LOT SIZE:	MAX. IMPERVIOUS AREA:	PROVIDED IMPERVIOUS AREA:	MAX. SOD AREA:	PROVIDED SOD AREA:	REQUIRED TREES:	PROVIDED TREES:	REQUIRED SHRUBS:	PROVIDED SHRUBS:	REQUIRED STREET TREES:	PROVIDED STREET TREES:
8,700 SQ. FT.	8,700 SQ. FT. x 55% = 4,785 SQ. FT. MAX.	3,016 SQ. FT.	PERVIOUS AREA = 5,684 SQ. FT. x 70% = 3,979 SQ. FT. MAX. SOD	3,962 SQ. FT.	2 - FRONT YARD 1- REAR YARD	2 - FRONT YARD 1- REAR YARD	15 - FRONT YARD 10 - SIDE YARD	39 - FRONT YARD 37 - SIDE YARD	1 TREE PER 30 LINEAR FEET OF SWALE	2 STREET TREES

PLANT SCHEDULE : HAVERHILL "COASTAL"

CODE	QTY	COMMON NAME	BOTANICAL NAME	REMARKS
TREES				
IA	1	East Palatka Holly	Ilex x attenuata `East Palatka`	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES,
CD	2	Pigeon Plum	Coccoloba diversifolia	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES,
QV	1	Southern Live Oak	Quercus virginiana	12` HT X 4` SPR, 2" CAL. NATIVE SPECIES,
TH	1	Tabebuia	Tabebuia heterophylla	12` HT X 4` SPR, 2" CAL.
SHRUBS				
CON	47	Green Buttonwood	Conocarpus erectus	36" HT X 30" SPR @ 36" O.C., NATIVE SPECIES
CRI	3	Queen Emma Crinum Lily	Crinum augustum 'Queen Emma'	36" HT X 30" SPR.
SHRUB AREAS				
MUH	123	Pink Muhly	Muhlenbergia capillaris	18" HT. X 18" SPR. @ 24" O.C., NATIVE SPECIES
JAS	178	Wax Jasmine	Jasminum volubile	12" HT. X 12" SPR. @ 18" O.C.
GROUND COVERS				
ARA	84	Perennial Peanut	Arachis glabrata	8" HT X 12" SPR @ 18" O.C.
SOD/SEED				
SOD	3,700 sf	St. Augustine Floratam Sod		AS SHOWN ON PLAN

HAVERHILL "COASTAL" : LANDSCAPE REQUIREMENT CHART

LOT SIZE:	MAX. IMPERVIOUS AREA:	PROVIDED IMPERVIOUS AREA:	MAX. SOD AREA:	PROVIDED SOD AREA:	REQUIRED TREES:	PROVIDED TREES:	REQUIRED SHRUBS:	PROVIDED SHRUBS:	REQUIRED STREET TREES:	PROVIDED STREET TREES:
8,700 SQ. FT.	8,700 SQ. FT. x 55% = 4,785 SQ. FT. MAX.	3,403 SQ. FT.	PERVIOUS AREA = 5,297 SQ. FT. x 70% = 3,708 SQ. FT. MAX. SOD	3,700 SQ. FT.	2 - FRONT YARD 1- REAR YARD	2 - FRONT YARD 1- REAR YARD	15 - FRONT YARD 10 - SIDE YARD	47 - FRONT YARD 41 - SIDE YARD	1 TREE PER 30 LINEAR FEET OF SWALE	2 STREET TREES

NORTH

0 5' 10' 20'

SCALE: 1" = 10'-0"

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Consultants:

Revisions:

HANSON PRESERVE - LOT TYPICAL
Cooper City, Florida

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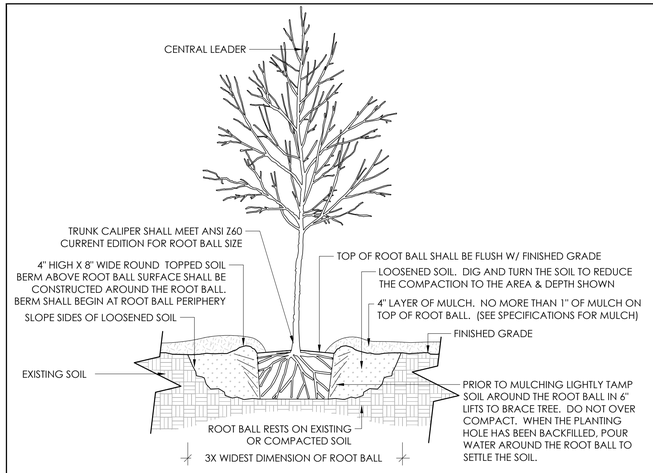
Drawn By:	SG
Checked By:	JT
Drawing #:	1471b
File Name:	LP_1471b.dwg
Date:	10/23/2025

TYPICAL LOT LANDSCAPE PLAN - COASTAL

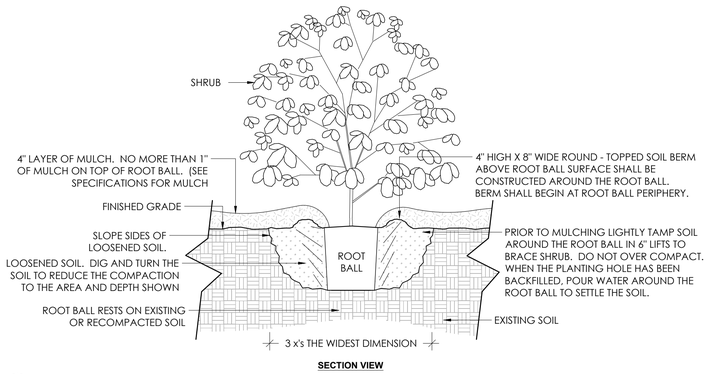
SHEET #: LP.3



1 TREE PLANTING DETAIL

SCALE: 1/2" = 1'- 0"

NOTES:
1. TREES SHALL BE OF QUALITY PRESCRIBED IN CROWN OBSERVATIONS AND ROOT OBSERVATIONS DETAILS AND SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

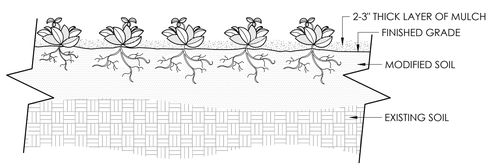


SECTION VIEW

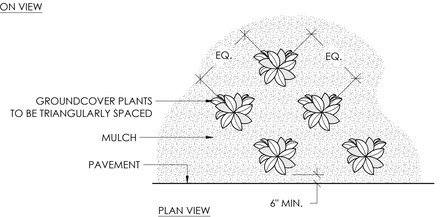
2 SHRUB PLANTING DETAIL

SCALE: 3/4" = 1'- 0"

NOTES:
1. SHRUB SHALL BE OF QUALITY PRESCRIBED IN THE ROOT OBSERVATIONS DETAIL AND SPECIFICATIONS
2. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.



