

LAUREL ROAD

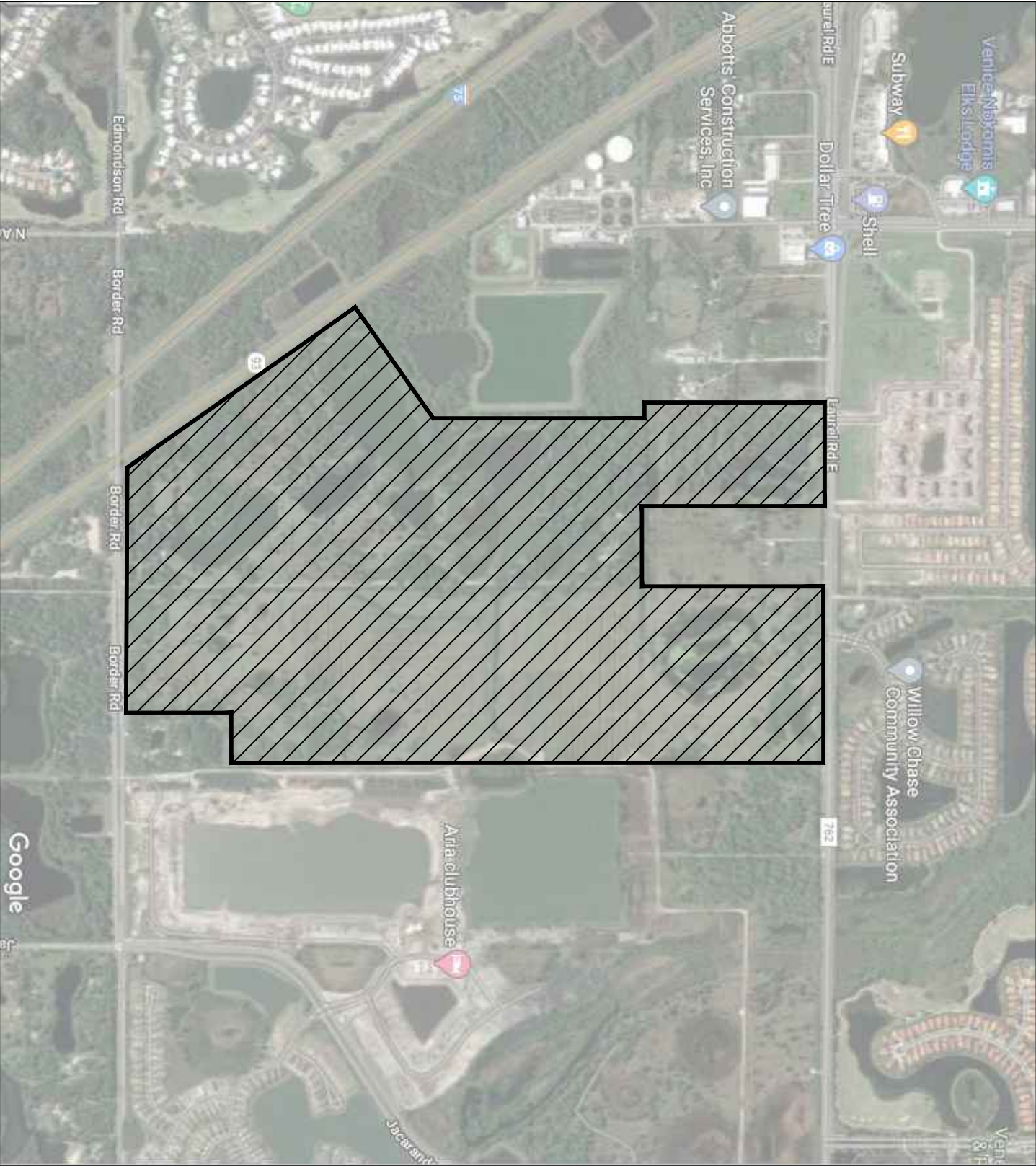
PHASE 2 LANDSCAPE PLANS

VENICE | FLORIDA

CONSULTANTS

Client	NEAL LAND AND NEIGHBORHOODS 5824 LAKEWOOD RANCH BLVD SARASOTA, FL. 34240
Civil Engineer	AM ENGINEERING 8340 CONSUMER COURT SARASOTA, FL. 34240

PROJECT SITE VICINITY MAP



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GENERAL NOTES

1. CONTRACTOR SHALL VISIT THE SITE AND INFORM HIMSELF FULLY AS TO CONDITIONS THEREON AND OF ADJACENT SITES WHICH WILL BE AFFECTED BY THE WORK.
2. DO NOT WILLFULLY INSTALL OR CONSTRUCT ITEMS AS SHOWN ON THE DRAWINGS WHEN IT IS OBVIOUS IN THE FIELD THAT UNKNOWN OBSTRUCTIONS, EXISTING TREE CANOPIES, GRADE DIFFERENCES OR DIFFERENCES IN THE AREA DIMENSIONS EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE DESIGN/ENGINEERING. SUCH OBSERVATIONS OR DIFFERENCES SHOULD BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT. IF THE OWNERS REPRESENTATIVE IN THE FIELD NOTIFICATION IS NOT REPORTED, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY REVISIONS NECESSARY.
3. THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. ALL BRACING, TEMPORARY SUPPORTS, SHORING, ETC. ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. OBSERVATION VISITS TO THE JOB SITE BY THE LANDSCAPE ARCHITECT/OWNERS REPRESENTATIVE DOES NOT INCLUDE INSPECTION OF CONSTRUCTION METHODS AND FOR SAFETY CONDITIONS AT THE WORK SITE. VISITS SHALL NOT BE CONSTRUED AS CONTINUOUS AND DELETED INSPECTIONS.
4. CONTRACTOR SHALL CHECK AND VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS PRIOR TO STARTING CONSTRUCTION AND BE RESPONSIBLE FOR SAME. NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.
5. NO CONTRACTOR IDENTIFICATION SIGNS SHALL BE PERMITTED ON THE PROJECT, EXCEPT AS APPROVED BY THE OWNER.
6. ALL PERMITS NECESSARY ARE TO BE PROVIDED BY THE INSTALLING CONTRACTOR INCLUDING: EROSION. THE CONTRACTOR SHALL NOT KNOWLEDGE VIOLATE CONDITIONS OF THE PERMITS. ALL CONFLICTS WITH THE PERMIT CONDITIONS AND THE PLANS, DETAILS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT REPRESENTATIVE. THE CONTRACTOR SHALL FAMILIARIZE AND SHALL COMPLY WITH ALL TERMS AND CONDITIONS OF THE APPROVED FDEP PERMIT.
7. ALL UTILITIES TO REMAIN IN PLACE, EXCEPT AS INDICATED ON THE DRAWINGS. CONTACT "ONE-CALL" AT 811 AT LEAST 48 TO 72 HOURS PRIOR TO EXCAVATION FOR VERIFICATION OF EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATIONS. MANY UTILITIES ARE MEMBERS OF THE "ONE-CALL" SYSTEM. THEREFORE, DIRECT CONTACT WITH THE UTILITY COMPANY MAY BE REQUIRED. CONTRACTOR SHALL CONTACT CITY OF VENICE FOR LOCATION OF UNDERGROUND STORM WATER, SEWER AND WATER UTILITIES AND LATERAL LINES THAT MIGHT BE PRESENT. ALL UTILITIES TO REMAIN IN PLACE, EXCEPT AS INDICATED ON THE PLANS.
8. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY THE LOCATION, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES AFFECTING HIS WORK PRIOR TO CONSTRUCTION.
9. CONTRACTOR SHALL MAKE ALL EFFORTS TO LIMIT THE "TRACKING" OF SOIL ONTO CITY/COUNTY STREETS FROM HAULING ACTIVITIES. CONTRACTOR SHALL REMOVE ALL SOIL FROM CITY/COUNTY STREETS RESULTING FROM CONSTRUCTION ACTIVITIES.
10. CAREFULLY REVIEW THE PLANS AND THE SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ITEMS CONTAINED HEREIN. IF THERE IS A CONFLICT BETWEEN THE PLANS AND THE SPECIFICATIONS, CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY FOR CLARIFICATION.
11. IN A CONFLICT BETWEEN THE PLANS AND THE SPECIFICATIONS, THE PLANS SHALL GOVERN.
12. THE CONTRACTOR SHALL PROVIDE A SUBMITTAL LOG FOR APPROVAL BY THE PROJECT REPRESENTATIVE. ALL SUBMITTALS ARE TO INCLUDE THE NUMBERING SYSTEM DEVELOPED IN THE SUBMITTAL LOG.
13. THE CONTRACTOR SHALL PROVIDE A 24 HOUR EMERGENCY CONTACT PERSON AT THE PRE-ANALYSIS AND CONSTRUCTION MEETING.
14. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE LANDSCAPE ARCHITECT IN WRITING, AND REQUEST A FINAL INSPECTION. ANY ITEMS THAT ARE JUDGED INCOMPLETE OR UNACCEPTABLE BY THE OWNER OR THE LANDSCAPE ARCHITECT SHALL BE PROMPTLY CORRECTED BY THE CONTRACTOR.
15. SIDEWALK / PAVING LAYOUT SHALL BE FIELD-STAKED USING G.P.S. BY THE CONTRACTOR AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO FORM WORK AND INSTALLATION. THE CONTRACTOR MUST NOTIFY THE L.A. AT LEAST FORTY EIGHT HOURS IN ADVANCE OF THE REQUIRED REVIEW. ALL OF THE PROPOSED LOCATIONS SHALL BE MARKED FOR A SPECIFIC PHASE OF WORK PRIOR TO CALLING FOR A REVIEW. COORDINATES THAT DO NOT RESULT IN THE GEOMETRY SHOWN ON THE PLANS SHALL BE CHECKED BY THE CONTRACTOR'S SURVEY CREW. CORRECTIONS OF TRAIL SHALL BE VERIFIED BY THE LANDSCAPE ARCHITECT. LAYOUT MUST COMPLY WITH FDEP PERMIT
16. ALL CONCRETE WALKS SHALL NOT EXCEED A SLOPE OF 1:20, AND CROSS SLOPES ON ALL CONCRETE SIDEWALKS SHALL NOT EXCEED .2%. IF THE SIDEWALKS EXCEEDS EXCEED THIS SLOPE, ADA COMPLIANT HANDICAP RAMPS WILL BE REQUIRED.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING AND THE COST OF ALL REQUIRED CONCRETE TESTING. TESTING SHALL INCLUDE BUT NOT BE LIMITED TO MATERIALS FOR PAVING SUB-BASE, ASPHALT PAVING, STRUCTURAL AND PAVING CONCRETE.
18. CONTRACTOR TO MAINTAIN EXISTING BENCH MARKS, MONUMENTS, AND OTHER REFERENCE POINTS WITHIN AND ADJACENT TO THE PROJECT LIMITS. CONTRACTOR TO CONTACT ALL RESPONSIBLE PARTIES IF RELOCATION IS REQUIRED. IF BENCH MARKS ARE LOST, THE CONTRACTOR SHALL NOTIFY THE OWNER.
19. CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE CITY'S ARCHEOLOGICAL EXPERT IF DURING THE EXCAVATION REQUIRED ARTICLES OF SIGNIFICANCE ARE UNCOVERED.
20. ANY CHANGES MADE IN THE FIELD BY THE CONTRACTOR OR OWNER REGARDING THE HARDSCAPE PLACEMENT SHALL BE FULLY RECORDED WITH AS-BUILTS AND PROVIDED TO THE OWNER AND L.A.
21. DESIGN, MATERIALS, EQUIPMENT AND PRODUCTS OTHER THAN THOSE DESCRIBED BELOW OR INDICATED ON THE DRAWINGS MAY BE CONSIDERED FOR USE, PROVIDED PRIOR APPROVAL IS OBTAINED FROM THE OWNER, OWNER'S REPRESENTATIVE AND THE APPLICABLE GOVERNING CODE AUTHORITY.
22. DAMAGE TO EXISTING FACILITIES CAUSED BY THE CONTRACTORS OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
23. CONTRACTOR TO SEEK APPROVAL FROM LANDSCAPE ARCHITECT AND OWNER FOR ANY AND ALL MATERIAL SUBSTITUTIONS

LANDSCAPE TREE SYMBOLS

The diagram illustrates five different landscape tree symbols. The top row features a large, irregular polygon with multiple lines radiating from its center to its vertices, and a large circle with three lines radiating from its center to its circumference. The bottom row features a small, irregular polygon with a central dot, a small circle with a central dot, and a small circle with three thick, curved lines radiating from its center to its circumference.


PLANT MATERIAL SCHEDULE : STREET TREES PH 2	
PLANT MATERIAL NOTES:	
1. THE CONTRACTOR SHALL BID AND BE RESPONSIBLE FOR THE PLANT SIZE AND NOT SOLELY BY THE CONTAINER. CONTAINER IS PROVIDED AS A MIN. SIZE	
2. THE GENERAL CONTRACTOR/LANDSCAPE CONTRACTOR SHALL PERFORM A MIN. OF 3 SOIL TEST FROM VARIOUS LOCATION AROUND SITE AFTER FILL HAS BEEN COMPLETED. TEST SHALL BE SUBMITTED TO OWNER/LANDSCAPE ARCHITECT FOR REVIEW PRIOR TO ANY PLANTS BEING INSTALLED. SITES LARGER THEN 10 ACRES SHALL HAVE A MIN. OF 5 SOILS SAMPLES TESTED.	
3. IN A CONFLICT BETWEEN THE PLANS AND THE SPECIFICATIONS/PLANT MATERIAL SCHEDULE, THE PLANS SHALL GOVERN.	

<div><div>LET</div><div>NO</div></div>		BUILDER PROVIDED						TOTAL: 582"	
5	ARS	ACER RUBRUM 'SUMMER RED'	RED MAPLE	12' HT. X 4' SPD., 3" CAL.	YES	YES		15	
4	ED	ELAEOCARPUS DECIPIENS	TREE FORM JAPANESE BLUEBERRY	12' HT. X 4' SPD., 3" CAL.	NO	YES	3' CLEAR BASE	10	
<div><div>NO</div><div>LET</div></div>		DEVELOPER PROVIDED						TOTAL: 25"	

PHASE 1 AND PHASE 2 STREET TREE SPECIES BREAKDOWN				
	PHASE 1	PHASE 2	TOTAL	PERCENT
ACER RUBRUM 'SUMMER RED' - RED MAPLE	188	46	234	35%
BUCIDIA BUCERAS 'SHADY LADY' - SHADY LADY BLACK OLIVE	131	0	131	20%
CONOCARPUS ERECTUS SERCEUS - SILVER BUTTWOOD	133	0	133	20%
MAGNOLIA GRANDIFLORA - MAGNOLIA	0	35	35	5%
ULMUS ALATA - WINGED ELM	18	118	136	20%
			669	100%

LANDSCAPE MATERIAL QUANTITIES	
SHREDDED HARDWOOD MULCH, COLOR COCOA BROWN	T.B.D.
ST. AUGUSTINE FLORATAM (SOD)	T.B.D.
BAHIA (SOD 2)	T.B.D.
2-3" BLACK MEXICAN BEACH STONE	T.B.D.
3-5" RIVER ROCK, SHELL ALT.	T.B.D.
*QUANTITIES ARE PROVIDED AS A COURTESY, CONTRACTOR TO VERIFY ALL QUANTITIES. TREES NOT INCLUDED IN PLANT BEDS TO HAVE A MIN. 4" DIA. MULCH RING	

PHASE 1 ACREAGE X 40 INCHES = REQUIRED TREE INCHES. TREES 30 INCHES AND ABOVE REMOVED	112.72 AC. X 40 = 4,508.8 489	PHASE 2 ACREAGE X 40 INCHES = REQUIRED TREE INCHES. TREES 30 INCHES AND ABOVE REMOVED	111.15 AC. X 40 = 4,446 661
TOTAL TREE INCHES NEEDED	<u>4,998</u>	TOTAL TREE INCHES NEEDED	<u>5,107</u>
EXISTING TREE INCHES PRESERVED	1,350	EXISTING TREE INCHES PRESERVED	1,462.5
STREET TREE INCHES - CDD	1,200	ZONE 1	2,369
COMMON AREA TREE INCHES - CDD	1,077	ZONE 2	1,410
BUFFER TREE INCHES - CDD	634	ZONE 3	3,298
TOTAL CDD TREE INCHES	2,911	ZONE 4	1,345
		ZONE 5	2,491
		ZONE 6	1,317
STREET TREE INCHES - DEVELOPER/HOME BUILDER	210	TOTAL EX. INCHES PRESERVED	13,693.5
LOT TREE INCHES - DEVELOPER/HOME BUILDER	1,200	STREET TREE INCHES - CDD	582
TOTAL DEVELOPER/HOME BUILDER TREE INCHES	1,410	COMMON AREA TREE INCHES - CDD	0
		BUFFER TREE INCHES - CDD	INCLUDED IN PHASE 1
PHASE 1 TREE INCHES PROVIDED	5,671	TOTAL CDD TREE INCHES	582
PHASE 1 SURPLUS TREE INCHES	673		
PHASE 1 DEFICIT TREE INCHES	0		
		STREET TREE INCHES - DEVELOPER/HOME BUILDER	25
		LOT TREE INCHES - DEVELOPER/HOME BUILDER TOTAL	570
		DEVELOPER/HOME BUILDER TREE INCHES	595
		PHASE 2 TREE INCHES PROVIDED	14,870.5
		PHASE 2 SURPLUS TREE INCHES	9,763.5
		PHASE 2 DEFICIT TREE INCHES	0
		TOTAL TREE INCHES PROVIDED	20,541.5
		SURPLUS TREE INCHES	10,436.5
		DEFICIT TREE INCHES	


