

CIRRUS

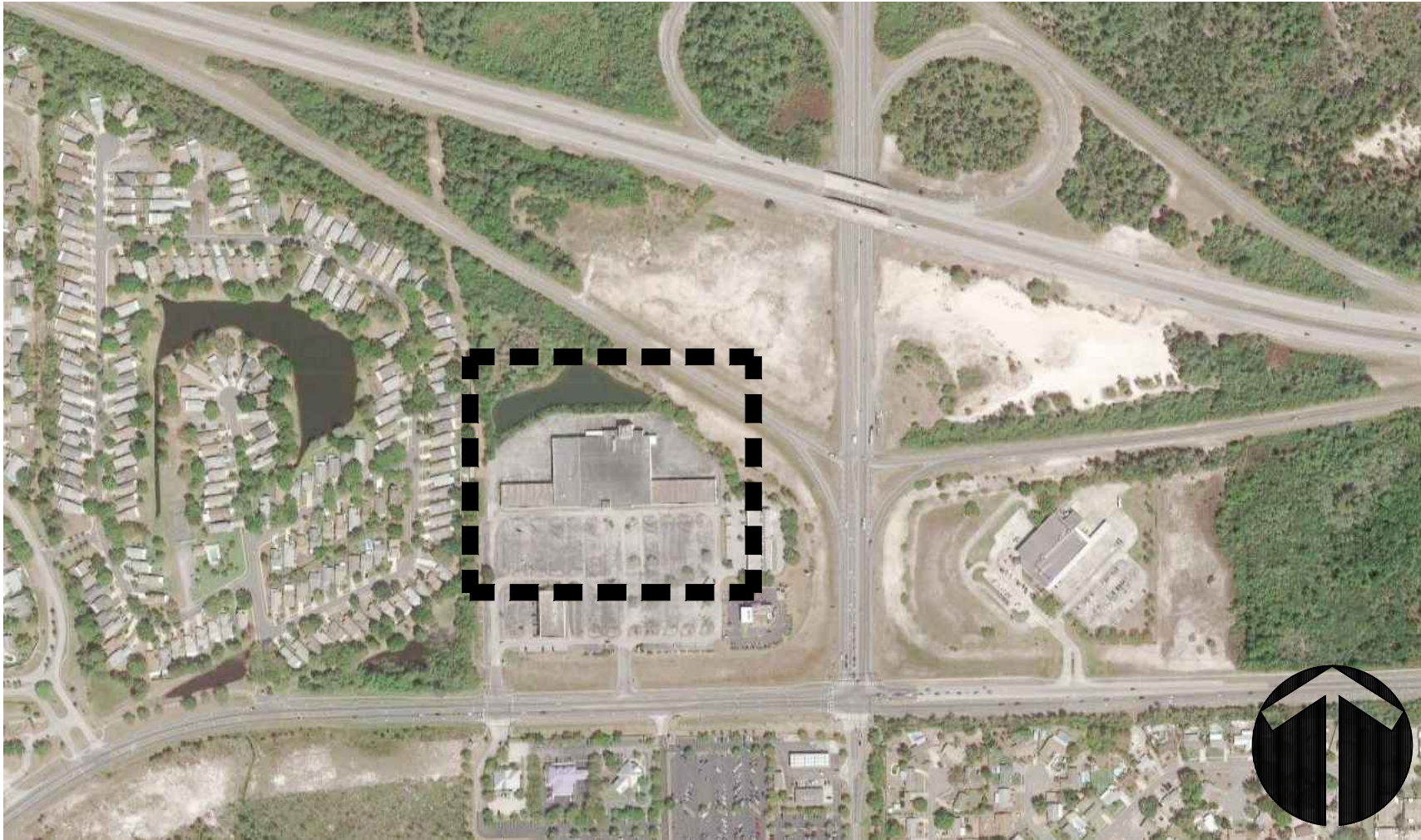
FRAMEWORK GROUP LLC

WILLIAMSON BLVD. | COCOA, FL 33606

CONSULTANTS

Client	FRAMEWORK GROUP LLC 1200 W. PLATT ST. STE. 201 TAMPA, FL. 33606
Civil Engineer	B.S.E. CONSULTANTS, INC. 312 S. HARBOR CITY BLVD. #4 MELBOURNE, FL 32901
Architect	CHARLAN BROCK & ASSOCIATES 1770 FENNEELL ST. MAITLAND, FL