SECTION VIEW

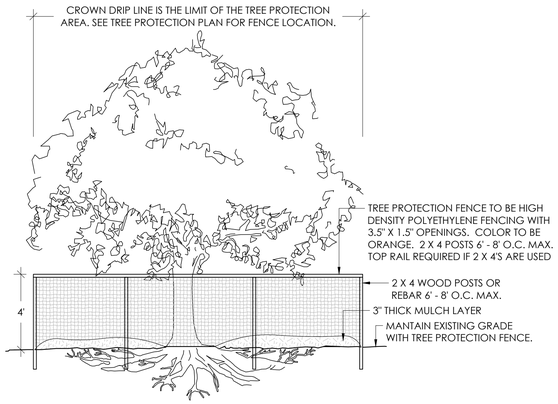


PLAN VIEW

3 GROUND COVER

SCALE: 3/4" = 1'- 0"

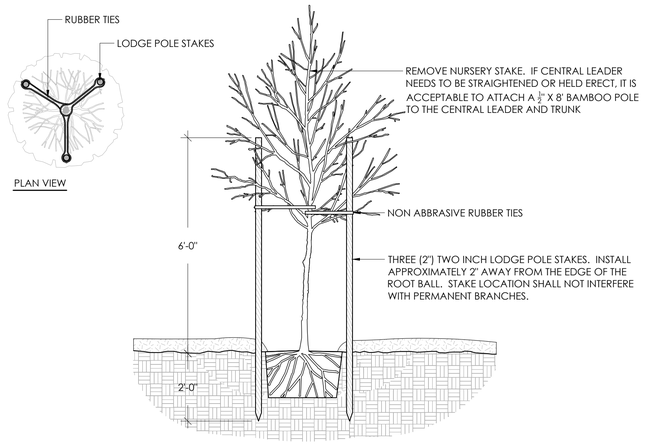
NOTES:
1. SEE PLANTING LEGEND FOR GROUNDCOVER SPECIES, SIZE, AND SPACING DIMENSION.
2. SMALL ROOTS (1/4" OR LESS) THAT GROW AROUND, UP, OR DOWN THE ROOT BALL PERIPHERY ARE CONSIDERED A NORMAL CONDITION IN CONTAINER PRODUCTION AND ARE ACCEPTABLE HOWEVER THEY SHOULD BE ELIMINATED AT THE TIME OF PLANTING. ROOTS ON THE PERIPHERY CAN BE REMOVED AT THE TIME OF PLANTING.
3. SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.



4 TREE PROTECTION DETAIL

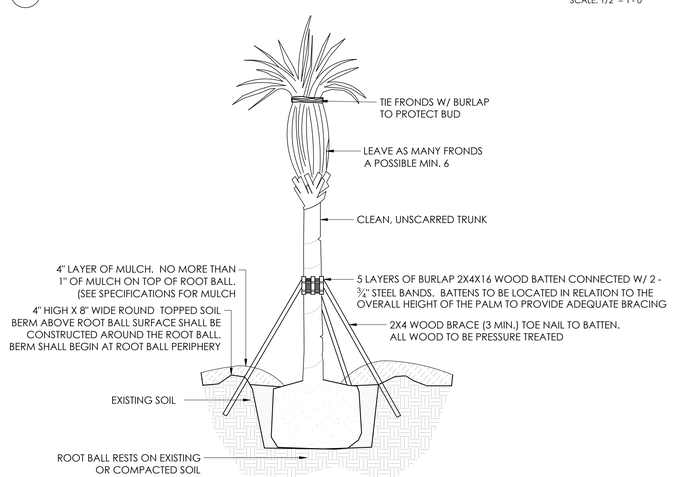
SCALE: 1/4" = 1'- 0"

NOTES:
1. KEEP OUT OF TREE PROTECTION AREA
2. FENCE TO BE INSTALLED ALONG DRIPLINE OF EXISTING TREES
3. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.



5 TREE STAKING DETAIL

SCALE: 1/2" = 1'- 0"



6 PALM STAKING DETAIL

SCALE: 1/4" = 1'- 0"