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SIGNATURE & SEAL

FL Registration: LC26000471

ISSUE DATE		
1	PERMIT SET	02-08-22
2	PERMIT SET	03-04-25

NO.	COMMENTS	DATE
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JOB NUMBER	20064
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NO SCALE



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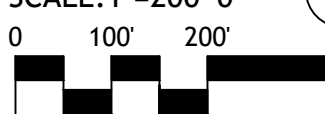
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NO.	COMMENTS	DATE

SHEET INFORMATION

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SCALE: 1"=200'-0"



TREE
PRESERVATION
SITE KEY

TP1.00

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MATCHLINE A, SEE SHEET LP-1.01

MATCHLINE F, SEE SHEET LP-1.04

PHASE LINE

PHASE LINE

PHASE LINE

PHASE LINE

TREES 30 INCHES OR
GREATER TO BE REMOVED

41" OAK
38" OAK

✕

DENOTES
TREE
REMOVAL

TREE PRESERVATION INVENTORY					
1- PALM	16- PALM	31- PALM	46- PALM	61- PALM	76- OAK
2- PALM	17- PALM	32- PALM	47- PALM	62- PALM	77- OAK
3- OAK	18- PALM	33- PALM	48- PALM	63- PALM	78- PALM
4- PALM	19- PALM	34- PALM	49- OAK	64- PALM	79- OAK
5- PALM	20- PALM	35- PALM	50- PALM	65- PALM	80- OAK
6- PINE	21- OAK	36- OAK	51- PALM	66- PALM	81- OAK
7- PINE	22- PINE	37- PALM	52- PALM	67- PALM	82- PALM
8- PINE	23- PALM	38- PALM	53- PALM	68- PALM	83- OAK
9- PINE	24- OAK	39- OAK	54- PALM	69- PALM	84- OAK
10- PINE	25- OAK	40- PALM	55- PALM	70- OAK	85- OAK
11- PINE	26- PALM	41- PALM	56- OAK	71- PALM	86- PALM
12- PINE	27- PALM	42- PALM	57- PALM	72- PALM	87- OAK
13- PINE	28- PALM	43- PALM	58- PALM	73- PINE	88- OAK
14- PALM	29- PALM	44- PALM	59- PALM	74- PALM	89- PALM
15- PALM	30- PALM	45- PALM	60- PALM	75- PINE	

TREE PRESERVATION CALCULATIONS					
PALMS PRESERVED				TREES PRESERVED	
1- PALM	29- PALM	46- PALM	63- PALM	3- OAK - 12" = 12"	49- OAK - 39" = 78"
2- PALM	30- PALM	47- PALM	64- PALM	6- PINE - 4" = 4"	56- OAK - 6" = 6"
4- PALM	31- PALM	48- PALM	65- PALM	7- PINE - 4" = 4"	70- OAK - 14" = 14"
5- PALM	32- PALM	50- PALM	66- PALM	8- PINE - 4" = 4"	73- PINE - 20" = 20"
14- PALM	33- PALM	51- PALM	67- PALM	9- PINE - 4" = 4"	75- PINE - 13" - 13"
15- PALM	34- PALM	52- PALM	68- PALM	10- PINE - 6" = 6"	76- OAK - 14" = 14"
16- PALM	35- PALM	53- PALM	69- PALM	11- PINE - 12" = 12"	77- OAK - 18" = 18"
17- PALM	37- PALM	54- PALM	71- PALM	12- PINE - 4" = 4"	79- OAK - 22" = 22"
18- PALM	38- PALM	55- PALM	72- PALM	13- PINE - 12" = 12"	80- OAK - 11" = 11"
19- PALM	40- PALM	57- PALM	74- PALM	21- OAK - 47" = 94"	81- OAK - 21" = 21"
20- PALM	41- PALM	58- PALM	78- PALM	22- PINE - 6" = 6"	83- OAK - 27" = 54"
23- PALM	42- PALM	59- PALM	82- PALM	24- OAK - 6" = 6"	84- OAK - 22" = 22"
26- PALM	43- PALM	60- PALM	86- PALM	25- OAK - 10" = 10"	85- OAK - 29" = 58"
27- PALM	44- PALM	61- PALM	89- PALM	36- OAK - 15" = 15"	87- OAK - 24" = 48"
28- PALM	45- PALM	62- PALM		39- OAK - 13" = 13"	88- OAK - 25" = 50"
59 TOTAL PALMS				655 TREE INCHES	
49 PALM INCHES PRESERVED				PRESERVED	

TREE LEGEND

12" AUSTRALIAN PINE

12" BAY

12" BOTTLE BRUSH

12" BIRCH

12" CAMPHOR

12" CHINA BERRY

12" CEDAR

12" CITRUS

12" CHERRY LAUREL

12" CYPRESS

12" EAR

12" ELM

12" EUCALYPTUS

12" SWEET GUM

12" HICKORY

12" UNKNOWN OR UNDETERMINED TREE TYPE

12" OTHER TREE TYPE (TYPE NOTED)

12" DEAD TREE (TYPE NOTED)

12" HOLLY

12" JACARANDA

12" MAPLE

12" MAGNOLIA

12" MULBERRY

12" MYRTLE

12" OAK

12" PALM

12" PECAN

12" PUNK

12" SYCAMORE

12" TALLOW

12" WILLOW

12" OAK TREE HAVING TRUNK 12" IN DIAMETER

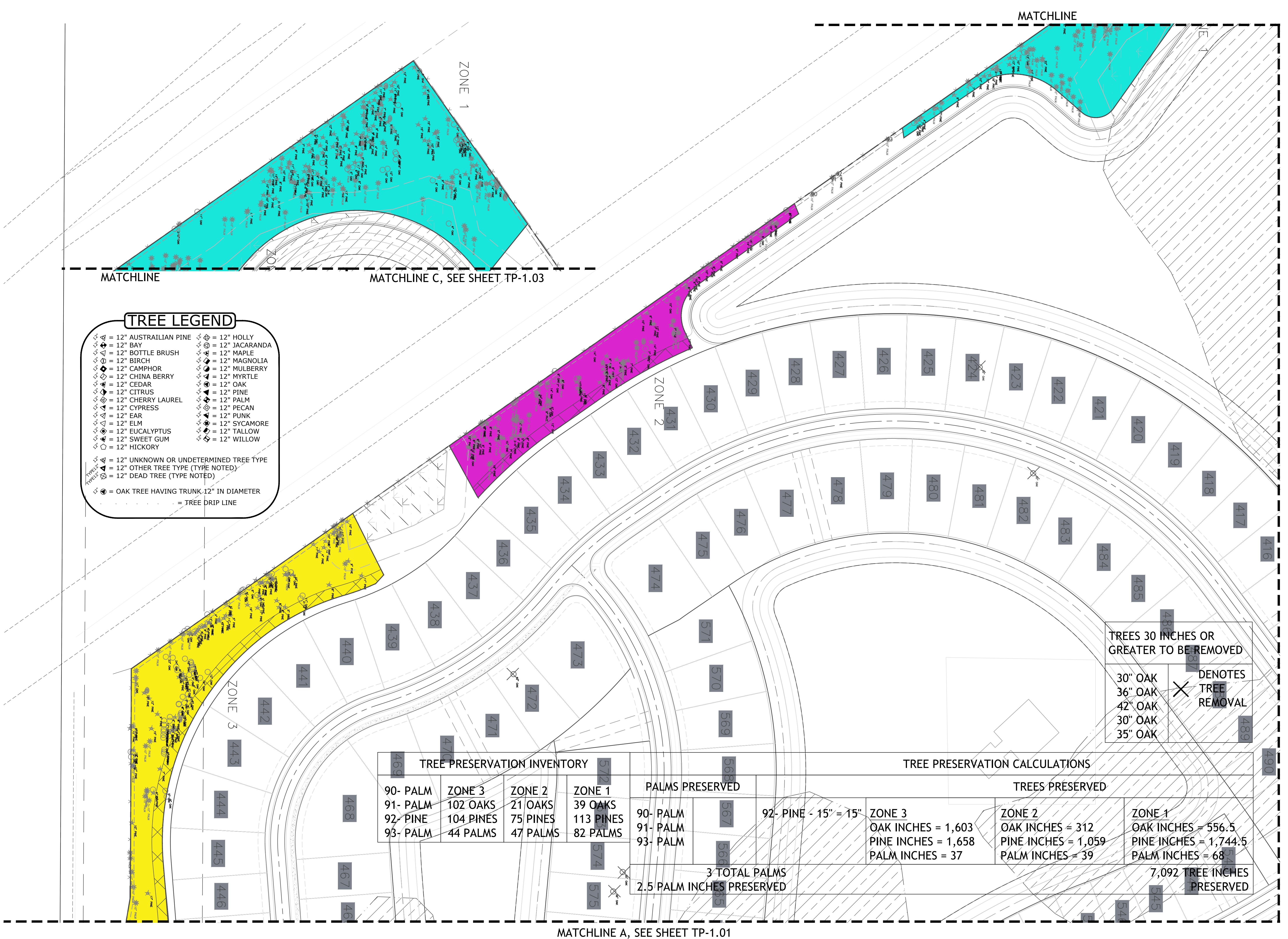
TREE DRIP LINE



ZONE 3


PHASE LINE

PHASE LINE



W

MATCHLINE E, SEE SHEET TP-1.05

TREES 30 INCHES OR GREATER TO BE REMOVED	
42" OAK 34" OAK 34" OAK	 DENOTES TREE REMOVAL

TREE LEGEND

12"	= 12" AUSTRALIAN PINE	12"	= 12" HOLLY
12"	= 12" BAY	12"	= 12" JACARANDA
12"	= 12" BOTTLE BRUSH	12"	= 12" MAPLE
12"	= 12" BIRCH	12"	= 12" MAGNOLIA
12"	= 12" CAMPHOR	12"	= 12" MULBERRY
12"	= 12" CHINA BERRY	12"	= 12" MYRTLE
12"	= 12" CEDAR	12"	= 12" OAK
12"	= 12" CITRUS	12"	= 12" PINE
12"	= 12" CHERRY LAUREL	12"	= 12" PALM
12"	= 12" CYPRESS	12"	= 12" PECAN
12"	= 12" EAR	12"	= 12" PUNK
12"	= 12" ELM	12"	= 12" SYCAMORE
12"	= 12" EUCALYPTUS	12"	= 12" TALLOW
12"	= 12" SWEET GUM	12"	= 12" WILLOW
12"	= 12" HICKORY		
12"	= 12" UNKNOWN OR UNDETERMINED TREE TYPE		
12"	= 12" OTHER TREE TYPE (TYPE NOTED)		
12"	= 12" DEAD TREE (TYPE NOTED)		
12"	= OAK TREE HAVING TRUNK 12" IN DIAMETER		
- - - - - = TREE DRIP LINE			

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PHASE 2

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
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SHEET INFORMATION

JOB NUMBER	20064
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SCALE: 1"=60'-0"

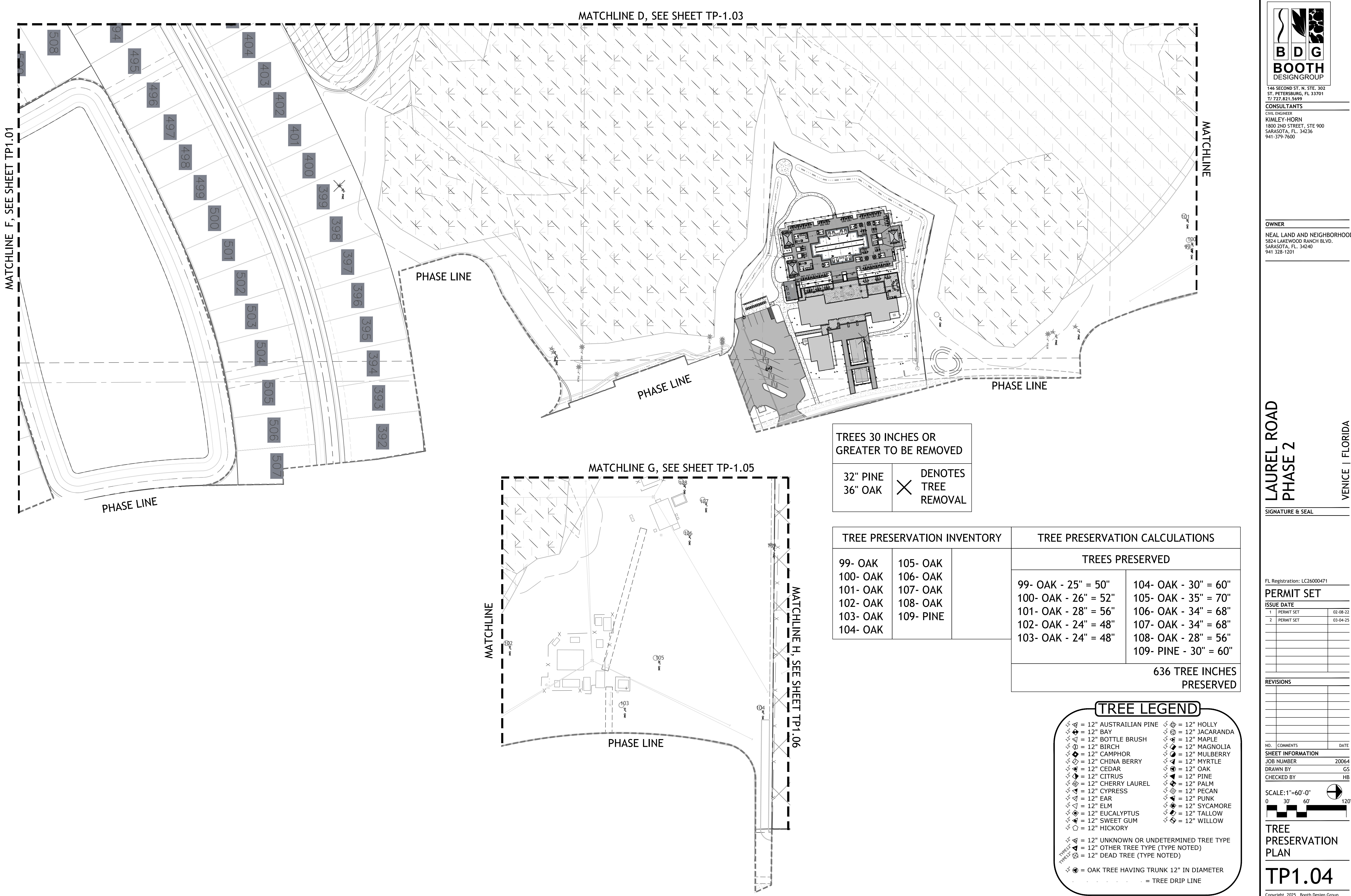
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TREE PRESERVATION PLAN

TP1.03

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TREES 30 INCHES OR GREATER TO BE REMOVED

32" PINE 36" OAK	DENOTES TREE REMOVAL
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TREE PRESERVATION INVENTORY			TREE PRESERVATION CALCULATIONS		
99- OAK 100- OAK 101- OAK 102- OAK 103- OAK 104- OAK	105- OAK 106- OAK 107- OAK 108- OAK 109- PINE		TREES PRESERVED		
			99- OAK - 25" = 50"	104- OAK - 30" = 60"	
			100- OAK - 26" = 52"	105- OAK - 35" = 70"	
			101- OAK - 28" = 56"	106- OAK - 34" = 68"	
			102- OAK - 24" = 48"	107- OAK - 34" = 68"	
			103- OAK - 24" = 48"	108- OAK - 28" = 56"	
					109- PINE - 30" = 60"
					636 TREE INCHES PRESERVED

TREE LEGEND

= 12" AUSTRALIAN PINE

= 12" BAY

= 12" BOTTLE BRUSH

= 12" BIRCH

= 12" CAMPHOR

= 12" CHINA BERRY

= 12" CEDAR

= 12" CITRUS

= 12" CHERRY LAUREL

= 12" CYPRESS

= 12" EAR

= 12" ELM

= 12" EUCALYPTUS

= 12" SWEET GUM

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= 12" MULBERRY

= 12" MYRTLE

= 12" OAK

= 12" PINE

= 12" PALM

= 12" PECAN

= 12" PUNK

= 12" SYCAMORE

= 12" TALLOW

= 12" WILLOW

= 12" UNKNOWN OR UNDETERMINED TREE TYPE

= 12" OTHER TREE TYPE (TYPE NOTED)

= 12" DEAD TREE (TYPE NOTED)

= OAK TREE HAVING TRUNK 12" IN DIAMETER

= TREE DRIP LINE

B

D

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PERMIT SET

ISSUE DATE		
1	PERMIT SET	02-08-22
2	PERMIT SET	03-04-25

REVISIONS

NO.	COMMENTS	DATE

SHEET INFORMATION

JOB NUMBER 20064

DRAWN BY GS

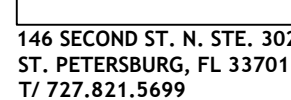
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SCALE: 1"=60'-0"

TREE
PRESERVATION
PLAN

TP1.04

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941-379-7600

OWNER

NEAL LAND AND NEIGHBORHOODS
5824 LAKEWOOD RANCH BLVD.
SARASOTA, FL. 34240
941 328-1201

LAUREL ROAD PHASE 2

VENICE | FLORIDA

SIGNATURE & SEAL

FL Registration: LC26000471

PERMIT SET

[illegible]

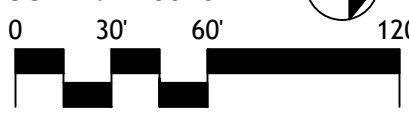
REVISIONS:

NO.	COMMENTS	DATE

SHEET INFORMATION

JOB NUMBER	20064
DRAWN BY	GS
CHECKED BY	HE

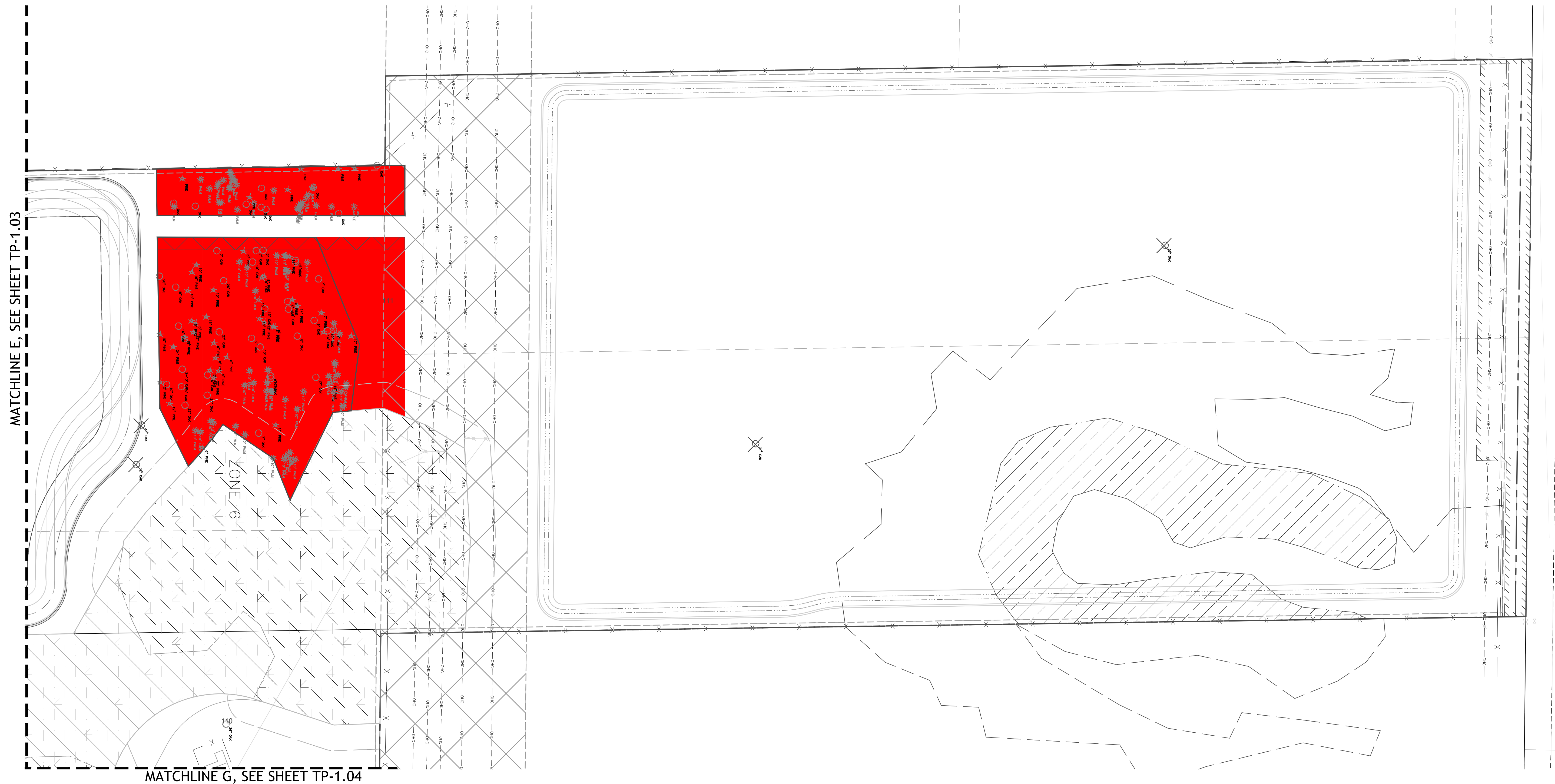
SCALE: 1"=60'-0"




TREE PRESERVATION PLAN

TP1.05

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TREES 30 INCHES OR GREATER TO BE REMOVED	
31" OAK 30" OAK 32" OAK 37" OAK	 DENOTES TREE REMOVAL

TREE PRESERVATION INVENTORY			TREE PRESERVATION CALCULATIONS		
110- OAK 111- PINE	ZONE 6 32 OAKS 38 PINES 47 PALMS		TREES PRESERVED		
			110- OAK - 111- PINE -	26" = 52" 25" = 50"	ZONE 6 OAK INCHES = 645 PINE INCHES = 633 PALM INCHES = 39
			1,419 TREE INCHES PRESERVED		

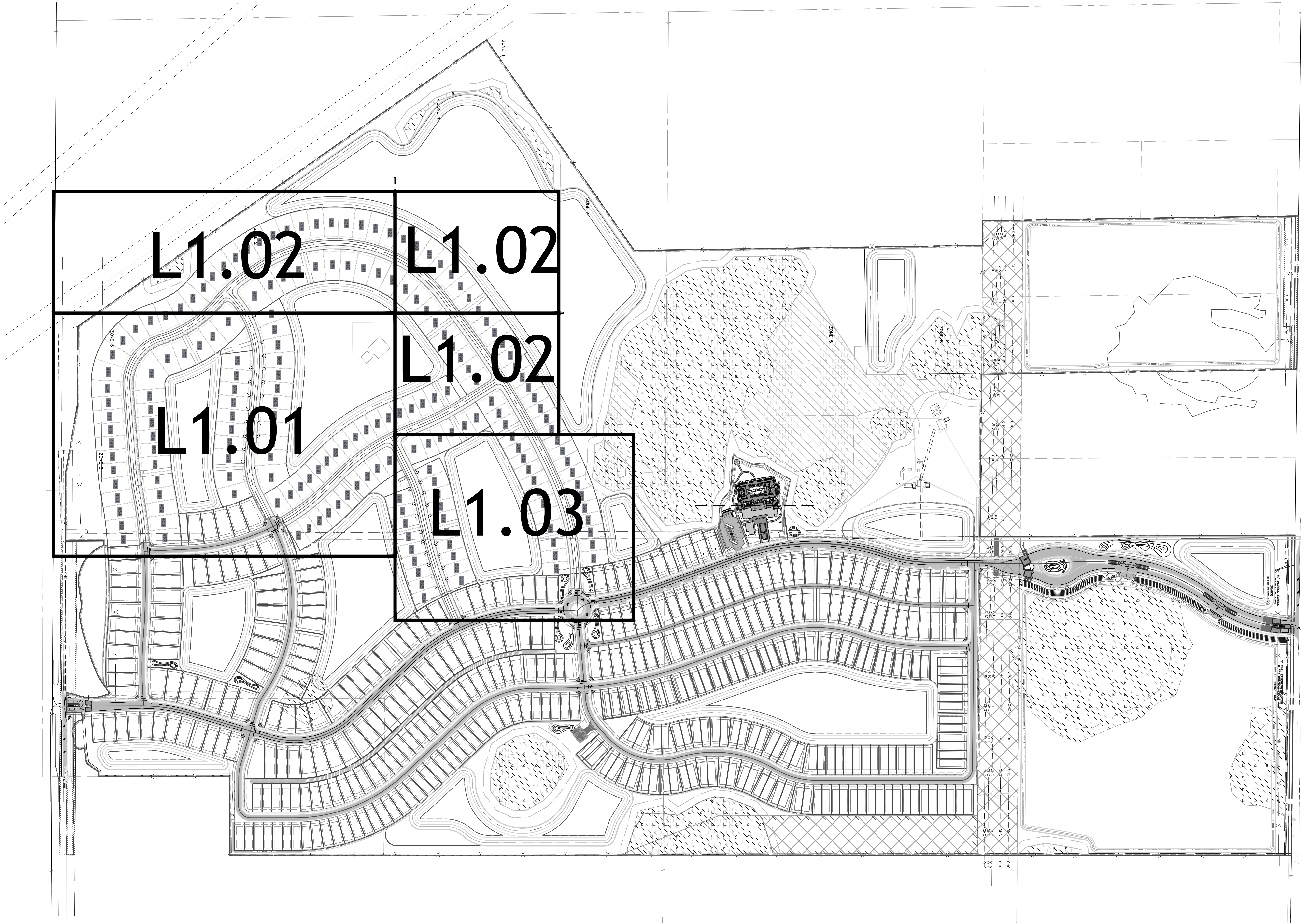
TREE LEGEND

♣ = 12" AUSTRALIAN PINE	♣ = 12" HOLLY
♠ = 12" BAY	♠ = 12" JACARANDA
♥ = 12" BOTTLE BRUSH	♥ = 12" MAPLE
♦ = 12" BIRCH	♦ = 12" MAGNOLIA
♣ = 12" CAMPHOR	♣ = 12" MULBERRY
♠ = 12" CHINA BERRY	♠ = 12" MYRTLE
♥ = 12" CEDAR	♥ = 12" OAK
♦ = 12" CITRUS	♦ = 12" PINE
♣ = 12" CHERRY LAUREL	♣ = 12" PALM
♠ = 12" CYPRESS	♠ = 12" PECAN
♥ = 12" EAR	♥ = 12" PUNK
♦ = 12" ELM	♦ = 12" SYCAMORE
♣ = 12" EUCALYPTUS	♣ = 12" TALLOW
♠ = 12" SWEET GUM	♠ = 12" WILLOW
♥ = 12" HICKORY	

TREE 12" = 12" UNKNOWN OR UNDETERMINED TREE TYPE
TREE 12" = 12" OTHER TREE TYPE (TYPE NOTED)
TREE 12" = 12" DEAD TREE (TYPE NOTED)

12" = OAK TREE HAVING TRUNK 12" IN DIAMETER

..... = TREE DRIP LINE



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PERMIT SET

ISSUE DATE		
1	PERMIT SET	02-08-22
2	PERMIT SET	03-04-25

REVISIONS

NO.	COMMENTS	DATE

SHEET INFORMATION

JOB NUMBER	20064
DRAWN BY	GS
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SCALE: 1"=200'-0"



OVERALL
STREET TREE
SITE PLAN

L1.00



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LAUREL ROAD PHASE 2

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FL Registration: LC26000471

PERMIT SET

ISSUE DATE

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2	PERMIT SET	03-04-25

REVISIONS

NO.	COMMENTS	DATE

SHEET INFORMATION

JOB NUMBER	20064
DRAWN BY	GS
CHECKED BY	HB

SCALE: 1"=50'-0"



STREET TREE
LANDSCAPE
PLAN

L1.01

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MATCHLINE A, SEE SHEET L1.02



MATCHLINE E, SEE SHEET L1.03



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PERMIT SET

ISSUE DATE

1	PERMIT SET	02-08-22
2	PERMIT SET	03-04-25

REVISIONS

NO.	COMMENTS	DATE

SHEET INFORMATION

JOB NUMBER	20064
DRAWN BY	GS
CHECKED BY	HB

SCALE: 1"=50'-0"

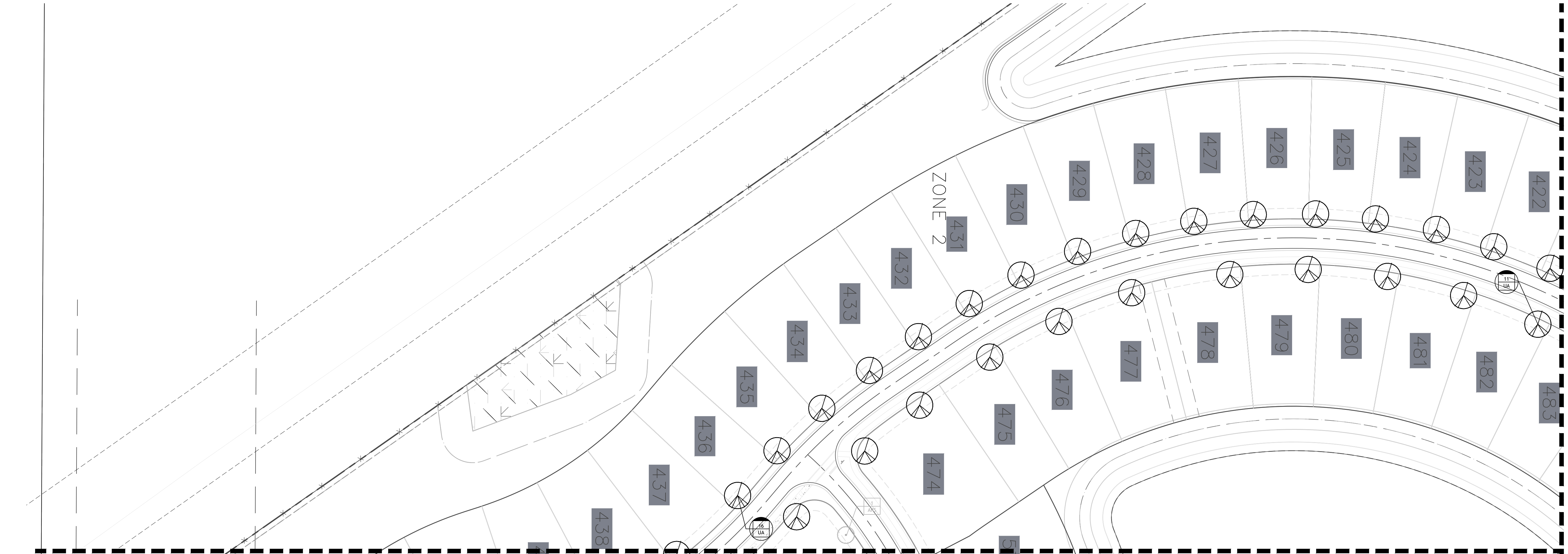
0 25' 50' 100'



STREET TREE
LANDSCAPE
PLAN

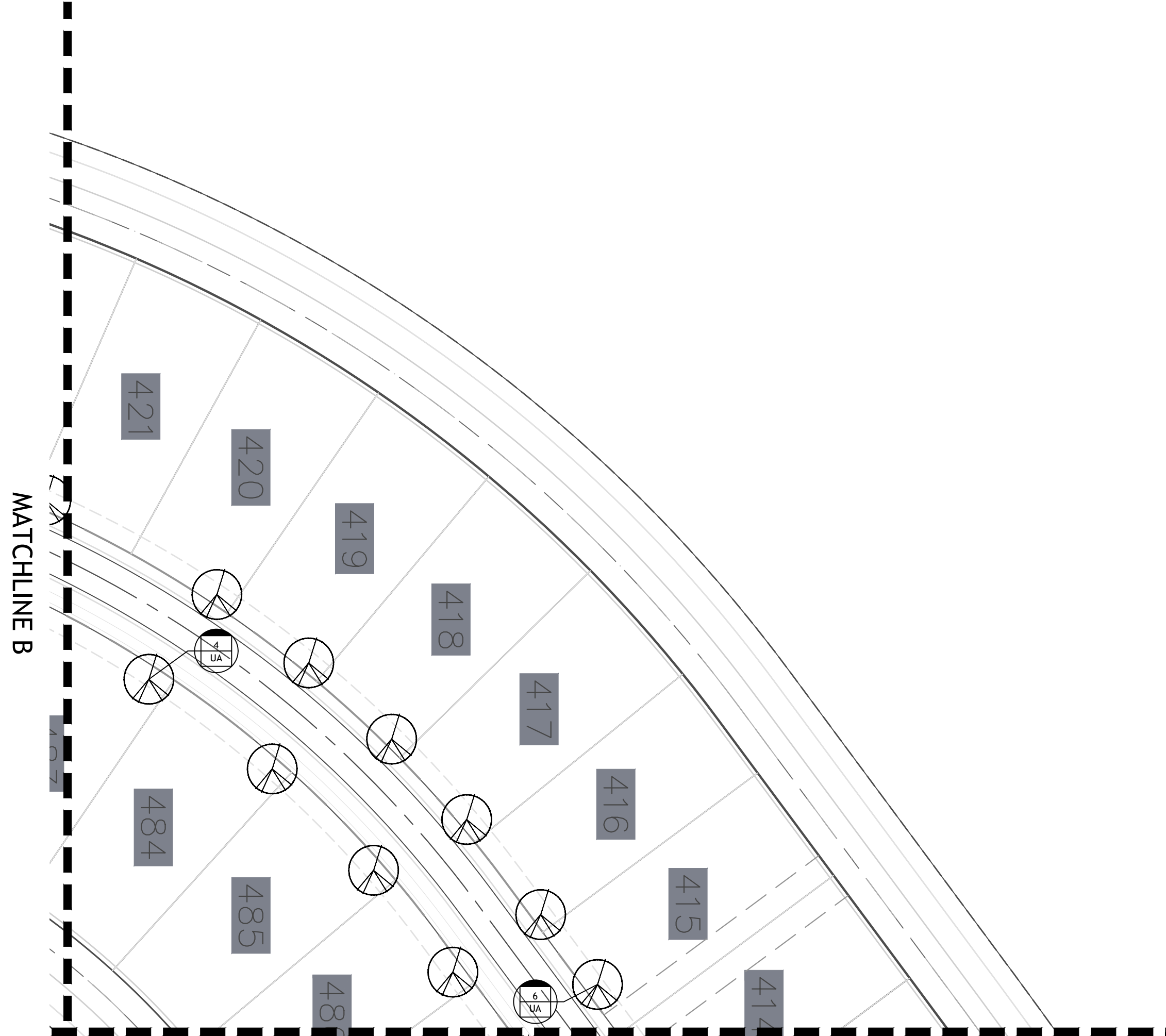
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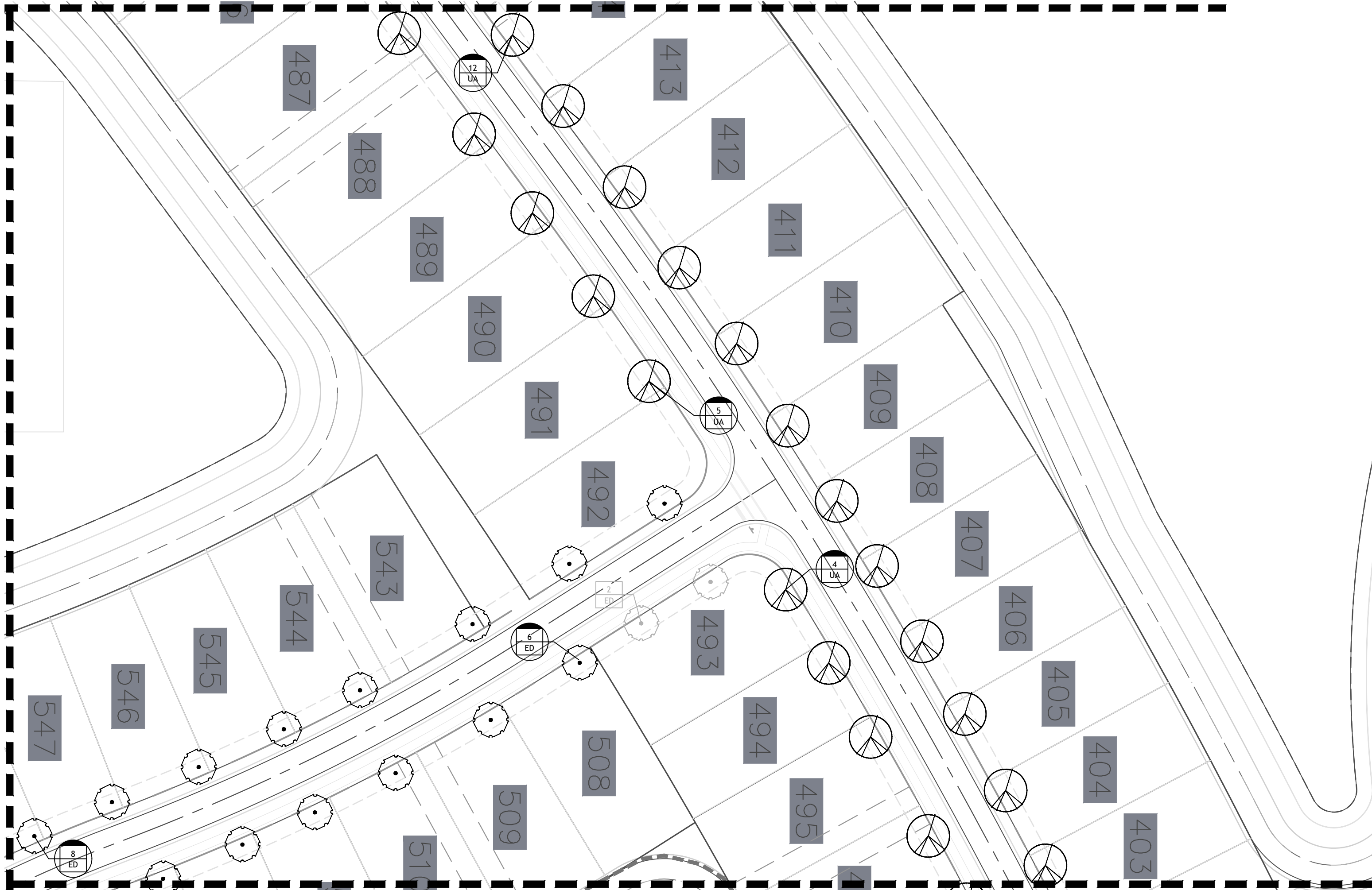