PROJECT SITE VICINITY MAP



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SITE FURNISHING SCHEDULE				
I.D.	QTY.	SYM.	TYPE	SPECIFICATION
SF-1	2		BENCH	TOURNESOL - YARRABILBA COLLECTION MODEL: YC-0200-72, SURFACE MOUNT, NO ARMS, WITH BACK, WOOD FINISH: BOULEVARD TREATED ASH, POWDER COAT: PUDDLE. FOR ORDER INFORMATION CONTACT BRIAN MITALO 847 867-9290
SF-2	1	N.A.	BUILT-IN BENCH	TOURNESOL - WALLY COLLECTION MODEL: LY-A30-72, WOOD AND STEEL WALL-HUNG FLAT BENCH, BOULEVARD TREATED ASH, POWDER COAT: PUDDLE. RADIUS OF CURVE: 5'. FOR ORDER INFORMATION CONTACT BRIAN MITALO 847 867-9290
SF-3	1	N.A.	CIRCULAR BUILT-IN BENCH	TOURNESOL - WALLY COLLECTION MODEL: LY-A30-72, WOOD AND STEEL WALL-HUNG FLAT BENCH, BOULEVARD TREATED ASH, POWDER COAT: PUDDLE. RADIUS OF CURVE: 18.5'. FOR ORDER INFORMATION CONTACT BRIAN MITALO 847 867-9290
SF-4	3	N.A.	TRELLIS BENCH	LANDSCAPE FORAS PARC VUE BENCH, WITH CUSTOM TRELLIS FEATURE
SF-5	1	N.A.	SHADE STRUCTURE	CUSTOM BUILT, SEE DETAIL 10, LD-1.1
SF-6	4	N.A.	TUUCI CABANA	TUUCI EQUINOX 10'X10', FRONT AND BACK W/ CURTAINS AND TIE BACKS,TRELLIS WALLS ON SIDES, METAL FINISH: ASH GREY, BED INCLUDED, COLOR: MINERAL BLUE, MOUNTING: 9'X9' 5.5. BOTTOM PLATE MOUNT, TO COORDINATE WITH STRUCTURAL. FOR MORE INFORMATION CONTACT BRAIN BERGIN 727-744-1701
SF-7	4		TUUCI UMBRELLA	TUUCI OCEAN MASTER MAX CLASSIC: OCTAGON, SOLID FINISH: POLISHED ALUMINUM, ALL COLORS TO BE COORDINATED WITH ID, G-PLATE SQUARE BASE, TO COORDINATE WITH STRUCTURAL FOR INSTALLATION ON SLOPED LAWN. FOR MORE INFORMATION CONTACT BRAIN BERGIN 727-744-1701
SF-8	3		GRILL	ARTISAN GRILLS - ARTISAN EAGLE SERIES 32" GRILL MODEL AAEP-32. CONTACT 1-800-345-2566 FOR ORDERING INFORMATION
SF-9	3	N.A.	GRILL CABINETS	DANVER - MODEL OGB3602 2 DOOR, STYLE: HAMPTON. QUOTE #: DT-121865-1
SF-10	2		FIRE BOWL	ELDERADO STONE: LYRA FIRE BOWL, BLACK SAND HONED, NATURAL GAS,ELEC. IGNITION W/AUTOMATIC SHUTOFF AND TIMER, 60" L X 24" X 15" H, WOOD TOP, (800) 925-1491
SF-11	2	N.A.	POOL SCUPPER	BOBE SMOOTH FLOW RADIUS SCUPPER, STAINLESS STEEL, EACH WITH CUSTOM BASE.
SF-12	1		WOOD ARBOR	SEE DETAIL 7, LD-1.1
SF-13	1	N.A.	DRINK RAIL	SEE DETAIL 8, LD-1.1
SF-14	1		SHADE STRUCTURE	CREATIVE SHADE SOLUTIONS, 12'x10' SHADE STRUCTURE, 4-POST, MIN. OF 9' CLEARANCE TO BOTTOM OF STRUCTURE. CONTACT (800) 836-4519 FOR ORDERING
SF-15	1		DOG WASTE BIN	SENTRY - DOG WASTE STATION, COLOR: GREEN. FOR ORDERING INFORMATION CONTACT (800) 789-2563
SF-16	1		DOG DRINKING FOUNTAIN	MOST DEPENDABLE FOUNTAINS - 350 SMSS, COLOR: GREEN. TO BE INSTALLED TO MANUFACTURER SPECS, FOR ORDERING INFORMATION, CONTACT (907) 867-0039
SF-17	5	N.A.	SPACE HISTORY PAVERS	CYCADIA MONUMENT CO., SEE DETAIL 4, LD-1, FOR ORDER INFORMATION CONTACT KEVIN CANTRELL 727 786-1551