LANDSCAPE NOTES

1. ALL PLANTS TO BE FLORIDA #1 QUALITY OR BETTER AS DEFINED IN THE LATEST EDITION OF THE FLORIDA GRADES AND STANDARDS FOR NURSERY PLANTS, UNLESS OTHERWISE NOTED.
2. CONTRACTOR IS RESPONSIBLE FOR PRESERVING AND PROTECTING ALL EXISTING LANDSCAPE MATERIAL AS NOTED PER THE PLANS. IF ANY OF THE PROTECTED, PRESERVED, OR RELOCATED TREES DIE DURING CONSTRUCTION OR THE WARRANTY PERIOD, THE CONTRACTOR SHALL REPLACE THE LANDSCAPE MATERIAL IN KIND.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED APPROVALS AND PERMITS FROM LOCAL MUNICIPALITY AND GOVERNING AGENCIES PRIOR TO REMOVAL OF ANY EXISTING VEGETATION OR BEGINNING INSTALLATION.
4. CONTRACTOR RESPONSIBLE FOR ACHIEVING ADEQUATE PERCOLATION RATE (AS DESCRIBED ON THE LANDSCAPE NOTES) AND BACK FILLING WITH SPECIFIED SOIL/MATERIAL.
5. ALL PLANTING AND SOD AREAS SHALL RECEIVE 100% IRRIGATION COVERAGE FROM AN AUTOMATIC IRRIGATION SYSTEM WITH A RAIN SENSOR. INSIDE OF ALL RETAINING WALLS AND RAISED PLANTERS SHALL BE SEALED WITH AN APPROPRIATE WATER-PROOFING SUBSTANCE, AND SHALL NOT BE VISIBLE ONCE SOIL IS BACKFILLED.
6. ALL PLANTING BEDS/ ISLANDS SHALL BE FREE OF SHELLROCK, CONSTRUCTION DEBRIS, OR OTHER MISCELLANEOUS DEBRIS, EXCAVATED TO A DEPTH OF 30" OR TO CLEAN NATIVE SOILS, AND BACKFILLED WITH THE SPECIFIED SOIL MIXTURE.
7. IN THE EVENT OF A CONFLICT BETWEEN THE QUANTITIES SHOWN IN THE PLANT SCHEDULE AND GRAPHICALLY DEPICTED AND LABELED ON THE PLAN, THE PLAN WILL PREVAIL. IF SUCH CONFLICT IS DISCOVERED, CONTRACTOR SHALL CONSULT WITH LANDSCAPE ARCHITECT.
8. MAINTAIN EXISTING GRADE TO THE DRIP LINE OF EXISTING TREES.
9. CONTRACTOR IS REQUIRED TO CALL SUNSHINE 811 TO HAVE ALL UNDERGROUND UTILITIES LOCATED PRIOR TO ANY DIGGING, EXCAVATION, OR UNDERGROUND WORK. IF PROPOSED DESIGN CONFLICTS WITH EXISTING OR PROPOSED UTILITY LOCATIONS, CONTRACTOR SHALL IMMEDIATELY CONTACT LANDSCAPE ARCHITECT TO DEVELOP A SOLUTION FOR THE CONFLICT.
10. ROOT BARRIERS ARE REQUIRED FOR ALL TREES LOCATED WITHIN 10' OF UNDERGROUND UTILITIES.
11. ALL TREES PLANTED UNDER OR NEAR OVERHEAD POWER LINES SHALL COMPLY WITH FPL RIGHT TREE, RIGHT PLACE REQUIREMENTS.
12. 'LA' INDICATES LANDSCAPE AREA. IN THESE AREAS, THE FILL SOIL SHALL BE OF A QUALITY OF SANDY LOAM ABLE TO SUPPORT PLANT LIFE, AS DETERMINED BY THE LANDSCAPE ARCHITECT, AND SHALL BE FREE OF ROCKS, SHELLS, OR RUBBLE.

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Consultants:

Revisions:

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Drawing #:	1471b
File Name:	LP_1471b.dwg
Date:	10/23/2025

LANDSCAPE DETAILS

SHEET #: LP.4

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 the 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 with the Owner's 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.

1. Provide preconstruction evaluations
2. Provide tree and plant protection fencing.
3. Provide protection of root zones and above ground tree and plants
4. Provide pruning of existing trees and plants.
5. Coordinate with the requirements of Section Planting Soil for modifications to the soil within the root zone of existing trees and plants.
6. Provide all insect and disease control.
7. Provide maintenance of existing trees and plants including irrigation during the construction period as recommended by the arborist report.
8. Provide maintenance of existing trees and plants including irrigation during the post construction plant maintenance period.
9. Remove tree protection fencing and other protection from around and under trees and plants.
10. 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:

1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section.
2. 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 thereto. 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.

1. ANSI A 300 (Part 5) - Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current editions.
2. Pruning practices shall conform with recommendations "Structural Pruning: A Guide For The Green Industry"; Published by Urban Tree Foundation, Visalia, California; most current edition.
3. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition.

1.4 VERIFICATION

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: The person appointed by the Owner 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 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 profession 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 clown 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:
   a. General Contractor.
   b. Consulting Arborist.
   c. Subcontractor assigned to install Tree and Plant Protection measures.
   d. Earthwork Contractor.
   e. All site utility Contractors that may be required to dig or trench into the soil.
   f. Landscape subcontractor.
   g. Irrigation subcontractor

B. Prior to this meeting, mark all trees and plants to remain and or be removed as described in this specification for review and approval by the Owner's Representative.

1.13 QUALITY ASSURANCE

A. Contractor qualifications:

1. 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.
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.

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 solidly 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. Cambistat 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, Alturnamats as manufactured by Alturnamats, Inc. Franklin, PA 16323 or approved equal.

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

2.7 GEOGRID

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

1. Geogrid shall be Miragrid 2XT 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.

2.8 FILTER FABRIC

A. Filter Fabric shall be nonwoven polypropylene fibers, inert to biological degradation and resistant of naturally occurring chemicals, alkalis 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 Protections 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 encountered.

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 tied 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, silt 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 wilt 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 wilt point and field capacity for each type of soil texture shall be defined as follows (numbers indicate percentage volumetric soil moisture).

Soil type	Permanent wilt 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%
Silty clay, Silty clay loam	22 - 27%	38 - 41%

1. Volumetric soil moisture shall be measured with a digital, electric conductivity meter. The meter shall be the Digital Soil Moisture Meter, DSMM500 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 all existing trees to a depth of 24 inches below existing grade in alignments 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 trencher 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 torn root ends on the tree side of the excavation, and backfill the trench immediately with existing soil, filling all voids.

3.7 INSTALLATION OF GEOGRIDS, 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:

1. All areas within the Tree and Plant Protection area provide a minimum of 5 inches of Wood Chips or Mulch.
2. 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.
3. Areas where occasional light vehicle traffic is anticipated to be unavoidable provide a layer of Geogrids under 8 inches of Wood Chips or Mulch.
4. 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 track 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 the 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 WITHIN 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, if any, 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 a 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:

1. In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, 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.
2. 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 Wood Chips and shall be maintained above permanent wilt 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.
3. Tree branches that interfere with the construction may be tied 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.
4. Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.
5. 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 planks as necessary to hold them securely in place. Trunk protection must by 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.
6. 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 sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.
   b. Using a sprinkler 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 at 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 rates 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 (412) 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. Mist the roots several times during the day. If the excavated area must remain open over night, mist the roots and cover the excavation with black plastic.
   g. Dispose of all soil in a manner that meets local laws and regulations.
   h. Restore soil within 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 compacts 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 up-rooted 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 from breakage or scarring, 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 in 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:

1. Walks - within 8 feet vertically of the proposed walk elevation.
2. Parking areas - within 12 feet vertically of the proposed parking surface elevation.
3. 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 task 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 wilt 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.

1. 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.

1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once tree protection work is complete, wash all soil from pavements and other structures. Ensure that Mulch is confined to planting beds.

C. Make all repairs to grades, ruts, 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 appraisal 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 tree growth regulators (TGR).