MATCHLINE A, SEE SHEET L1.01

MATCHLINE C



MATCHLINE C



MATCHLINE D, SEE SHEET L1.03



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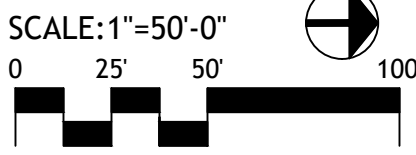
FL Registration: LC26000471

PERMIT SET

ISSUE DATE		
1	PERMIT SET	02-08-22
2	PERMIT SET	03-04-25

REVISIONS

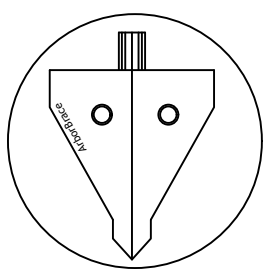
NO.	COMMENTS	DATE
SHEET INFORMATION		
JOB NUMBER	20064	
DRAWN BY	GS	
CHECKED BY	HB	



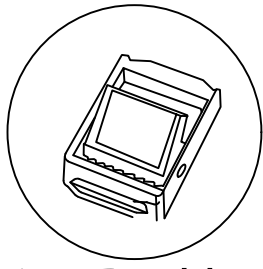
STREET TREE
LANDSCAPE
PLAN

L1.03





ArborAnchor
ArborAnchor driven below grade to necessary depth (determined by soil, 1.5 to 2.5 feet as required)

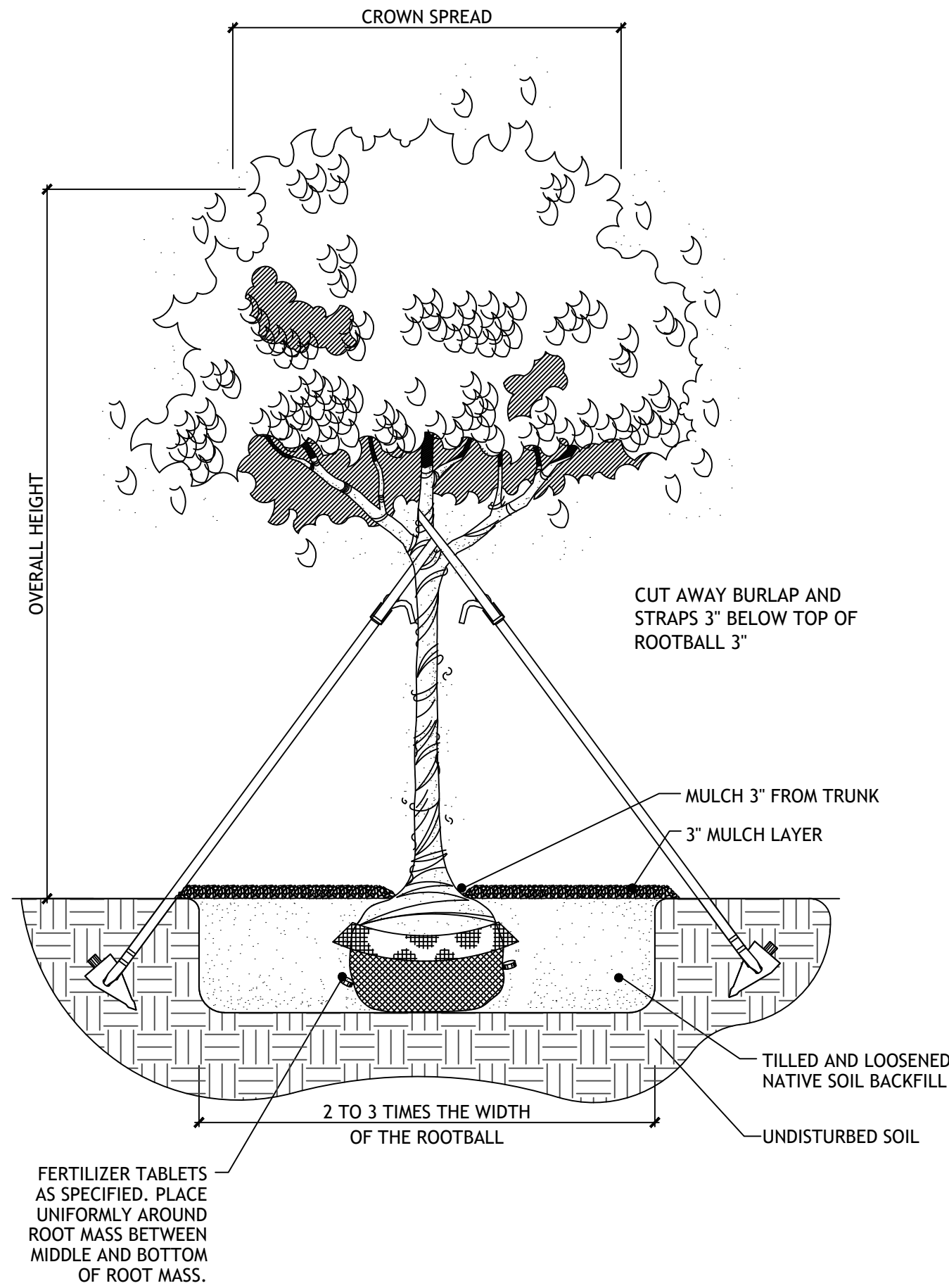


Tension Buckle
Loop loose end of welding around leading branch of tree. Tie 1/2 knot onto backside of buckle. Pull buckle towards ArborAnchor to tension line.

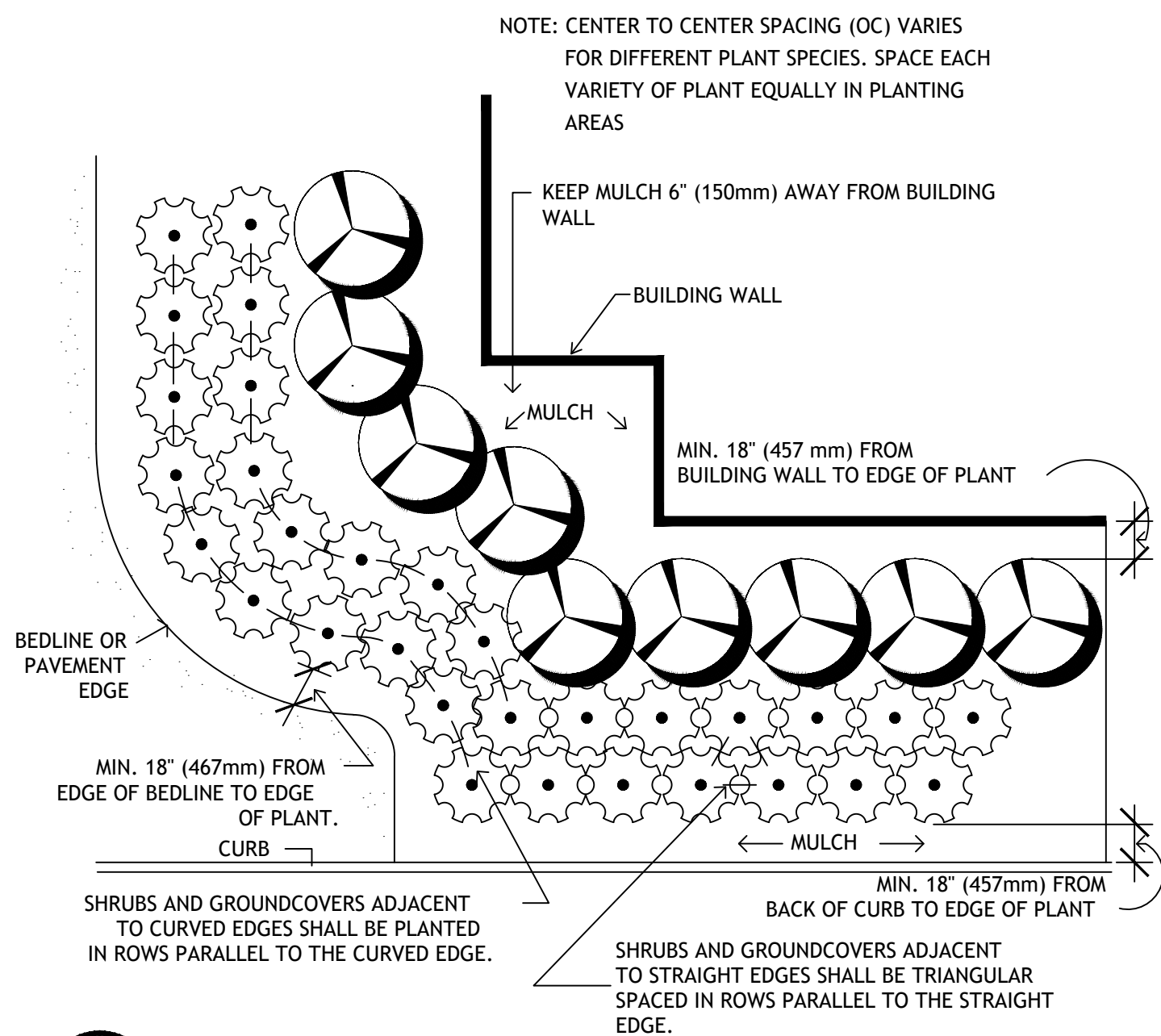
Arborbrace Tree Guying Specifications:
ATG-R/ATG-HD
For up to 4" Caliper Trees
(3) Polypropylene guylines 3/4" X 12'-800 lb test, olive drab, UV resistant.
(3) Nickel plated spring cam-lock tension clips
(3) Arrowhead Nylon Anchors (4" X 3-3/4")
(3) Arrowhead Metal Anchors for hard soil (4" X 3-3/4")

Arborbrace Tree Guying Specifications:
ATG-J
For up to 7" Caliper Trees
(3) Polypropylene/Polyester guylines 1" X 12'=1,000 lb test, olive drab, UV resistant
(3) 1-1/4" Nickel plated, non-rusting spring cam-lock tension clips (1,500 lb break strength)
(3) Arrowhead Aluminum Anchors for any soil type (5-1/2" X 4-1/2")