MASTER PAVING SCHEDULE		
I.D.	TYPE	SPECIFICATION
P-1	PAVER	WAUSAU TILE - V SERIES - EXTERIOR TERRAZZO - GEO 8"x 2" PAVER, COLOR: ET-10, FOR ORDER INFORMATION CONTACT 800 388 8728
P-2	PLANK TILE PAVER	WAUSAU TILE -TIMBER 6"x 16"x 2" PAVER, COLOR: TB-30, FOR ORDER INFORMATION CONTACT 800-388-8728
P-3	POOL BORDER PAVER	ARTISTIC PAVERS - GRANITELOCK 4"x8" PAVER, MAIN FIELD COLOR: STERLING GREY, RUNNING BOND PARALLEL TO POOL EDGE, FOR ORDER INFORMATION CONTACT TODD ROCKFIELD 813 389-8011
P-4	POOL COPING	ARTISTIC PAVERS - GRANITELOCK BULLNOSE COPING 12"x24" PAVER, MAIN FIELD COLOR: ARCTIC WHITE, MITRE CORNERS. FOR ORDER INFORMATION CONTACT TODD ROCKFIELD 813 389-8011
P-5	POOL WATERLINE TILE	TESORO POOL TILE: CASCADE 6"x6", ALTERNATE PRODUCTS SHALL BE APPROVED BY L.A. PRIOR TO CONSTRUCTION, FOR ORDER INFORMATION CONTACT HANK HILTON 7272543572
P-6	POOL SHELL	KRYSTALKRETE: BLUE PEPPER, ALTERNATE PRODUCTS SHALL BE APPROVED BY L.A. PRIOR TO CONSTRUCTION
P-7	POOL STEP TILE/GUTTER TILE	LUV TILE: STEP TILE, A4200-2487 BLUEBERRY; GUTTER TILE 587 COBALT, ALTERNATE PRODUCTS SHALL BE APPROVED BY L.A. PRIOR TO CONSTRUCTION
P-8	COLORED CONCRETE	LM SCOFIELD COLOR ADMIXTURE CONCRETE COLOR BLUE SMOKE, SALT FINISH, FOR ORDER INFORMATION CONTACT ROB TARTAGLIA tartagliarob@aol.com
P-9	DOUBLE SCUPPER TILED WALL	TESORO FLOWER GLASS COLOR BODY GLASS MOSAICS: IRIS 2'X3' CLEAR FACE TAPE MOUNTED, ALTERNATE PRODUCTS SHALL BE APPROVED BY L.A. PRIOR TO CONSTRUCTION, FOR ORDER INFORMATION CONTACT HANK HILTON SURFACES9 727-254-3572
P-10	ARTIFICIAL TURF	SOUTHWEST GREENS OF FLORIDA - GB13, CONTACT WALTER SMITH, 352-494-1702 FOR ORDER INFORMATION, ALTERNATIVE - FOREVER LAWN, CONTACT CHRIS POWELL, 813-436-9222 FOR ORDER INFORMATION
P-11	COURTYARD PAVER	WAUSAU TILE - H SERIES - ESTATE - RECT. 4"x 8"x 2" PAVER, COLOR: 50/50 MIX OF HRT-32 AND HRT-15 FOR ORDER INFORMATION CONTACT 800 388 8728
P-12	BREEZE BLOCK PRIVACY WALL	TESSELLE ORB LULY 7.5" CEMENT BREEZE BLOCK, TO COORDINATE WITH ARCHITECT
P-13	VEHICULAR PAVERS	WAUSAU TILE - H SERIES - FRONTIER - 4"x 8"x 4" PAVER, 50/50 BLEND, COLORS: HFT-35, HFT-60 WITH SOLDIER COURSE OF HFT-65. FOR ORDER INFORMATION CONTACT 800 388 8728