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

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:

1. Locate, purchase, deliver and install all specified plants.
2. Water all specified plants.
3. Mulch, fertilize, stake, and prune all specified plants.
4. Maintenance of all specified plants until the beginning of the warranty period.
5. Plant warranty.
6. Clean up and disposal of all excess and surplus material.
7. 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:

1. Drawings and general provisions of contract including general and supplementary conditions and Division I specifications apply to work of this section
2. 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 thereto. 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 Owners Representative.

1. State of California, Department of Food and Agriculture, Regulations for Nursery Inspections, Rules and Grading.
2. ANSI Z60.1 American Standard for Nursery Stock, most current edition.
3. ANSI A 300 - Standard Practices for Tree, Shrub and other Woody Plant Maintenance, most current edition and parts.
4. Florida Grades and Standards for Nursery Stock, current edition (Florida Department of Agriculture, Tallahassee FL).
5. Interpretation of plant names and descriptions shall reference the following documents. Where the names or plant descriptions disagree between the several documents, the most current document shall prevail.
   a. USDA - The Germplasm Resources Information Network (GRIN) http://www.ars-grin.gov/npgs/searchgrin.html
   b. Manual of Woody Landscape Plants; Michael Dirr; Stipes Publishing, Champaign, Illinois; Most Current Edition.
   c. The New Sunset Western Garden Book, Oxmoor House, most current edition.
6. Pruning practices shall conform to recommendations "Structural Pruning: A Guide For The Green Industry" most current edition; published by Urban Tree Foundation, Visalia, California.
7. Glossary of Arboricultural Terms, International Society of Arboriculture, Champaign IL, most current edition.

1.4 VERIFICATION

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.

B. In the case of a discrepancy in the plant quantities between the plan drawings and the plant call outs, 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.

1.5 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 adequately 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.

B. All changes in the work, notifications and contractor's request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor, at their own cost, 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 as 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.

A. Boxed trees: A container root ball package made of wood in the shape of a four-sided box.

B. Container plant: Plants that are grown in and/or are currently in a container including boxed trees.

C. Defective plant: Any plant that fails to meet the plant quality requirement of this specification.

D. End of Warranty Final Acceptance: The date when the Owner's Representative accepts that the plants and work in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrent with each other.

E. Field grown trees (B&B): Trees growing in field soil for at least 12 months prior to harvest.

F. Healthy: Plants that are growing in a condition that expresses leaf size, crown density, color; and with annual growth rates typical of the species and cultivar's horticultural description, adjusted for the planting site soil, drainage and weather conditions.

G. Kinked root: A root within the root package that bends more than 90 degrees.

H. Maintenance: Actions that preserve the health of plants after installation and as defined in this specification.

I. Maintenance period: The time period, as defined in this specification, which the Contractor is to provide maintenance.

J. Normal: the prevailing protocol of industry standard(s).

K. Owner's Representative: The person appointed by the Owner 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.

L. Reasonable and reasonably: When used in this specification relative to plant quality, 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 it is not possible to produce plants free of all defects, but that some accepted industry protocols and standards result in plants unacceptable to this project.

When reasonable or reasonably is used in relation to other issues such as weeds, diseased, insects, it shall mean at levels low enough that no treatment would be required when applying recognized Integrated Plant Management practices.

This specification 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's expert shall determine when conditions are judged as reasonable.

M. Root ball: The mass of roots including any soil or substrate that is shipped with the tree within the root ball package.

N. Root ball package. The material that surrounds the root ball during shipping. The root package may include the material in which the plant was grown, or new packaging placed around the root ball for shipping.

O. Root collar (root crown, root flare, trunk flare, flare): The region at the base of the trunk where the majority of the structural roots join the plant stem, usually at or near ground level.

P. Shrub: Woody plants with mature height approximately less than 15 feet.

Q. Spade harvested and transplanted: Field grown trees that are mechanically harvested and immediately transplanted to the final growing site without being removed from the digging machine.

R. Stem: The trunk of the tree.

S. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and Irrigation installation where the Owner's Representative accepts that all work in these sections is complete and the Warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project.

T. Stem girdling root: Any root more than ¼ inch diameter currently touching the trunk, or with the potential to touch the trunk, above the root collar approximately tangent to the trunk circumference or circling the trunk. Roots shall be considered as Stem Girdling that have, or are likely to have in the future, root to trunk bark contact.

U. Structural root: One of the largest roots emerging from the root collar.

V. Tree: Single and multi-stemmed plants with mature height approximately greater than 15 feet.

1.10 SUBMITTALS

A. See contract general conditions for policy and procedure related to submittals.

B. Submit all product submittals 4 weeks prior to installation of plantings.

C. 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 installation of plants.

D. Plant growers' certificates: Submit plant growers' certificates for all plants indicating that each meets the requirements of the specification, including the requirements of tree quality, to the Owner's Representative for approval. Provide submittal four weeks before the installation of plants.

E. Samples: Submit samples of each product and material where required by the specification to the Owner's Representative for approval. Label samples to indicate product, characteristics, and locations in the work. Samples will be reviewed for appearance only. Compliance with all other requirements is the exclusive responsibility of the Contractor.

F. Plant sources: Submit sources of all plants as required by Article - "Selection of Plants" to the Owner's Representative for approval.

G. Close out submittals: Submit to the Owner's Representative for approval.

1. Plant maintenance data and requirements.

H. Warranty period site visit record: If there is no maintenance during the warranty period, after each site visit during the warranty period, by the Contractor, as required by this specification, submit a written record of the visit, including any problems, potential problems, and any recommended corrective action to the Owner's Representative for approval.

1.11 OBSERVATION OF THE WORK

A. The Owner's Representative may observe the work at any time. They may remove samples of materials for conformity to specifications. 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.

B. The Owner's Representative shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The Owner's Representative shall be afforded sufficient time to schedule visit to the site. Failure of the Owner's Representative to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. SITE CONDITIONS PRIOR TO THE START OF PLANTING: review the soil and drainage conditions.
2. COMPLETION OF THE PLANT LAYOUT STAKING: Review of the plant layout.
3. PLANT QUALITY: Review of plant quality at the time of delivery and prior to installation. Review tree quality prior to unloading where possible, but in all cases prior to planting.
4. COMPLETION OF THE PLANTING: Review the completed planting.

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.