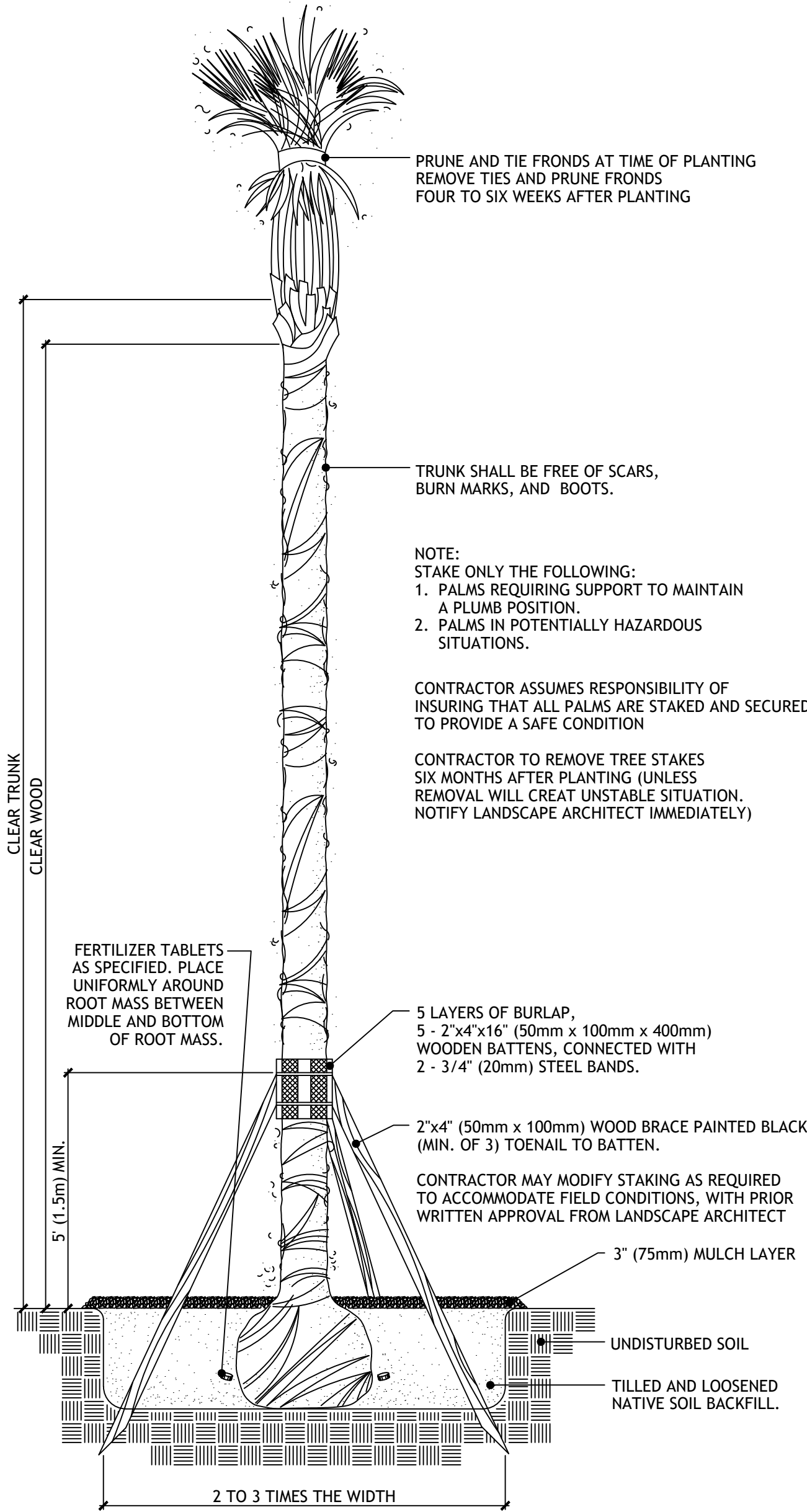
OTHER TREE STAKING SYSTEMS MAY BE ACCEPTABLE IF APPROVED



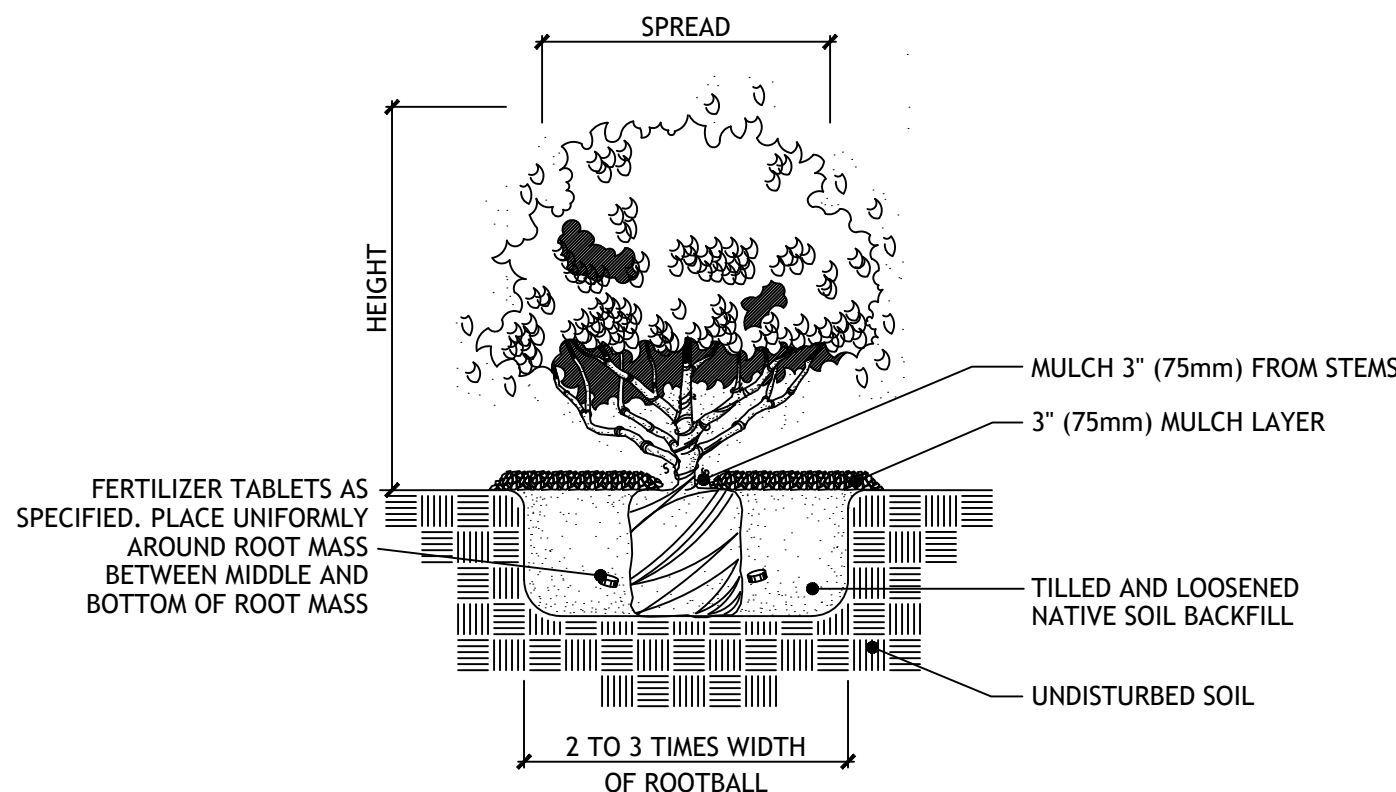
1 ARBOR BRACE TREE PLANTING DETAIL
LD-2 SCALE: N.T.S.



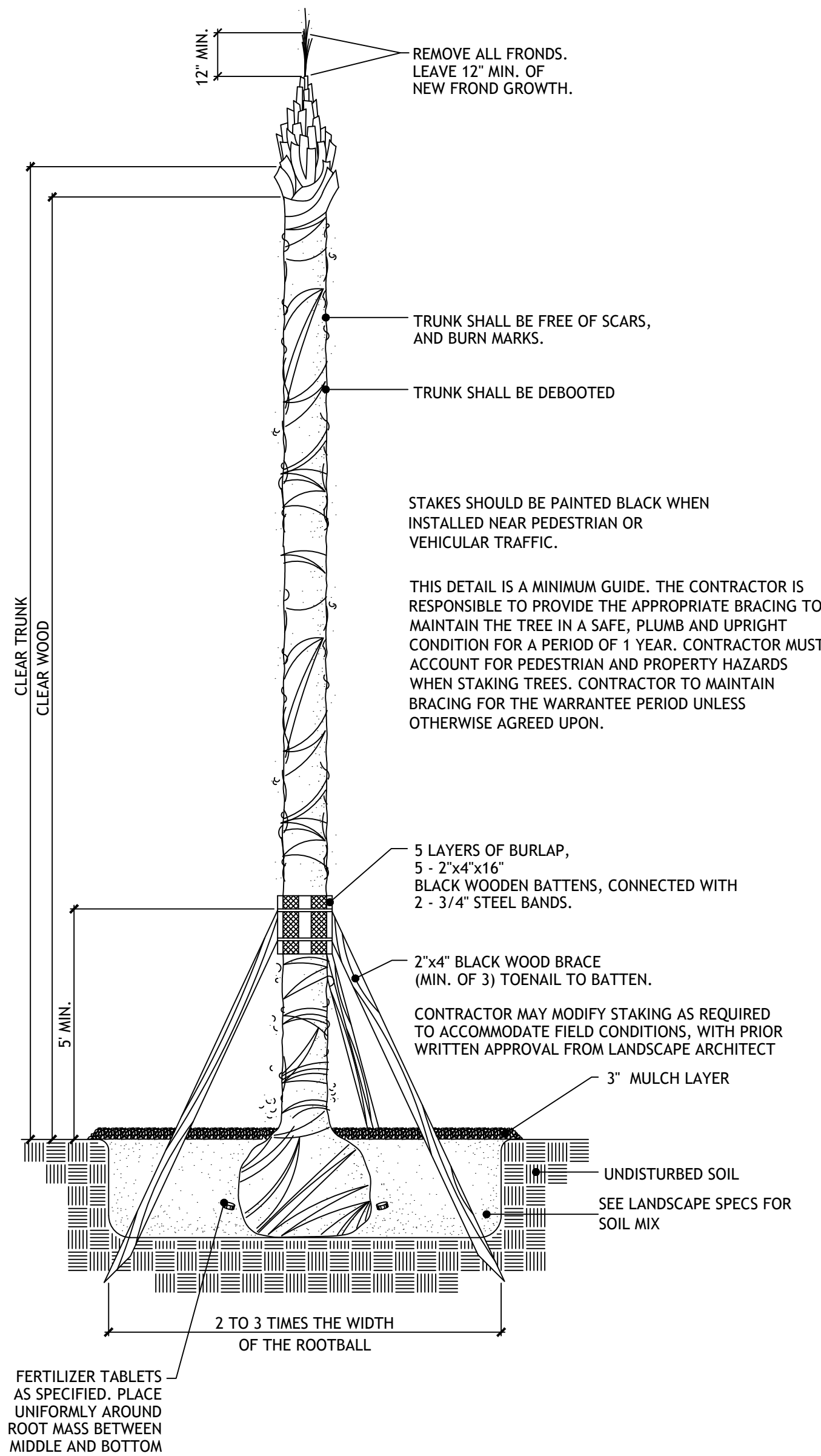
5 SHRUB AND GROUNDCOVER LAYOUT DETAIL
LD-2



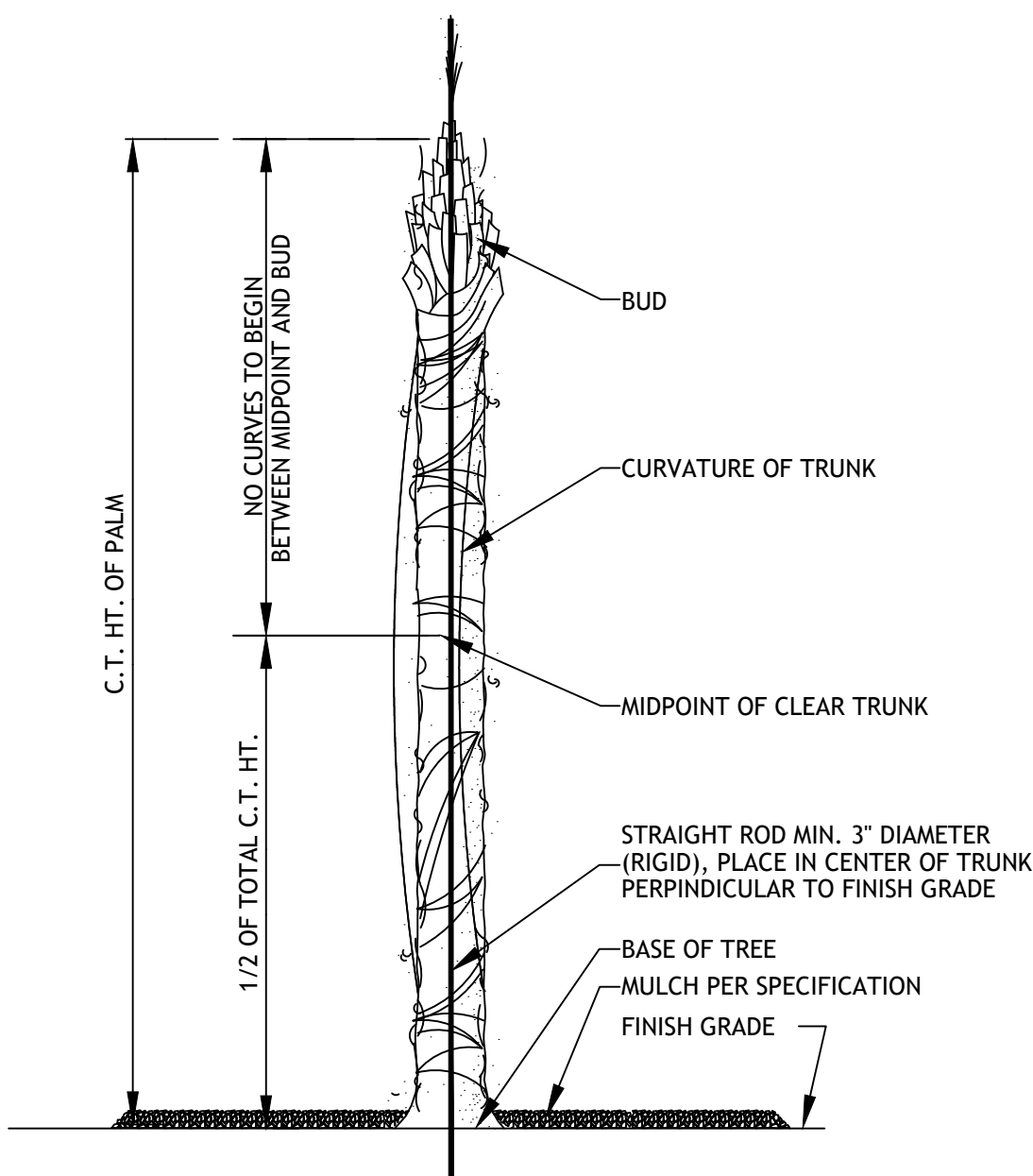
2 PALM PLANTING DETAIL (EXCEPT SABAL PALMS)
LD-2



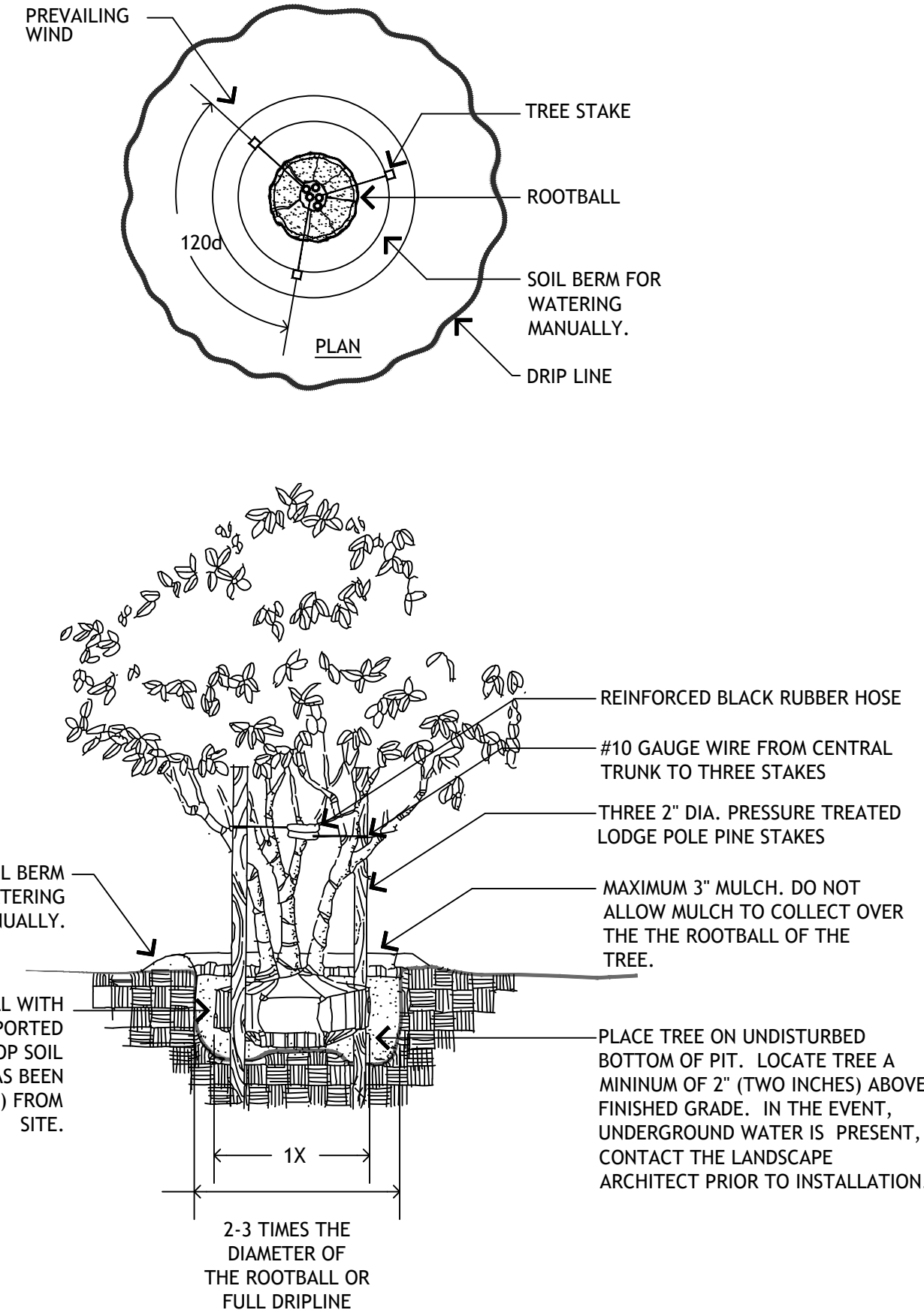
6 SHRUB PLANTING DETAIL
LD-2



3 SABAL PALM PLANTING DETAIL
LD-2



7 SABAL PALM ACCEPTABLE CURVATURE DETAIL
LD-2



4 MULTI-TRUNK TREE PLANTING DETAIL
LD-2



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LAUREL ROAD
PHASE 2 AMENITY

VENICE | FLORIDA

SIGNATURE & SEAL

FL Registration: LC26000471

REVISION 6

ISSUE DATE		
1	PERMIT SET	09-23-22
2	PERMIT SET	11-21-22
3	PERMIT SET	01-03-23
4	OWNER REVISION	11-27-23

REVISIONS

NO.	COMMENTS	DATE

SHEET INFORMATION
JOB NUMBER 20064
DRAWN BY JB/GS
CHECKED BY JB

SCALE: NO SCALE



LANDSCAPE DETAILS

LD-2

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1.00 GENERAL			
1.01 RELATED DOCUMENTS			
A. The Contract Documents shall include the Plans, Details, Specifications, Bid Proposal, Contract Agreement, all Addenda, Special Conditions, and Installation Schedule (when required).			
1.02 REQUIREMENTS OF REGULATORY AGENCIES			
A. Comply with Federal, State, Local, and other duly constituted authorities and regulatory agencies, without additional cost to the Owner in matters pertaining to codes, safety, and environmental matters.			
B. Any permits for the installation or construction of any of the work included under the contract, which are required by any of the legally constituted authorities having jurisdiction, shall be arranged for by the Contractor and paid for directly by the Contractor, unless otherwise agreed upon in writing.			
1.03 SCOPE OF WORK			
A. All provisions of Contract, including General and Special Provisions and Plans, apply to the work specified in this Section. The Scope of Work includes everything for and incidental to executing and completing all landscape work shown on the Plans, Schedules, Notes and as specified herein.			
B. Furnish and provide all labor, plants and materials, tools and equipment necessary to prepare the soil for plantings, to install and care for all plant materials (including finish grading if necessary); to remove and/or transplant existing plants if indicated; to furnish, plant, fertilize, guy and brace, water, mulch and prune all new plant materials; and to execute all other Work as described herein or indicated on the Plans.			
C. Work under this Section shall include labor and materials for final grading and raking to prepare the site for sodding, sprigging, or seeding, so finished lawn or playing field will appear even and uniform, will drain adequately, and will comply with the intent of the landscape drawings.			
D. Initial maintenance of landscape materials as specified in this document.			
1.04 QUALITY ASSURANCE			
A. Landscape work shall be contracted to a single firm specializing in landscape work, who shall in turn subcontract no more than 40% of the work specified. All subcontractors under the control of the Contractor involved in the completion of the landscape work, shall be made known to the Owner and the Landscape Architect prior to their commencement of work on the project.			
B. All work of this Section shall conform to the highest standard of landscape practices.			
C. The Plant Material Schedule included with these Plans is provided only for the Contractor's convenience; it shall not be construed as to conflict or predominate over the Plans. If conflict between the Plans and the Specifications exists, the Plan shall predominate and be considered the controlling document.			
D. During this work, the Contractor shall be responsible for maintaining safety among persons in his employ in accordance with the standards set by the Occupational Safety and Health Act of 1970 (and all subsequent amendments). Owner and Landscape Architect shall be held harmless from any accident, injury or any other incident resulting from compliance or non-compliance with these standards.			
E. The Contractor shall cooperate with and coordinate with all other trades whose work is built into or affects the work in this Section.			
F. All appropriate utility companies and agencies shall be contacted 72 hours prior to excavation. Call "Sunshine" at 1-800-432-4770.			
G. The Contractor shall carefully examine the site and all existing conditions affecting the work, such as: soil, obstructions, existing trees, utilities, etc. Report any conditions in conflict with the work to the Landscape Architect.			
1.05 SUBMITTALS			
A. The Contractor is required to submit two copies of typewritten instructions recommending procedures to be established for maintenance of landscape work. These instructions must be submitted prior to the expiration of the required maintenance period and must cover maintenance procedures over a one year period.			
B. Furnish unit prices for all plant and inert materials, including labor for all specified work.			
1.06 ALTERNATES, ADDITIONS, DELETIONS, SUBSTITUTIONS			
A. If there are additions/deletions included in these Plans and Specifications, the Contractor must propose prices to accomplish the work stated as additions/alternates at the time of bidding.			
B. The Owner, through his Project Representative, reserves the right to add or deduct any of the work stated herein without rendering the Contract void.			
C. The Contractor must have written approval by the Project Representative for any substitutions not previously agreed to in the purchase agreement: installation without approval is entirely at the Contractor's risk.			
D. All alterations acquired through additions or substitutions shall be subject to all conditions and warranties stated in the Contract.			
1.07 ABBREVIATIONS/DEFINITIONS			
A. O.A. or H.T.: The over-all height of the plant measured from the ground to the natural, united state of the majority of the foliage, not including extreme leaves, branches or fronds.			
B. C.T.: Clear trunk is measured from the ground to the bottom of the first leaf or frond stem with no foliage from ground to specified height. For example, on Canary Island Date Palms or similar, the clear trunk measurement includes the "nut" at the base of the fronds.			
C.W.: Clear wood is measured from the ground to the bottom of the base of the lowest leaf sheath or bud, trimmed in a natural manner. For example, on Canary Island Date Palms or similar, the clear wood measurement does not include the "nut" at the base of the fronds.			
D. SP.: Spread, branches measured in natural united position to the average crown diameter, not including extreme leaves, branches, or fronds.			
E. STRT: Straight trunk.			
F. MINL: Minimum.			
G. GAL: Gallon container size, i.e., 1 gallon (3.8 liters), 3 gallon (11.4 liters), 7 gallon (26.5 liters), etc.			
I. O.C.: On center, distance between plant centers.			
J. DIA: Diameter.			
K. LVS.: Leaves.			
L. D.B.H.: Diameter or caliper of main trunk of tree as measured at breast height at 4 - 1/2 feet (1.37 meters) above ground.			
M. CAL.: Caliper, the outside diameter of up to a four inch (100 millimeters) tree is measured six inches (150 millimeters) above grade, larger trees are measured at 12 inches (300 millimeters) above grade.			
N. B&B: Balled and burlapped in accordance with horticultural standards of the American Association of Nurserymen.			
O. PPP: Plants per pot.			
P. FG: Field grown.			
Q. STD: Standard, single, straight trunk.			
R. Owner: To be known as that entity which holds title or control to the premises on which the work is performed.			
S. Owner's Representative: Owner's on-site representative shall be responsible for approval of quantity and quality of materials specified and execution of installation.			
T. Contractor: Shall refer to that person or enterprise commonly known as the Landscape Contractor.			
U. Landscape Architect: This person or firm is the responsible representative of the Owner who produces the landscape Plans and Specifications.			
1.08 PRODUCT DELIVERY, STORAGE, AND HANDLING			
A. Plant Materials:			
1. Provide container grown or, if appropriate, freshly dug trees and shrubs. Do not prune prior to delivery. Do not bend or bind trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. If plant delivery is made in open vehicles, the entire load shall be suitably covered.			
2. All plants are to be handled at all times so that roots or root balls are adequately protected from sun, cold or drying winds. No root balls for trees and container plants that have been cracked or broken shall be planted upon special approval.			
3. Balled and burlapped plants shall be moved with firm, natural, balls of soil, not less than 1 foot diameter of ball to every 1 inch (25 millimeter) caliper of trunk; root ball depth shall not be less than 2/3 of root ball diameter. B & B plants which cannot be planted upon delivery shall have their root balls covered with moist soil or mulch.			
4. Trees shall be dug with adequate balls, burlapped, and wire banded if needed. Root pruning to be done a minimum of 4 weeks before removal from the field and planting at the site. Root balls may not be encased in "grow bags" or other synthetic material, except plastic shrink wrap for transport only.			
5. Remove all fronds from sabal palms prior to planting, but leave a minimum of 12 inches (300 millimeters) of new frond growth above the bud. Do not damage bud. On all other palms, only a minimum of palm fronds shall be removed from crown to facilitate moving and handling. Clear trunk shall be determined after minimum fronds have been removed. Buds shall be removed from trunk unless otherwise specified. Palms shall be planted within 24 hours of delivery.			
B. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 8 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and cover to keep roots moist.			
C. Label at least one tree and one shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name.			
D. Sod: Time delivery should that sod will be placed within twenty four (24) hours after striping. Protect sod against drying and breaking by covering pallets of sod or placing in a shaded area.			
1.09 JOB CONDITIONS			
A. Acceptance of Job Conditions			
1. The Contractor shall examine the sub-grade, verify elevations, observe the conditions under which work is to be performed and notify the Landscape Architect or Project Representative in writing of unsatisfactory conditions prior to beginning work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Landscape Architect. Start of work shall indicate acceptance of conditions and full responsibility for the work as specified in the Schedule.			
2. Proceed with and complete the landscape work as rapidly as portions of the site become available, working within the seasonal limitations for each kind of landscape work and following the approved schedule. If seasonal limitations apply, notify the Landscape Architect for adjustments to the Schedule.			
3. Determine locations of all underground utilities and review for conflicts with planting procedures.			
4. When adverse conditions to plant growth are encountered, such as rubble fill, drainage conditions or obstruction, the Contractor shall notify the Landscape Architect in writing prior to planting.			
5. Plant trees and shrubs after final grades are established and prior to the planting of lawns, protecting lawn areas and promptly repairing damages from planting operations.			
B. Scheduling of Work			
1. The work shall be carried out to completion with the utmost speed. Immediately upon award of contract, the Contractor shall prepare a construction schedule and furnish a copy to the Owner's Representative and/or the Landscape Architect for approval. The Contractor shall carry out the work in accordance with the approved schedule.			
2. If the Contractor incurs unforeseen costs, such as overtime hours, holidays, etc. in order to complete the work within the time stated in the Contract, and/or to maintain the progress schedule, all said costs shall be borne by the Contractor at no additional cost to the Owner.			
3. The Owner's Representative's may request work stoppage. Upon written request from the Owner's Representative, the Landscape Contractor shall suspend delivery of material and stop all work on the project until the work is resumed by the Owner's Representative. Upon receipt of such notice, the Landscape Contractor shall immediately confer with the Owner, the Owner's Representative, or the General Contractor with respect to any additional costs which may result from work stoppage.			
C. Utilities			
1. The Contractor shall perform work in a manner which will avoid conflicts with utilities. Hand excavate, as needed, to minimize possibility of damage to underground utilities. Maintain grade stakes set by others until removal is mutually agreed upon by all parties concerned.			
2.00 PRODUCTS			
2.01 MATERIALS			
A. Plant Materials: Nomenclature			
1. Plant species, sizes, etc. shall be per Plans and Specifications on Plant Material Schedule. Nomenclature is per Hortus Third, L.H. Bailey and E.Z. Bailey, 1976 (or latest edition) or the Standardized Plant Name Schedule by the Botanical Society of the American Joint Committee of Horticultural Nomenclature, and as conforms with names accepted in the nursery trade.			
B. Plant Materials: Quality Assurance			
1. Provide healthy, vigorous stock grown under climatic conditions similar to conditions in the locality of the project. Plants shall have a habit of growth that is normal for the species and be sound, healthy, vigorous and free from insect pests or their eggs, plant diseases, defects, and injuries. Plants shall be well-branched and densely foliated when in leaf and show healthy, vigorous growth.			
2. Trees shall be heavily branched or, in the case of palms, be heavily leaved. Some plant materials may be collected stock with the approval of the Landscape Architect. Provide tree species that have a single main trunk (central leader), unless otherwise stated. Trees that have the main trunk forming a "Y" shape or parallel branching are not acceptable.			
3. Plant materials shall be as specified and shall be Florida #1 or better as to shape and quality for the species as outlined in Grades and Standards for Nursery Plants Parts and II, Florida Department of Agriculture and Consumer Services (latest edition).			
4. The Owner or Landscape Architect reserves the right to inspect plant materials either at the place of growth or at the project site prior to planting for compliance with requirements for name variety, size, quality, or designated area.			
5. Landscape materials shall be shipped with certificates of inspection as required by governmental authorities. The Contractor shall comply with all governing regulations that are applicable to landscape materials.			
6. Do not make substitutions. If specified landscape material is not available, submit Landscape Architect proof of it being not-available. In such event, if the Landscape Architect designates an available substitute, the Contractor shall use the designated substitute. When authorized, a written change order for substitute material will be prepared, as well as any required adjustments to the Contract amount.			
7. Height and/or width of trees shall be measured from ground up; width measurement shall be normal crown spread of branches with plants in the normal position. This measurement shall not include immediate terminal growth. All measurements shall be taken after pruning for specified sizes. All trees and shrubs shall conform to measurements specified in the plant material schedule, except that plant material sizes larger than specified may be used with the approval of the Owner or Landscape Architect, with no increase to the Contract price. Plant materials shall not be pruned prior to delivery.			
8. Plant Material shall be symmetrical, typical for variety and species. Plants used where symmetry is required shall be matched as nearly as possible.			
9. Balled and burlapped plants shall have firm, natural balls of soil of sufficient diameter and depth to enclose the root system necessary for full establishment and development of the plant to conform with the standards of the American Association of Nurserymen. Root balls and tree trunks shall not be damaged by wire-rope binding and/or baling & burlapping.			
10. Container-grown plants may be substituted for balled and burlapped plants or vice-versa provided the quality is equal or better than specified and the Landscape Architect approves of the substitution.			
11. Container grown stock shall have been grown in containers for at least four months, but not over two years. If requested, samples must be shown to prove no root bound condition exists.			
C. Grasses: Sod or Seed			
1. Sod or seed (as/it specified) shall be of a species as stated on the Plan. Solid sod shall be of even thickness and with a good root structure, 95% free of noxious weed, freshly mowed before cutting, and in healthy condition when laid. It must not be stocked more than 24 hours before laying and it must be grown in soil compatible to that in which it will be installed. Sod must be kept moist prior to and after installation.			
2. Seed shall be delivered to the site in unopened bags with certification tags in place. Purity, germination and weed content shall be as certification requirements.			
D. Mulch:			
1. Mulch shall be 100% recycled wood mulch, thoroughly mixed with a pre-emergence weed killer according to the label directions. If recycled mulch is not specified, the Contractor shall install pine bark, or other as specified on the plans			
2. Install mulch to an even depth of 3 inches (75 millimeters) before compaction.			
E. Fertilizer:			
1. Granular fertilizer shall be uniform in composition; free flowing and suitable for application with approved equipment; received at the site in full, labeled, unopened bags bearing the name, trade name or trademark and warranty of the producer; fully conforming to State of Florida fertilizer laws.			
2. All fertilizer shall bear the manufacturer's statement of analysis and shall contain the appropriate minimum amounts of elements for the type of use specified herein.			
3. Agriflo 20-10-5 fertilizer tablets or approved equal, shall be placed in planting pit for all plant materials at time of installation and prior to completion of pit backfilling.			
4. Ground cover and annual areas shall receive fertilization with Oscocote Time Release Fertilizer according to product instructions and rate.			
5. For sod and seeded areas, fertilize with a complete granular fertilizer on Bahia and St. Augustine grass at the rate of one (1) pound (4536 kilograms) of nitrogen per one thousand (1,000) square feet (92.9 square meters). Fertilizer shall be commercial grade, mixed granules, with 30%-50% of the nitrogen being in slow or controlled release form. The ratio of nitrogen to potash will be 1:1 or 2:1 for complete fertilizer formulations. Phosphorus shall be no more than 1/4 the nitrogen level. They shall also contain magnesium and micronutrients (i.e. manganese, iron, zinc, copper, etc.).			
F. Tree Staking Materials			
1. For hardwood trees, approved below-grade staking shall be used at the rootball, per the planting detail. Metal strand guy wire shall not be used.			
2. For single trunk palms, stakes shall be cut from 2 inch (50 millimeter) x 4 inch (100 millimeter) pressure treated (p.t.) stock, with a minimum of 3 stakes per palm. Batten consisting of 5 layers of burlap and 5 - 2 inch (50 millimeter) x 4 inch (100 millimeter) by 16 inch (400 millimeter) wood connected with two - 3/4 inch (19 millimeter) steel bands shall be used around the palm trunk.			
3. Other tree staking systems may be acceptable if approved.			
G. Planting Soil			
1. Unless stated on the plans or in the specifications, install plant material in tilled and loosened native soil backfill. It is the responsibility of the Landscape Contractor to test, prior to planting and at no additional cost to the Contract, any soils which may be unsuitable for the vigorous growth of plants. Unsuitable conditions shall be reported to the Landscape Architect immediately in writing.			
2. When required, planting soil media shall be provided by the Contractor and shall consist of 1/3 peat and 2/3 sandy loam, with no lumps over 1 inch (25 millimeters).			
3. Backfill and clean fill dirt provided by the Contractor shall be in a loose, friable soil. There must be slight acid reaction to the soil with no excess of calcium or carbonate, and it shall be free from excess weeds, clay lumps, stones, stumps, roots and toxic substances or any other material that might be harmful to plant growth or a hindrance to grading, planting, and maintenance procedures and operations.			
4. Bed preparation for annual beds under 1 gallon (3.785 liters) container size shall consist of 3 inches (75 millimeters) of Florida peat or other approved organic soil amendment spread over full length and width of planting area. Rotolift organic layer 6 inches (150 millimeters) to 8 inches (200 millimeters) into native soil.			
H. Soil Amendments:			
1. Terra-Sorb AG or approved equal, soil amendment shall be mixed with native or planting soil for all trees, shrubs, ground cover, and annuals according to manufacturer's recommended application rates and methods, if specified on the Plans.			
I. Tree Protection			
1. Wood fencing shall be 2 inch (50 millimeters) x 4 inch (100 millimeters) pressure treated (p.t.) stock with flogging on horizontal members. Space vertical members 6 feet (1.83 meters) to 8 feet (2.44 meters) on center. The barricade shall be placed so as to protect the critical protection zone area, which is the area surrounding a tree within a circle described by a radius of one foot for each inch (25 millimeter) of the tree's diameter at breast height DBH at 4 - 1/2 feet (1.37 meters) above grade.			
J. Root Barrier System			
1. Root barrier fabric shall be installed when specified in the plans and/or specifications for protection of adjacent areas and in accordance to specific product name and equal. Install as directed by the manufacturer.			
K. Packaged Materials:			
1. Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery and while stored at the site.			
L. Pesticides			
1. Pesticides shall be only approved, safe brands applied according to manufacturer's directions.			
3.00 EXECUTION			
3.01 PREPARATION			
A. Obstructions Below Ground:			
1. It shall be the responsibility of the Contractor to locate and mark all underground utilities, irrigation lines and wiring prior to commencement of the work.			
2. If underground construction, utilities or other obstructions are encountered in excavation of planting areas or pits, the Landscape Architect shall be immediately notified to select a relocated position for any materials necessary.			
B. Grading and Preparation for Plant Materials			
1. All proposed landscape areas containing existing turf grass or weeds shall be treated for protection of the turf grass or weeds per manufacturer's specifications. All proposed landscape areas adjacent to water bodies shall be treated with Monsanto's "Rodeo" per the manufacturer's specifications.			
2. New plant materials will not be installed until a 98% weed/turf eradication has been achieved. More than one application may be required to produce an acceptable planting bed.			
3. A pre-emergent herbicide may be applied, but it is not a substitute for spray treatment of "Round-up" or "Rodeo".			
4. Should any plant material in the same, or adjacent beds be damaged by these chemicals, the same size, quantity and quality of plants shall be immediately replaced by the Contractor at no cost to the Owner.			
5. Any necessary corrections or repairs to the finish grades shall be accomplished by the Contractor. All planting areas shall be carefully graded and raked to smooth, even finish grade, free from depressions, lumps, stones, sticks or other debris and such that they will conform to the required finish grades and provide uniform and satisfactory surface drainage without puddling.			
6. The contractor shall remove debris (sticks, stones, rubbish) over 1 - 1/2 inches (38 millimeters) in any dimension from individual tree, shrub and hedge pits and dispose of the excavated material off the site.			
C. Preparation for Annual Bed Planting			
1. Prepare native subgrade by rototilling or loosening by hand methods. Spread 3 inches of Florida peat (1/3), sandy loam (1/3), or other approved organic soil amendment over the full length and width of planting area for annuals. Rotolift organic layer 6 inches (150 millimeters) to 8 inches (200 millimeters) into the native soil. Grade the planting bed by "crowning" to insure that surface drainage, percolation, and aeration occur at rapid rates. Add Oscocote time release fertilizer according to product instructions and rate.			
D. Preparation for Seeding and Sod Areas			
1. All proposed sod areas containing existing turf grass or weeds shall be treated with Monsanto's "Round-Up" per manufacturer's specifications. All proposed sod areas adjacent to water bodies shall be treated with "Rodeo" per the manufacturer's specifications.			
2. Limit preparation to areas which will be planted promptly after preparation. Loosen sub-grade of seed and sod areas to a minimum depth of 4 inches (100 millimeters).			
3. Immediately prior to any turf Work, the Contractor shall finish grade the soil to a smooth, even surface assuring positive drainage away from buildings and the subsequent turf flush to the tops of adjacent curbs and sidewalks. The surface shall be sloped to existing yard drains.			
4. A complete fertilizer shall be applied to St. Augustine or Bahia grass at a rate of one (1) pound (4536 kilograms) of nitrogen per 1000 square feet (92.9 square meters). Fertilizer shall be commercial grade, mixed granules, with 30%-50% of the nitrogen being in slow or controlled release form. Thoroughly work fertilizer into the top 4 inches (100 millimeters) of soil.			
5. Moist prepared seed and sod areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.			
3.02 INSTALLATION			
A. Berm Construction (if specified)			
1. Install berms at location and design shown on Plans and at the height and slope indicated. Height stated is for finished berm with soil at natural compaction.			
2. Exact location and configuration of berms may require modification to allow proper drainage; such changes will be coordinated with the Landscape Architect.			
3. If shown on the Plan, construct berms using clean sandy loam fill dirt which is well-drained, free of rocks, roots, or other debris, with a soil pH of an acid nature (about 6.5 to 7.0). No heavily organic soil, such as muck or peat soil, be used in berm construction.			
B. Layout of Plant Materials:			
1. Unless otherwise stipulated, plant materials shall be approximately located per the plans by scale measurements using established building, columns, curbs, screen walls, etc. as the measuring reference point. Slight shifting may be required to clear wires, prevent blockage of signage, etc.			
2. Shrubs and ground covers shall be located and spaced as noted on the plant material schedule (if provided), otherwise plants will be placed in the planting beds at the normally accepted spacing for each species.			
3. Leave a minimum 18 inch (450 millimeters) border of mulched space between outer leaves of installed plant material and the bed line, curb, or building foundation wall for all plant sizes.			
4. Any necessary "minor" adjustments in the layout of planting shall be made by the Contractor with the approval of the Landscape Architect in order to conform as nearly as possible to the intent of the plans.			
C. Repair of Damages			
1. The Contractor shall repair all damage caused by his operations to other materials, property, or trades to a level equal in quality to the existing condition prior to damage.			
2. The Contractor shall be held responsible for all damage done by his work or employees to other materials or trades' work. Patching and replacement of damaged work may be done by others, at their expense, but the cost of some shall be paid by the Contractor who is responsible for the damage.			
D. Planting Procedures:			
1. All shrubs, trees and ground covers or vines shall be planted in pits having vertical sides and being circular in outline. Planting pit shall be 3 to 5 times the width of the root ball and no deeper than the height of the root ball.			
2. Plants shall be set straight or plumb, in the locations shown, at such level that after settlement normal or natural relationship of the top of the root ball with the ground surface will be established. With regards to proper nursery practices, plants under certain conditions (i.e. low and wet areas) will benefit from being planted "high" with the root ball about 1 inch (25 millimeters) higher than the surrounding grade.			
3. All plant materials shall be fertilized with Agriflo 20-10-5 planting tablets, or approved equal, at time of installation and prior to completion of pit backfilling. Agriflo planting tablets shall be placed uniformly around the root mass at a depth that is between the middle and the bottom of the root mass.			
a. Application rate:			
1 gallon (3.8 liter)	1 - 21 gram tablet		
3 gallon (11.4 liter)	2 - 21 gram tablet		
5 gallon (18.9 liter)	3 - 21 gram tablet		
7 gallon (26.5 liter)	3 tablets each 1/2 inch (12 millimeters) caliper		
4. Native soil shall be used in back-filling plant pits or as specified. The Contractor shall be responsible for providing additional soil for building tree saucers.			
5. When balled and burlapped plants are set, undisturbed native soil shall be left under the base of the root ball to prevent voids. Backfill tilled and loosened native soil around the sides of the root ball. Remove the top 4 inches (100 millimeters) of burlap, wire, and all tie-down material from the root ball. Do not remove these materials from the bottom of the root ball. Thoroughly water-in before bringing the back-fill up to the proper grade. Roots of bare plants shall be properly spread out, and planting soil carefully worked in among them. Failure to comply is cause for rejection.			
6. Containerized plants shall be installed with undisturbed native soil left under the base of the root ball to prevent voids. Planting pit shall be 3 to 5 times the width of the root ball and no deeper than the height of the root ball. Backfill tilled and loosened native soil around the sides of the root ball. Thoroughly water-in before bringing the backfill up to the proper grade.			
7. Plant spacing shall be "on center" and varies with the different plant species. Space each variety of plant equally in the planting areas. Shrubs and ground covers adjacent to straight or curved edges shall be triangular-spaced in rows parallel to the critical protection zone area, which is the area surrounding a tree from the curb to the outside edge of the plant.			
8. All azaleas shall be placed into a prepared bed of amended soil containing 50% weed-free Florida peat, or approved equivalent. Root balls shall be scarified vertically at 120 degree angles in a triangular pattern.			
9. Sabal palms may be planted deeper than normal if conditions warrant and if approved.			
E. Sodding			
1. During periods of drought, sod shall be watered sufficiently at its origin to moisten the soil adequately to the depth to which it is to be cut.			
2. An application of 6-6-6, 40% organic, slow or controlled release fertilizer shall be made to all lawn areas just prior to the laying of the sod at a rate of one (1) pound of nitrogen (4530 kilogram) per 1,000 square feet (92.9 square meters). The ground shall be wet down before the sod is laid in place.			
3. Solid sod shall be laid tightly with closely abutting staggered joints with an even surface edge and sod edge, in a neat and clean manner to the edge of all the paving and shrub areas. Cut down soil level to 1 inch (25 millimeters) to 1 - 1/2 (38 millimeters) inches below top of walks prior to laying sod.			
4. Within 2 hours after installing sod and prior to rolling, irrigate the sod. Sufficient water shall be applied to wet the sod thoroughly and to wet the sod to a depth of 2 inches (50 millimeters). The sod shall be rolled in a manner that will avoid erosion due to the application of excessive quantities, and the watering equipment shall be of a type that will prevent damage to the finished sod and surface. Watering shall be repeated as necessary to keep sod moist until rooted to subgrade.			
5. The sod shall be pressed firmly into contact with the bed bed using a turf roller or other approved equipment so as to eliminate air pockets, provide a true and even surface and insure knitting without any displacement of the sod or deformation of the surfaces of sodded areas. After the sodding operation has been completed, the edges of the area shall be smooth and shall conform to the grades indicated.			
6. If, in the opinion of the Landscape Architect, top dressing is necessary after rolling, top silica sand shall be used to fill voids. Evenly apply sand over the entire surface to be leveled, filling-in dips and voids and thoroughly washing into the sod areas.			
7. On slopes steeper than 2:1 and as required, the sod shall be fastened in place with suitable wooden pins or by other approved method.			
F. Seeding			
1. Seed shall be installed per the specifications of the State of Florida Department of Transportation. See plan for type of seed.			
F. Tree Guying, Bracing and Staking:			
1. Tree guying, staking and bracing shall be the responsibility of the Contractor per sound nursery practices, and shall be done per details shown on the Plans. For trees, 2 ropes per tree, or an optional 3 to 4 ropes per tree, shall be used. The spacing shall be used. Stakes shall be installed per the manufacturer's directions. All hardwood trees shall be staked with below-grade staking.			
2. For single trunk palms, a minimum of 3 stakes per palm at 120 degree spacing shall be used. Tensel the stakes to batten consisting of 5 layers of burlap and 5 - 2 inch (50 millimeter) x 4 inch (100 millimeter) by 16 inch (400 millimeter) wood connected with two - 3/4 inch (19 millimeter) steel bands. Palms shall be staked with a minimum of 5 feet (1.5 meters) of stake above grade.			
3. Contractor shall remove all palm guying, staking, and bracing from trees six (6) months after the date of final acceptance of the landscape work.			
4. Contractor shall not remove below-grade staking and bracing from hardwood trees after the date of final acceptance of the landscape work.			
5. Stake only trees that require support to maintain a plumb position or are in potentially hazardous areas.			
G. Mulching			
1. All planting beds shall be weed-free prior to mulching.			
2. All curb, roadway, and bed line edges will be "trenched" to help contain the applied mulch.			
3. All plant balls and tree rings shall be mulched evenly with a 3 inch (75 mm) layer (before compaction) of 100% recycled wood mulch, or other mulch as specified on the Plans or General Notes.			
4. Mulch shall not be placed against the trunks of plant materials or foundations of buildings. Maintain a minimum 3 inch (75 millimeters) clearance for trees and shrub trunks and a minimum 6 inch (150 millimeters) clearance for the walls of buildings.			
5. For beds of annual flowers, a 12 inch wide (300 millimeter) x 3 inch (75 mm) deep band of mulch shall be installed in front of the first row of annuals. Maintain a minimum 6 inches (150 millimeters) of non-mulched clearance from the outside edge of annuals.			
H. Pruning			
1. General pruning to maintain the natural shape and form of the plant shall be done by experienced personnel. Complex pruning operations or treatment of diseased tree members shall be done by a licensed arborist.			
2. Upon acceptance by the Owner, prune any broken branches, remove crossed branches, and branches hanging below the clear trunk of the tree.			
I. Clean-up			
1. During landscape work, store materials and equipment where directed by the Owner.			
2. The Contractor shall promptly remove any materials and equipment used on the job, keeping the area neat at all times. Upon completion of all planting, dispose of all excess soil and debris leaving pavements and work areas in a safe and orderly condition.			