1.13 QUALITY ASSURANCE

A. Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty period:

1. Once the Contractor completes the installation of all items in this section, the Owner's Representative will observe all work for Substantial Completion Acceptance upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of the observation.
2. Substantial Completion Acceptance by the Owner's Representative shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.
3. Any plants that are deemed defective as defined under the provisions below shall not be accepted.

B. The Owner's Representative will provide the Contractor with written acknowledgment of the date of Substantial Completion Acceptance and the beginning of the warranty period and plant maintenance period (if plant maintenance is included).

C. Contractor's Quality Assurance Responsibilities: The Contractor is solely responsible for quality control of the work.

D. Installer Qualifications: The installer shall be a firm having at least 5 years of successful experience of a scope similar to that required for the work, including the handling and planting of large specimen trees in urban areas. The same firm shall install planting soil (where applicable) and plant material.

1. The bidders list for work under this section shall be approved by the Owner's Representative.
2. Installer Field Supervision: When any planting work is in progress, installer shall maintain, on site, a full-time supervisor who can communicate in English with the Owner's Representative.
3. Installer's field supervisor shall have a minimum of five years experience as a field supervisor installing plants and trees of the quality and scale of the proposed project, and can communicate in English with the Owner's Representative.
4. The installer's crew shall have a minimum of 3 years experienced in the installation of Planting Soil, Plantings, and Irrigation (where applicable) and interpretation of soil plans, planting plans and irrigation plans.

E. 1.14 PLANT WARRANTY:

1. The Contractor agrees to replace defective work and defective plants. The Owner's Representative shall make the final determination if plants meet these specifications or that plants are defective.

   Plants warranty shall begin on the date of Substantial Completion Acceptance and continue for the following periods, classed by plant type:

   d. Trees - 1 Year(s).
   e. Shrubs - 1 Year(s).
   f. Ground cover and perennial flower plants -1 Year(s).
   g. Bulbs, annual flower and seasonal color plants - for the period of expected bloom or primary display.

2. When the work is accepted in parts, the warranty periods shall extend from each of the partial Substantial Completion Acceptances to the terminal date of the last warranty period. Thus, all warranty periods for each class of plant warranty, shall terminate at one time.
3. All plants shall be warrantied to meet all the requirements for plant quality at installation in this specification. Defective plants shall be defined as plants not meeting these requirements. The Owner's representative shall make the final determination that plants are defective.
2. Plants determined to be defective shall be removed immediately upon notification by the Owner's Representative and replaced without cost to the Owner, as soon as weather conditions permit and within the specified planting period.
3. Any work required by this specification or the Owner's Representative during the progress of the work, to correct plant defects including the removal of roots or branches, or planting plants that have been bare rooted during installation to observe for or correct root defects shall not be considered as grounds to void any conditions of the warranty. In the event that the Contractor decides that such remediation work may compromise the future health of the plant, the plant or plants in question shall be rejected and replaced with plants that do not contain defects that require remediation or correction.
4. The Contractor is exempt from replacing plants, after Substantial Completion Acceptance and during the warranty period, that are removed by others, lost or damaged due to occupancy of project, lost or damaged by a third party, vandalism, or any natural disaster.
5. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the Owner.
6. The warranty 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 warranty period, the Owner's Representative may elect one more replacement items or credit for each item. These tertiary replacement items are not protected under a warranty period.
7. During and by the end of the warranty period, remove all tree wrap, ties, and guying unless agreed to by the Owner's Representative to remain in place. All trees that do not have sufficient caliper to remain upright, or those requiring additional anchorage in windy locations, shall be staked or remain staked, if required by the Owner's Representative.

B. End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period.

1. At the end of the warranty period, the Owner's Representative shall observe all warranted work, upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date for final observation.
2. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been met.

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Consultants:

Revisions:

HANSON PRESERVE - LOT TYPICAL
Cooper City, Florida

Drawn By:	SG
Checked By:	JT
Drawing #:	1471b
File Name:	LP_1471b.dwg
Date:	10/23/2025

LANDSCAPE SPECIFICATIONS

SHEET #: LP.5

1.15 SELECTION AND OBSERVATION OF PLANTS

A. The Owner's Representative may review all plants subject to approval of size, 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 at 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 substandard 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, such as a 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.

1. Should 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 proposal covering cost of corrections. 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. 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 suitable 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 Z-60.1. Larger plants may not be acceptable if the resulting root ball cannot be 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.

B. 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, pests, 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, bores, and larvae. At the time of planting all plants shall have a root system, 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 tree 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-stem, 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 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, conks (fungal fruiting bodies), wood 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) 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 impacting 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 each plant. 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 kinked roots from nursery production practices.

6.) At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.

E. Submittals: Submit for approval the required plant quality certifications from the grower where plants are to be purchased, for each plant type. The certification must state that each plant meets all the above plant quality requirements.

1. The grower's certification of plant quality does not prohibit the Owner's Representative from observing any plant or rejecting the plant if it is found to not meet the specification requirements.

2.2 ROOT BALL PACKAGE OPTIONS: The following root ball packages are permitted. Specific root ball packages shall be required where indicated on the plant list or in this specification. Any type of root ball packages that is not specifically defined in this specification shall not be permitted.

A. BALLED AND BURLAPPED PLANTS

2. All Balled and Burlapped Plants shall be field grown, and the root ball packaged in a burlap and twine and/or burlap and wire basket package.

3. Plants shall be harvested with the following modifications to standard nursery practices.

a. Prior to digging any tree that fails to meet the requirement for maximum soil and roots above the root collar, carefully removed the soil from the top of the root ball of each plant, using hand tools, water or an air spade, to locate the root collar and attain the soil depth over the structural roots requirements. Remove all stem girdling roots above the root collar. Care must be exercised not to damage the surface of the root collar and the top of the structural roots.

b. Trees shall be dug for a minimum of 4 weeks and a maximum of 52 weeks prior to shipping. Trees dug 4 to 52 weeks prior to shipping are defined as hardened-off. Digging is defined as cutting all roots and lifting the tree out of the ground and either moving it to a new location in the nursery or placing it back into the same hole. Tress that are stored out of the ground shall be placed in a holding area protected from extremes of wind and sun with the root ball protected by covering with mulch or straw and irrigated sufficiently to keep moisture in the root ball above wilt point and below saturation

c. If wire baskets are used to support the root ball, a "low profile" basket shall be used. A low profile basket is defined as having the top of the highest loops on the basket no less than 4 inches and no greater than 8 inches below the shoulder of the root ball package. The basket shall be removed completely at time of planting.