SECTION 02441 – IRRIGATION

PART 1 –GENERAL

1.01 RELATED DOCUMENTS

A. The Bidding, Contractual and Special Conditions apply to all work hereunder.

B. Related work specified or as shown elsewhere:

1. SECTION 02900 – LANDSCAPE

1.02 SCOPE OF WORK

A. Provide all labor, materials to install the specified Irrigation System as shown on the drawings and stated in the Technical Specifications.

B. Connection to existing water source on property at location shown on the drawings.

1.03 QUALITY ASSURANCE

A. Comply with Federal, State, County, Local and other duly constituted authorities and regulatory agencies.

B. Installation and materials shall conform to the Standards and Specifications for Turf and Landscape Irrigation Systems, Florida Irrigation Society, and the current *Uniform Plumbing Code*, *Uniform Mechanical Code*, state statutes and prevailing county and/or municipal ordinances.

1.04 JOB CONDITIONS

A. Responsibility to the Owner: The Contractor shall not willfully install the plumbing irrigation system as specified in the Contract Documents when it is obvious in the field that there are obstructions, grade differences and/or discrepancies in area dimensions until such conditions are brought to the attention of the Landscape Architect.

B. Utilities and Structures: Attention is directed to the fact that overhead, underground and surface utilities, structures and vegetation are in the area of the work and must be protected against damage during the progress of the work.

C. Protection and Safety: The Contractor shall be responsible and liable for the protection and safety against injury of property and persons on or about the project site during the term of his work. The Contractor shall provide and properly maintain necessary warning signs and lights, barricades, rollings and other safeguards. The Contractor shall conform with the current Occupational Safety and Health Standards.

D. Site Familiarity: The Contractor shall visit the project site to examine such conditions as soils, vegetation, utilities, structures, water supply, etc., as they will influence the work pursuant to bid submission and/or contract execution.

E. Utility Connections: Location of utility connections shall be shown on the plans or as shown by the utility company. The Contractor shall include in his bid all costs for such utility connections.

1.05 SUBMITTALS

A. Submit the following:

1. Submit proposed work schedule.

2. Product Data: Submit six (6) copies of manufacturer's technical data and installation instructions for underground sprinkler system. Submit samples of all materials and equipment to be installed on the project.

3. Equipment: Submit a schedule of equipment to be installed, to include: automatic controller, zone control valves, gate valves, vacuum breaker valves, pressure throttle valves, direct burial wire , pop-up rotor heads, pop-up spray heads, fixed shrub heads, bubbler heads, special purpose heads, emitter pipe, filters, fittings and valve boxes.

4. Design Data: Submit any all design data required under these specifications for all areas not shown on the irrigation plans that need irrigation rework of the existing system

1.06 DEFINITIONS AND ABBREVIATIONS

A. The Definitions and abbreviations given here below shall be considered a part of these specifications and shall apply to the interpretation and execution hereof.

1. P.S.I.: Static water pressure shall be given as pounds per square inch, abbreviated P.S.I., and where (1) P.S.I. shall equal 2.31 feet of head.

2. G.P.M.: Volume of water shall be given as gallons per minute abbreviated G.P.M.

3. Zone: A zone shall be defined as a group of heads or emitter pipes operating at the same time downstream under a common control valve. A zone shall be derived as further described hereinafter on the basis of available water pressure and volume and physical location/orientation.

4. P.V.C.: P.V.C. shall denote the abbreviation for polyvinyl chloride (schedule 40) material used in the manufacture of pipe and fittings as further specified hereinafter.

5. Polypipe and Polyconnectors: A flexible polyethylene pipe and fittings used in swing joints, head and pipe connectors and emitter systems.

6. Owner: That entity which holds title or control to the premises on which the work is performed.

7. Landscape Architect: This person or firm is the responsible representative of the Owner who produces the landscape and/or irrigation plans and specifications.

8. Contractor: In reference to these specifications, the "Contractor" shall mean the irrigation contractor bidding on and/or being awarded the contract for the work stipulated. Said Contractor shall be duly licensed and insured as an irrigation supplier/contractor to perform necessary water supply and distribution functions in the state, county and municipality where the work is to be executed. The project as referenced herein shall be that tract of real property where the irrigation system is to be installed.

9. Project: The project as referenced herein shall be that tract of real property where the irrigation system is to be installed.

10. Contract Documents: For the purposes of bid submission, contract agreement and execution of the work, the contract documents shall be binding upon all parties and shall include but not be limited to applicable plans, details, schedules, specifications and bidder instructions.

11. Equivalency: Relevant to manufacturer product lines specified herein, equivalents shall be of like type, manufacture, design, material, operation and performance. They shall be approved by the Landscape Architect.

12. The Plans: Design drawings and specifications provided by the Landscape Architect. In the event of conflict between the plans and the written specifications, the plans shall prevail.

PART 2 – MATERIALS

2.01 PRODUCTS

A. All material shall be of new stock and best grade of its kind. It shall be as specified unless otherwise specifically approved by the Landscape Architect. Materials not named shall be subject to approval or rejection by the Landscape Architect. In all cases, workmanship and material shall conform to the local plumbing code having jurisdiction. Materials shall be installed as recommended by the Manufacturer.

B. Available Manufacturers:

1. Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:

- a. Rain Bird Sprinkler Mfg. Corp.
- b. Hunter Industries
- c. Netafim Irrigation
- d. The Toro Co., Irrigation Division

C. Products the contractor wishes to substitute as an "Approved Equivalent" must be submitted to the Landscape Architect, in writing, a minimum of ten (10) days prior to the bid date. The Landscape Architect will provide either an approval or rejection of all products submitted in this fashion.

D. Plastic pipe shall be rigid, high impact, Type I, un-plasticized polyvinyl chloride. The pipe shall be homogeneous throughout and free from visible cracks, holes, foreign materials, blister, deleterious wrinkles or dents and shall conform to the following dimensions and physical properties:

1. All plastic pipe shall be continuously and permanently marked with manufacturer's name, kind of pipe, material size, IPS, NSF approval, schedule and type.

2. Plastic pipe shall be as manufactured by Losco, Celanese, Pacific Western, Johns Manville, Colonial, Universal, or as by specific emitter manufacturer.

3. Polyethylene pipe to be used for swing joints (for spray heads only), connectors or emitters, at appropriate P.S.I. ratings.

E. All main and lateral line piping used on this project shall be Schedule 40 P.V.C. unless otherwise approved in writing by the Landscape Architect and the Owner.

F. Pipe Fittings:

1. Plastic pipe fittings to be installed shall be medium weight injection molded for virgin Type II high impact un-plasticized rigid polyvinyl chloride (P.V.C.) molding compound. All plastic slip couplings shall be extruded fittings from same material as specified for plastic piping herein, unless otherwise approved by the Landscape Architect. Plastic pipe cement and lubricant shall be as recommended by pipe manufacturer.

2. Galvanized pipe and fittings: Where indicated, or required by code, use galvanized steel pipe ASA schedule 40 mild steel screwed pipe. Fittings shall be medium galvanized screwed, beaded malleable iron. Galvanized couplings may be a merchant coupling.

3. Under Pavement Lines: All piping under concrete and asphalt vehicle pavement, curbs, unpaved areas subject to other than normal loads shall be rigid P. V. C. Schedule 40.

G. Sprinkler Risers and Connectors:

1. Shrub risers are to be Schedule 40.

2. Pop-up spray connectors (from tee to head base) are to be threaded, flexible polyethylene.

3. Pop-up rotor connectors (from tee to head base) are to be rigid 1" Schedule 80 PVC or Marxel swing joints.

H. Valves:

1. Manufacturer's standard, of type and size required, and as herein further specified, clearly identified with purple markings or labels for Reclaimed Waste Water.

2. Automatic Circuit Valves: Globe or angle configuration valves operated by low-power solenoid, normally closed, manual flow adjustment. All electric/hydraulic control valves shall be fully compatible with the automatic controller with respect to the type of control, voltage, amperage or pressure specifications and "normal" sequence positioning.

3. Quick Coupling Valves (if specified): Shall have a brass two-piece body designed for working pressure of 150 P.S.I. operable with a quick coupler. Key size and type shall be as shown on the plans or presented in the equipment schedule. Cover to be clearly identified by purple markings for Reclaimed Waste Water.

I. Sprinkler Heads:

1. Manufacturer's standard unit designed to provide uniform coverage over entire area of spray shown on drawings at available water pressure. Top of head to be clearly identified with purple markings for Reclaimed Waste Water.