1.) At nurseries where sandy soils prevent the use of "low profile baskets", baskets that support the entire root ball, including the top, are allowable.

d. Twine and burlap used for wrapping the root ball package shall be natural, biodegradable material. If the burlap decomposes after digging the tree then the root ball shall be re-wrapped prior to shipping if roots have not yet grown to keep root ball intact during shipping.

SPADE HARVESTED AND TRANSPLANTED

1. Spade Harvested and Transplanted Plants shall meet all the requirements for field grown trees. Root ball diameters shall be of similar size as the ANSI Z60.1 requirements for Balled and Burlapped plants.

2. Trees shall be harvested prior to leafing out (bud break) in the spring or during the fall planting period except for plants know to be considered as fall planting hazards. Plants that are fall planting hazards shall only be harvested prior to leafing out in the spring.

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. Keep the trees in a cool dark space for storage and delivery. If daytime outside temperatures exceeds 70 degrees F, utilize a refrigerated storage area with temperature between 35 and 50 degrees.

10. Where possible, plan 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 pea gravel.

a. The pea gravel bed shall be 18 inches deep over a sheet of plastic.

b. Space trees to allow the unbundled branches to grow without shading each other.

c. Once stored in pea 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 sized 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. Defronding, 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 evacuation 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, drag, 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, $\frac{1}{3}$ topsoil and $\frac{1}{3}$ peat humus. Sand shll 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 heacy silt, stone, excess lime, shell rock, plant roots, debris or other foreign matter. It shall not contain noxious plant growth (such as bermuda, torpedo 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 flat woven polypropylene material, 3/4 inch wide, and 900 lb. break strength. Color to be Green. Product to be ArborTie manufactured by Deep Root Partners, L.P. 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 anchorage 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.

2.9 WATERING BAGS

E. Plastic tree watering bags holding a minimum of 15 gallons of water and with a slow drip hole(s) water release system, specifically designed to water establishing trees. Water should release over a several day period, not within a few hours

F. Watering bags shall be:

1. Treegator Irrigation Bags sized to the appropriate model for the requirements of the plant, manufactured by Spectrum Products, Inc., Youngsville, 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.

B. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote staging 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 paint for 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 tilling. 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.

3.6 SOIL MOISTURE

A. 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
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%
Silty clay, Silty clay loam	22 - 27%	38 - 41%

1. 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.

B. 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.

3.7 INSTALLATION OF PLANTS: GENERAL

C. Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify the Owner's Representative of any condition observed.

D. No more plants shall be distributed about the planting bed area than can be planted and watered on the same day.

E. The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting to confirm that the roots meet the requirements for plant root quality in Part 2 Products: Plants General: Plant Quality. The Contractor shall undertake at the time of planting, all modifications to the root system required by the Owner's Representative to meet these quality standards.

1. Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that the Owner's Representative may choose to reject the plant rather than permitting the modification.

2. Any modifications required by the Owner's Representative to make the root system conform to the plant quality standards outlined in Part 2 Products: Plants General: Quality, or other requirements related to the permitted root ball package, shall not be considered as grounds to modify or void the plant warranty.

3. The resulting root ball may need additional staking and water after planting. The Owner's Representative may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty

4. The Contractor remains responsible to confirm that the grower has made all required root modifications noted during any nursery observations.

F. Container and Boxed Root Ball Shaving: The outer surfaces of ALL plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing reasonably radial to the trunk.

G. Exposed Stem Tissue after Modification: The required root ball modifications may result in stem tissue that has not formed trunk bark being exposed above the soil line. If such condition occurs, wrap the exposed portion of the stem in a protective wrapping with a white filter fabric. Secure the fabric with biodegradable masking tape. DO NOT USE string, twine, green nursery ties or any other material that may girdle the trunk if not removed.

H. Excavation of the Planting Space: Using hand tools or tracked mini-excavator, excavate the planting hole into the Planting 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.

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.

H. 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.

I. Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.

J. The Owner's Representative may request that plants orientation be rotated when planted based on the form of the plant.

K. Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space. See Specification Section Planting Soil, for requirements to modify the soil within the planting bed.

L. Brace root ball by tamping Planting Soil around the lower portion of the root ball. Place additional Planting Soil around base and sides of ball in six-inch (6") lifts. Lightly tamp each lift using foot pressure or hand tools to settle backfill, support the tree and eliminate voids. DO NOT over compact the backfill or use mechanical or pneumatic tamping equipment. Over compaction shall be defined as greater than 85% of maximum dry density, standard proctor or greater than 250 psi as measured by a cone penetrometer when the volumetric soil moisture is lower than field capacity.

1. 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.

M. 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.

N. Thoroughly water the Planting Soil and root ball immediately after planting.

O. Remove all nursery plant identification tags and ribbons as per Owner's Representative instructions. The Owner's Representative's seals are to remain on plants until the end of the warranty period.

P. Remove corrugated cardboard trunk protection after planting.

Q. Follow additional requirements for the permitted root ball packages.

3.8 Permitted Root ball packages and Special planting requirements

A. The following are permitted root ball packages and special planting requirements that shall be followed during the planting process in addition to the above General planting requirements.

B. BALLED AND BURLAPPED PLANTS

1. After the root ball has been backfilled, remove all twine and burlap from the top of the root ball. Cut the burlap away; do not fold down onto the Planting Soil.

2. If the plant is shipped with a wire basket that does not meet the requirements of a "Low Rise" basket, remove the top 6 - 8 inches of the basket wires just before the final backfilling of the tree.

3. Earth root balls shall be kept intact except for any modifications required by the Owner's Representative to make root package comply with the requirement in Part 2 Products.

C. SPADE HARVESTED AND TRANSPLANTED PLANTS

1. After installing the tree, loosen the soil along the seam between the root ball and the surrounding soil out to a radius from the root ball edge equal to the diameter of the root ball to a depth of 8 - 10 inches by hand digging to disturb the soil interface.

2. Fill any gaps below this level with loose soil.

D. CONTAINER (INCLUDES BOXED AND ABOVE-GROUND FABRIC CONTAINERS) PLANTS

1. This specification assumes that most container plants have significant stem girdling and circling roots, and that the root collar is too low in the root ball.

2. Remove the container.

3. Perform root ball shaving as defined in Installation of Plants: General above.

4. Remove all roots and substrate above the root collar and the main structural roots according to root correction details so root system conforms to root observations detail.

5. Remove all substrate at the bottom of the root ball that does not contain roots.

6. Using a hose, power washer or air excavation device, wash out the substrate from around the trunk and top of the remaining root ball and find and remove all stem girdling roots within the root ball above the top of the structural roots.

E. BARE ROOT PLANTS

1. Dig the planting hole to the diameter of the spread of the roots to a depth in the center that maintains the root collar at the elevation of the surrounding finished grade and slightly deeper along the edges of the hole.

2. Spread all roots out radial to the trunk in the prepared hole making the hole wider where needed to accommodate long roots. Root tips shall be directed away from the trunk. Prune any broken roots removing the least amount of tissue possible.

3. Maintain the trunk plumb while backfilling soil around the roots.

4. Lightly tamp the soil around the roots to eliminate voids and reduce settlement.

3.9 GROUND COVER, PERENNIAL AND ANNUAL PLANTS

A. Assure that soil moisture is within the required levels prior to planting. Irrigation, if required, shall be applied at least 12 hours prior to planting to avoid planting in muddy soils.

B. Assure that soil grades in the beds are smooth and as shown on the plans.

C. Plants shall be planted in even, triangularly spaced rows, at the intervals called out for on the drawings, unless otherwise noted. The first row of Annual flower plants shall be 6 inches from the bed edge unless otherwise directed.

D. Dig planting holes sufficiently large enough to insert the root system without deforming the roots. Set the top of the root system at the grade of the soil.

E. Schedule the planting to occur prior to application of the mulch. If the bed is already mulched, pull the mulch from around the hole and plant into the soil. Do not plant the root system in the mulch. Pull mulch back so it is not on the root ball surface.

F. Press soil to bring the root system in contact with the soil.

G. Spread any excess soil around in the spaces between plants.

H. Apply mulch to the bed being sure not to cover the tops of the plants with or the tops of the root ball with mulch.

I. Water each planting area as soon as the planting is completed. Apply additional water to keep the soil moisture at the required levels. Do not over water.

3.10 PALM PLANTING

A. Palm trees shall be placed at grade making sure not to plant the tree any deeper in the ground than the palm trees originally stood.

B. The trees shall be placed with their vertical axis in a plumb position.

C. All backfill shall be native soil except in cases where planting in rock. Water-settle the back fill.

D. Do not cover root ball with mulch or topsoil.

E. Provide a watering berm at each palm. Berms shall extend a minimum of 18 inches out from the trunk all around and shall be a minimum of (6) inches high.

F. Remove twine which ties fronds together after placing palm in planting hole and securing it in the upright position.

3.11 STAKING AND GUYING

A. 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.

6. The Owner's Representative shall have the authority to require that trees are staked or to reject staking as an alternative way to stabilize the tree.

7. Trees that required heavily modified root balls to meet the root quality standards may become unstable. The Owner's Representative may choose to reject these trees rather than utilize staking to temporarily support the tree.

B. Trees that are guyed shall have their guys and stakes removed after one full growing season or at other times as required by the Owner's Representative.

C. Tree guying shall utilize the tree staking and guying materials specified. Guying to be tied in such a manner as to create a minimum 12-inch loop to prevent girdling. Refer to manufacturer's recommendations and the planting detail for installation.

1. Plants shall stand plumb after staking or guying.

2. Stakes shall be driven to sufficient depth to hold the tree rigid.

D. For trees planted in planting mix over waterproofed membrane, use dead men buried 24 inches to the top of the dead man, in the soil. Tie the guy to the dead man with a double wrap of line around the dead man followed by a double half hitch. When guys are removed, leave the dead men in place and cut the guy tape 12 inches above the ground, leaving the tape end covered in mulch.

3.12 STRAIGHTENING PLANTS

A. Maintain all plants in a plumb position throughout the warranty period. Straighten all trees that move out of plumb including those not staked. Plants to be straightened shall be excavated and the root ball moved to a plumb position, and then re-backfilled.

B. Do not straighten plants by pulling the trunk with guys.

3.13 INSTALLATION OF FERTILIZER AND OTHER CHEMICAL ADDITIVES

A. Do not apply any soluble fertilizer to plantings during the first year after transplanting unless soil test determines that fertilizer or other chemical additives is required. Apply chemical additives only upon the approval of the Owner's Representative.

B. Controlled release fertilizers shall be applied according to the manufacturer's instructions and standard horticultural practices.

3.14 PRUNING OF TREES AND SHRUBS

A. Prune plants as directed by the Owner's Representative. Pruning trees shall be limited to addressing structural defects as shown in details; follow recommendations in "Structural Pruning: A Guide For The Green Industry" published by Urban Tree Foundation, Visalia CA.

B. All pruning shall be performed by a person experienced in structural tree pruning.

C. Except for plants specified as multi-stemmed or as otherwise instructed by the Owner's Representative, preserve or create a central leader.

D. Pruning of large trees shall be done using pole pruners or if needed, from a ladder or hydraulic lift to gain access to the top of the tree. Do not climb in newly planted trees. Small trees can be structurally pruned by laying them over before planting. Pruning may also be performed at the nursery prior to shipping.

E. Remove and replace excessively pruned or malformed stock resulting from improper pruning that occurred in the nursery or after.

F. Pruning shall be done with clean, sharp tools.

G. No tree paint or sealants shall be used.

3.15 MULCHING OF PLANTS

A. Apply 3 inches of mulch before settlement, covering the entire planting bed area. Install no more than 1 inch of mulch over the top of the root balls of all plants. Taper to 2 inches when abutting pavement.

B. For trees planted in lawn areas the mulch shall extend to a 5 foot radius around the tree or to the extent indicated on the plans.

C. Lift all leaves, low hanging stems and other green portions of small plants out of the mulch if covered.

3.16 PLANTING BED FINISHING

A. After planting, smooth out all grades between plants before mulching.

B. 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 the Owner's Representative. Bed edge lines shall be a depicted on the drawings.

3.17 WATERING

A. 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.

B. Hand water root balls of all plants to assure that the root balls have moisture above wilt point and below field capacity. Test the moisture content in each root ball and the soil outside the root ball to determine the water content.

3.18 CLEAN-UP

A. During installation, 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.

1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures. Ensure that mulch is confined to planting beds and that all tags and flagging tape are removed from the site. The Owner's Representative's seals are to remain on the trees and removed at the end of the warranty period.