2. Pop-Up Spray: Fixed or adjustable pattern, with screw-type flow adjustment and stainless steel retraction spring.

3. Pop-up Rotary Sprays: Gear driven, full circle and part circle.

J. Valve Boxes:

1. All gate and control valves shall be set in valve boxes with snap lock covers flush with finished grade. Valve boxes shall be "Nelson 8500" or "Ametek".

K. Automatic Control System:

1. The automatic controllers shall be as specified on the Plans or shall be of a capacity as required to efficiently operate the zones throughout the building and parking lot sites. The 120 volt electrical power to the automatic controllers location is to be furnished by the Owner (See Facilities Manager for exact controller location). Irrigation Sub-Contractor shall make all connections in the low-voltage system between the automatic controller and the valves.

2. Schedule the controller time clocks to operate the system control as nearly as possible between the hours of 11:00 P.M. and 7:00 A.M. and on the days required by local watering guidelines for deep well water source systems.

L. Sleeves and Conduits:

1. All pipe and wiring under paving shall be placed in separate Schedule 40 P.V.C. sleeves and conduit respectively for the full pavement covered length. Sleeves and conduit are to be installed as shown on the Irrigation Plan or determined in the field. Sleeves and conduit shall be of adequate diameter to accommodate the pipe(s)/wire(s) with sufficient free play to allow removal and reinstallation without binding.

M. Control Wiring:

1. Connections between the automatic controllers and the electric control valves shall be made with direct burial wire AWG_U.F. #14-800 volt. Use red for pilot wire and white for common wire. Install in accordance with valve manufacturer's specifications and wire chart. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply or lateral lines wherever possible. Place wire under water lines. Where more than one (1) wire is placed in a trench, the wiring shall be taped together at intervals of ten (10) feet. Tape to the bottom of the mainline at (8) foot intervals when in common trench. When wire only is placed in a trench, place under a continuous strip of subgrade: use pressure-treated southern yellow pine, 1" x 2", and attach to board at (8) foot intervals. An expansion curl shall be provided within three (3) feet of each wire connection and at least one hundred (100) feet in length. Expansion curls shall be formed by wrapping at least five (5) turns of wire around a pipe 1" (or more) in diameter, then withdrawing pipe. All splices shall be made with per-ute fasteners. All control wiring or tubing routed beneath or through pavements, walks, curbs and/or other structural elements shall be run through P.V.C. Schedule 40 conduit of sufficient diameter for wire and tubing. All conduit and sleeves for irrigation pipes and control wiring shall be installed by the irrigation sub-contractor. The 120 volt electrical power to the controller location is to be furnished by the Owner.

N. Valves:

1. General: Manufacturer's standard, of type and size required, and/or as specified on the Plans.

2. Gate Valves shall conform to federal specification WWV 54, Type I, Class A, with all brass or bronze body, non-raising stem, "Kennedy #427" or "NIBCO #T_113".

3. Valves shall be clearly identified with purple markings and labels when Reclaimed Waste Water is used.

4. Automatic Circuit Valves: Globe or angle configuration valves operated by low-power solenoid, normally closed, manual flow adjustment. All electric/hydraulic control valves shall be fully compatible with the automatic controller with respect to the type of control, voltage, amperage or pressure specifications and "normal" sequence positioning.

5. Quick Coupling Valves: When specified, shall have a brass two-piece body designed for working pressure of 150 P.S.I. operable with a quick coupler. Key size and type shall be as shown on the plans or presented in the equipment schedule.

6. Other Valves: shall be as stated on the Plans.

O. Filters:

1. A Vu-Flow 60 mesh filter is required on all emitter systems. One filter will be required for each source of supply. Filters shall be located underground in an appropriately-sized meter box.

P. Backflow Prevention: (if applicable)

1. Backflow prevention shall be as approved by the local governing body.

Q. Emitter Pipe:

1. Emitter pipe shall be manufactured by one of the aforementioned suppliers for the express purpose of subsurface irrigation.

2. Pipe shall have prefabricated irrigation orifices placed 12 inches on center.

3. Emitter pipe, if different than those stated herein, must be approved in writing by the Landscape Architect.

PART 3 – EXECUTION

3.01 SYSTEM DESIGN

A. General:

1. The Contractor shall provide any additional irrigation design data required to complete the Contract Documents. All Contractor submitted design data must provide for a 100% coverage to all planting and sodded areas to be irrigated as shown on the plans.

B. Design Liability:

1. All irrigation design data provided by Contractor shall be the full liability of the Contractor. All such design data shall be consistent with manufacturer's materials and installation methods, code compliance, coverage, application, distribution and operation and the provided plans and technical specifications.

C. Design Pressures:

1. Design Pressures should be as recommended by the pipe and fitting manufacturer type of pipe selected, or as indicated on drawings.

D. Emitter Pipe Locations:

1. If design data is required, the Contractor is to provide final layout plans of the emitter system specified to reflect the zone and valve locations, and specified coverage.

2. The application rate shall not exceed the intake rate of the soil, and as recommended by the Manufacturer.

3. The system shall provide the capability of accomplishing complete watering of the entire area or areas, for the particular combination of soil type and vegetation being irrigated, within a period of time no greater than that currently being recommended by recognized authorities.

4. Friction losses for pipe will be determined by the Hazen-Williams Formula. The retardance coefficient for P.V.C. pipe shall be 150 and for galvanized steel pipe 100. "C" factors for other products shall be determined from *Marx Mechanical Engineers Handbook* or other comparable friction loss tables. Maximum water velocity shall not exceed 5 feet per second in any part of the system.

3.02 INSTALLATION

A. Comply with all requirements of the Uniform Plumbing Code.

B. Layout

1. The locations of heads are approximate. Make minor adjustments as necessary to avoid plantings and other obstructions and to obtain coverage. Pipe may be shown in building, concrete, and/or asphalt areas for clarity only. Locate all pipe in planting areas where appropriate.

2. Emitter lines shall be installed as shown on the Plans.

C. Excavation/Trenching

1. Trenches shall be dug straight. Trench bottoms shall be at true gradient providing support to pipe through its entire length and shall be free from rocks, clods, debris and sharp-edged objects. The minimum depth of lines measured to top of pipe, unless otherwise indicated on plans, shall be:

- a. Main lines and quick coupler lines shall be 18".
- b. Lateral sprinkler lines shall be 12".
- c. Non-pressure rotor head lines shall be 15".

d. Emitter lines shall be 6" above finish grade.

e. Provide minimum cover of 18" for all control wiring.

2. Where required or indicated on the plans, existing sod shall be removed where trenches are to be dug, and shall be protected from drying and replaced within 48 hours. Sod shall be cut in such a manner that a minimum of 2" of soil remains on the roots. The soil should be moist, but not wet, to prevent excessive loss due to crumbling. This Irrigation Sub-Contractor shall have all the responsibilities to maintain sodding and grass: trees, shrubs, and plants; as required by Section 02900. This Irrigation Sub-Contractor may, at his option, contract with the Landscape, sodding and grass Sub-Contractor to handle this responsibility.

3. Back-fill shall not be placed until the installed irrigation system has been thoroughly inspected and tested by the Contractor (the Landscape Architect may request an inspection by his own personnel prior to back-filling of trenches). Back-fill material shall be approved soil, free from large rocks, debris or sharp objects. In general, the material removed from excavation may be used. Excavated rocky material shall be removed from the site and suitable fill material obtained for back-fill. Back-filling shall be done when pipe is not in an expanded or contracted condition due to temperature extremes. Coaling of the pipe can be accomplished by operation of the system for a short time before back-fill, or by back-filling in the early part of the morning before the heat of the day. Long runs of P. V. C. pipe shall be "snaked" in the trench to allow for contraction. Back-fill shall follow excavation with the least possible delay. Open trenches shall be adequately protected to cause the least possible hazard to and interference with people and animals. Back-fill shall be compacted in compliance with Earthwork Section. The operation shall be repeated until finished grade of back-filled trenches matches that of adjacent soil.

D. Water Connection:

1. Connect irrigation system to existing source on site. Connection shall include but may not be limited to the installation of appropriate gate valves, shut-off valves, and concrete meter box as required. Coordinate time of connection with affected persons in order to minimize irrigation downtime. Required modifications and/or relocations of equipment associated with the existing well shall be included in the irrigation work.

2. Municipal and County regulations must be adhered to during this and all other portions of work in this section.

E. Circuit Valves:

1. Provide union on downstream side.

2. Adjust automatic control valves to provide flow rate of rated operating pressure required for each sprinkler circuit.

3. Wherever possible, locate valves in plant bed areas for best concealment and accessibility.

4. Valves are to be installed in "Ametek" valve boxes, large enough to accommodate maintenance and operation of valves. Provide a 1/2" diameter river gravel sump 3" thick at bottom of valve pit.

F. Piping

1. Pipe shall be handled and stored in a manner to prevent damage. The plastic pipe and fittings shall be stored under cover, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lie flat so as not to be subject to undue bending or concentrated stress. Plastic pipe that has been dented or damaged shall not be used unless such damage has been cut and pipe is rejoined with a coupling.

2. Clean interior of pipe thoroughly and remove all dirt or foreign matter before lowering pipe into trench. Keep pipe clean during operations by plugs or other approved methods. The ends of all threaded pipe shall be reamed out full size with a long taper reamer so as to be partially bell-mouthed and perfectly smooth. All offsets shall be made with fittings. All water lines shall be thoroughly flushed out before heads are installed.

3. Lay pipe on solid sub_base, uniformly sloped without humps or depressions.

4. Install P.V.C. pipe in dry weather when temperature is above 40 degrees Fahrenheit in strict accordance with manufacturer's instructions. Allow joints to cure at least 24 hours at temperature above 40 degrees Fahrenheit before testing, unless otherwise recommended by manufacturer.

5. Welded joints shall be given at least 15 minutes set-up curing time before moving or handling. Pipe shall be partially center loaded to prevent arching and whipping under pressure. Plastic pipe shall be cut with a hand saw, hacksaw or other tool approved for such use in a manner so as to insure square ends. Burrs at cut ends shall be removed prior to installation so that a smooth unobstructed flow will be obtained. All plastic-to-plastic joints shall be solvent_weld joints. Only the solvent recommended by the pipe manufacturer shall be used. The solvent_weld joints shall be made in the following manner:

a. Thoroughly clean the mating pipe and fitting with a clean dry cloth.

b. Apply primer to all connections prior to applying solvent. Use only compatible primer following manufacturer's specifications.

c. Apply a uniform coat of solvent to outside of the pipe with a non_synthetic bristle brush. Apply solvent to the fitting in a similar manner.

d. Reapply a light coat of solvent to pipe and quickly insert it into the fitting. Give the pipe or fitting a quarter turn to insure even distribution of the solvent and make sure that the pipe is inserted to the full depth of the fitting socket.

e. Hold in position for 15 seconds. Wipe off excess solvent that appears at the outer shoulder of the fittings.

f. Care shall be taken so as not to use an excess amount of solvent thereby causing a burr or obstruction to form on the inside of the pipe. The joints shall be allowed to set at least 24 hours before pressure is applied to the system.

E. Pipe jointing, in general, shall be performed by competent tradesmen specially trained in the type of work required and using tools and equipment recommended by the manufacturers of the pipe, fittings or equipment.

F. Galvanized Steel Pipe and Fittings: Threads shall be sound, clean cut, and well fitting. Threaded joints shall be made up with the best quality pure joint compound or lead paste, carefully and smoothly placed on the male threads only, throughout the system. Any leaky joints shall be remade with new material. Use of thread cement or caulking to make joints tight will not be permitted. All cut ends shall be remade to full bore before assembly.

G. Plastic to Steel Connections: Male thread plastic to female thread steel shall be used. The same shall apply to plastic and brass or other metal. In no case shall metal be screwed into a plastic fitting. A non-hardening pipe dope such as "Permatex No. 2", or equal, shall be used on threaded plastic to metal joints, and light wrench pressure should be used.

H. Hose bibs:

1. If specified, shall be installed up stream of the electric valve in the same meter box. (Hose bibs may be used with a pressure gauge to check operating pressure.)

I. Miscellaneous Emitter Equipment:

1. Pressure gauges and other miscellaneous equipment may be required by the manufacturer for ideal operation of the emitter system. The Contractor shall provide all necessary equipment for the full operation of the emitter system as recommended by the manufacturer.

J. Sprinkler Heads and Adjustment:

1. Sprinkler heads shall be installed in a plumb position at intervals not to exceed the maximum spacing specified by the manufacturer for project conditions, or as indicated on the drawings.

2. Heads in turf areas shall be installed 2" minimum to 6" maximum away from the edge of the curb or walk, and shall be set 3/8" below the edge of the curb or walk. All heads shall be installed on flexible connectors or swing joints and shall allow for vertical adjustment of heads. 6" pop-up spray heads or pop-up rotors (where appropriate) shall be used in turf areas.

3. All groundcover areas, including mass plantings of dwarf shrubs not exceeding 22", shall be irrigated with 12" pop-up spray heads and extenders.

4. Shrub risers shall only be installed in hedges or mass plantings of large shrubs and are not to extend more than 3" above the installed height of the shrub. If risers are used in hedges abutting parking areas, they must be placed a minimum of 30" away from back of curb and imbedded in hedge so as not to be seen or damaged by vehicle overhang. All risers and other above-ground piping and fixtures shall be painted with a permanent flat black enamel point. Stake all risers over 2' with 1/4" reinforcing rod fastened securely to riser.

5. Provide swing joints on all pop-ups and rotors located adjacent to vehicular and pedestrian ways. Flexible polypipe may be used as swing joints for spray heads only. All rotor heads shall be installed with rigid 1" Schedule 40 PVC swing joints.

6. Pop-up heads adjacent to vehicle pavement that is not curbed shall be installed with concrete donut protectors set flush with the top of the heads. Heads installed adjacent to pedestrian curbs or walks shall be installed 6" away from the curb or walk. Where adjacent to buildings, fences or similar structures, heads shall be installed 6" away from the structure.

7. Install no multiple assemblies on plastic lines. Provide each assembly with its own outlet.

8. Adjustable sprinklers shall be adjusted by fully opening the sprinkler farthest from the control valve. The manual adjustment of the control valve shall be opened slightly to obtain a 12" high spray at the sprinkler mentioned above. After this condition has been met, all other sprinklers in the section shall be adjusted for equal height sprays, regulating the control valve as required maintaining this condition. With pressure gauge on the sprinkler first opened, the control valve shall be adjusted to obtain the catalog rated pressure for the sprinkler installed. Individual heads shall be rotated as required to keep sprays within the areas of lawn or shrubbery. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, make such adjustments prior to planting. Adjustments may also include changes in nozzle sizes and degrees of arcs as required.

3.03 SYSTEM CHECK

A. In no event shall the Contractor cover up or otherwise remove from view any work under this contract that has not been thoroughly inspected and tested. The Owner and/or Landscape Architect shall be present at time of inspection and testing. Any work covered prior to being inspected shall be opened to view by the Contractor at his expense. Notify the Owner and Landscape Architect when testing will be conducted.

B. Pressure Testing: All pressure lines shall be tested prior to back-fill of joints. As soon as lines are connected, flushed out, and valves are attached, cap all outlets and hydrostatically test at available pressure for a continuous 4 hour period, at the end of which the lines and joints shall be inspected. If leaks develop, the joint or joints shall be replaced, and the tests repeated until all leaks are repaired. Any covered pipe found to leak, shall be excavated and repaired at the Contractor's expense.

C. Operational Testing: The entire installation shall be placed in operation by the Contractor and tested in the presence of the Owner or his Representative for proper functioning as a whole. Location and arc of heads shall be adjusted if required to eliminate any dry spots, over-water or spillage on adjacent areas and to prevent over-spray onto walks, roadways and buildings as much as possible.

3.04 AS BUILT RECORDS AND ADDITIONAL EQUIPMENT

A. Furnish record drawings of "as built" conditions as follows:

1. Location of water supply.

2. Tie_in and Owner furnished electrical service and disconnects.

3. Location of valve controllers and other control equipment.

4. Routing and sizing of sprinkler pipe.

5. Location and type of sprinkler heads.

6. Location and size of gate and zone control valves.

7. Routing of zone control valve electrical wiring.

8. The location of all "as built" conditions different from the original drawing shall be to scale from permanent points of reference. Exact location of main lines, control cables, and control valves shall be shown.

B. The Contractor shall provide as part of this contract two sets of sprinkler wrenches for adjusting, cleaning or disassembling each type of sprinkler. Two each of any special tools required for any other equipment shall also be furnished.

C. Six (6) service manuals for all equipment used shall be furnished to the Owner. Manuals may be loose_leaf and should show drawings or exploded views of equipment and catalog number. Operation instructions for all equipment shall be furnished.

3.05 WARRANTY

A. The Irrigation Sub-Contractor and Contractor shall Warranty all materials employed in the irrigation installation, are installed as specified and is in accordance with best trade practices. The Warranty shall also state there are no unauthorized substitutions of materials.

B. The Irrigation Sub-Contractor and Contractor shall warrant the work for a period of one (1) year.

C. The Contractor shall be responsible to replace all plant materials which have declined in health or have died due to a defective irrigation system. The Contractor shall replace affected plants with plants of some variety and value within ten days of notice.

D. Corrections: Should any trouble develop within the specified warranty period which in the opinion of the Owner is due to inferior or faulty materials and/or workmanship, the trouble shall be corrected without delay by the Contractor, to the satisfaction of and at no expense to the Owner.

E. Liability: Any and all damage to rain water drains, water supply lines, gas lines and/or other service lines, shall be repaired and made good by the Contractor at no extra cost to the Owner. It is the responsibility of the Contractor to be aware of the location of all utilities or other permanent or non-permanent installations and to protect these installations from any damage whatsoever.

END OF SECTION



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AMENITY

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SIGNATURE & SEAL

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