C. Make all repairs to grades, ruts, and damage by the plant installer to the work or other work at the site.

D. Remove and dispose of all excess planting soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

3.19 PROTECTION DURING CONSTRUCTION

A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers. Maintain protection during installation until Substantial Completion Acceptance. Treat, repair or replace damaged work immediately.

B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The Owner's Representative shall determine when such cleaning, replacement or repair is satisfactory.

3.20 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE

A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.

B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position, and furnishing and applying such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept reasonably free of weeds, grass.

3.21 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.

1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.

B. The date of substantial completion of the planting shall be the date when the Owner's Representative accepts that all work in Planting, Planting Soil, and Irrigation installation sections is complete.

C. The Plant Warranty period begins at date of written notification of substantial completion from the Owner's Representative. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

3.22 MAINTENANCE DURING THE WARRANTY PERIOD by others

A. After Substantial Completion Acceptance, the Contractor shall make sufficient site visits to observe the Owner's maintenance and become aware of problems with the maintenance in time to request changes, until the date of End of Warranty Final Acceptance.

1. Notify the Owner's Representative in writing if maintenance, including watering, is not sufficient to maintain plants in a healthy condition. Such notification must be made in a timely period so that the Owner's Representative may take corrective action.

a. Notification must define the maintenance needs and describe any corrective action required.

2. In the event that the Contractor fails to visit the site and or notify, in writing, the Owner's Representative of maintenance needs, lack of maintenance shall not be used as grounds for voiding or modifying the provisions of the warranty.

3.23 MAINTENANCE DURING THE WARRANTY PERIOD by the plant installer

A. During the warranty period, provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.

B. General requirements:

1. All work shall be undertaken by trained planting crews under the supervision of a foreman with a minimum of 5 years experience supervising commercial plant maintenance crews.

2. All chemical and fertilizer applications shall be made by licensed applicators for the type of chemicals to be used. All work and chemical use shall comply with all applicable local, provincial and federal requirements.

3. Assure that hoses and watering equipment and other maintenance equipment does not block paths or be placed in a manner that may create tripping hazards. Use standard safety warning barriers and other procedures to maintain the site in a safe manner for visitors at all times.

4. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.

5. The Contractor shall not store maintenance equipment at the site at times when they are not in use unless authorized in writing by the Owner's Representative.

6. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the Owner's Representative's written permission.

7. Maintain a detailed log of all maintenance activities including types of tasks, date of task, types and quantities of materials and products used, watering times and amounts, and number of each crew. Periodically review the logs with the Owner's Representative, and submit a copy of the logs at the end of each year of the maintenance agreement.

8. Meet with the Owner's Representative a minimum of three times a year to review the progress and discuss any changes that are needed in the maintenance program. At the end of the warranty period attend a hand over meeting to formally transfer the responsibilities of maintenance to the Owner's Representative. Provide all information on past maintenance activities and provide a list of critical tasks that will be needed over the next 12 months. Provide all maintenance logs and soil test data. Make the Contractor's supervisor available for a minimum of one year after the end of the warranty period to answer questions about past maintenance.

C. Provide the following maintenance tasks:

1. Watering; Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.

a. Maintain all watering systems and equipment and keep them operational.

b. Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture with a soil moisture meter on a regular basis and record moisture readings. Do not over water.

2. Soil nutrient levels: Take a minimum of 4 soil samples from around the site in the spring and fall and have them tested by an accredited agricultural soil testing lab for chemical composition of plant required nutrients, pH, salt and % organic matter. Test results shall include laboratory recommendations for nutrient applications. Apply fertilizers at rates recommended by the soil test.

a. Make any other soil test and/or plant tissue test that may be indicated by plant conditions that may not be related to soil nutrient levels such as soil contaminated by other chemicals or lack of chemical uptake by the plant.

3. Plant pruning: Remove cross over branching, shorten or remove developing co dominant leaders, dead wood and winter-damaged branches. Unless directed by the Owner's Representative, do not shear plants or make heading cuts.

4. Restore plants: Reset any plants that have settled or are leaning as soon as the condition is noticed.

5. Guying and staking: Maintain plant guys in a taught position. Remove tree guys and staking after the first full growing season unless directed by Owner's Representative.

6. Weed control: Keep all beds free of weeds. Hand-remove all weeds and any plants that do not appear on the planting plan. Chemical weed control is permitted only with the approval of the Owner's Representative. Schedule weeding as needed to maintain weed free beds.

7. Trash removal: Remove all trash and debris from all planting beds and maintain the beds in a neat and tidy appearance.

8. Plant pest control: Maintain disease, insects and other pests at manageable levels. Manageable levels shall be defined as damage to plants that may be noticeable to a professional but not to the average person. Use least invasive methods to control plant disease and insect outbreaks.

a. The Owner's Representative must approve in advance the use of all chemical pesticide applications.

9. Plant replacement: Replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting as outlined in above sections. Plants that become defective during the maintenance period shall be covered and replaced under the warranty provisions.

10. Mulch: Refresh mulch once a year to maintain complete coverage but do not over mulch. At no time shall the overall mulch thickness be greater that 3 inches. Do not apply mulch within 6 inches of the trunks or stems of any plants. Replacement mulch shall meet the requirements of the original approved material. Mulch shall be no more than one inch on top of the root ball surface.

11. Bed edging: Check and maintain edges between mulch and lawn areas in smooth neat lines as originally shown on the drawings.

12. Leaf, fruit and other plant debris removal: Remove fall leaf, spent flowers, fruit and plant part accumulations from beds and paved surfaces. Maintain all surface water drains free of debris. Debris removal shall be undertaken at each visit to weed or pick up trash in beds.

13. Damage from site use: Repair of damage by site visitors and events, beyond normal wear, are not part of this maintenance. The Owner's Representative may request that the Contractor repair damage beds or plantings for an additional cost. All additional work shall be approved in advance by the Owner's Representative.

3.27 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION

A. At the end of the Warranty and Maintenance period the Owner's Representative shall observe the work and establish that all provisions of the contract are complete and the work is satisfactory.

1. If the work is satisfactory, the maintenance period will end on the date of the final observation.

2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Owner until the work has been completed, observed, and approved by the Owner's Representative.

B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owners Representative.

END OF SECTION 32 9300

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File Name:	LP_1471b.dwg
Date:	10/23/2025

LANDSCAPE SPECIFICATIONS

SHEET #: LP.6