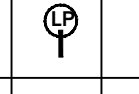

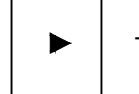
NOTES:
-ALL CONCRETE IS TO HAVE A MIN. OF 3000 P.S.I.
-CONTRACTOR TO PROVIDE 5'x5' MOCK-UP OF ALL PAVING TYPES PRIOR TO CONSTRUCTION FOR OWNER/ L.A. APPROVAL
-ALL CONCRETE PAVERS ARE TO BE SEALED WITH TECHNISAL NATURAL LOOK SEALER.

FENCING MATERIAL SCHEDULE			
I.D.	QTY.	TYPE	SPECIFICATION
F-1	CONTRACTOR VERIFY	POOL FENCE	4' HT.COMMERCIAL GRADE ALUMINUM PICKET FENCE, COLOR: BLACK
F-2	CONTRACTOR VERIFY	POOL GATE	4' HT.COMMERCIAL GRADE ALUMINUM PICKET GATE, COLOR: BLACK, ACCESS CONTROLS T.B.D. BY OWNER
F-3	CONTRACTOR VERIFY	PEDESTRIAN GATE	6' HT. SOLID GATE, COLOR: BLACK, ACCESS CONTROLS T.B.D. BY OWNER
F-4	CONTRACTOR VERIFY	POOL EQUIPMENT FENCE	6' HT. CHAIN LINK FENCE, COLOR: BLACK, ACCESS CONTROLS T.B.D. BY OWNER
F-5	CONTRACTOR VERIFY	DOG PARK FENCE	4' HT.COMMERCIAL GRADE ALUMINUM PICKET FENCE, COLOR: BLACK, ACCESS CONTROLS T.B.D. BY OWNER
F-6	CONTRACTOR VERIFY	DOG PARK GATE	4' HT.COMMERCIAL GRADE ALUMINUM PICKET GATE, COLOR: BLACK, ACCESS CONTROLS T.B.D. BY OWNER
F-7	CONTRACTOR VERIFY	MAINTENANCE GATE	4' HT.COMMERCIAL GRADE ALUMINUM PICKET DOUBLE GATE, COLOR: BLACK, ACCESS CONTROLS T.B.D. BY OWNER
NOTES: • CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL FENCING TYPES AND GATES • CONTRACTOR TO COORDINATE WITH OWNER FOR ALL ACCESS REQUIREMENTS AT GATES AND PEDESTRIAN GATES			

PLANT MATERIAL SCHEDULE : POOL AREA									
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.									
QTY	CODE	BOTANICAL NAME	COMMON NAME	SPECIFICATION	NATIVE	DROUGHT TOLERANCE	NOTES		
TREES/PALMS									
5	BNM	BUTIAGRUS NABONNANDII X	MULE PALM	18' O.A.	YES	YES			
4	HYL	HYOPHORBE LAGENICAULIS	BOTTLE PALM	10' O.A.	NO	YES			
2	IAE	ILEX ATTENUATA 'EAGLESTON'	EAGLESTON HOLLY	10' HT. X 4-5' SPD., 2" CAL./1" D.B.H.	YES	YES			
3	LC	LIVISTONA CHINENSIS	CHINESE FAN PALM	8' C.T. 20-22' O.A.	NO	YES			
3	COS	CONOCARPUS ERECTUS SERICEUS	SILVER BUTTONWOOD STANDARD	15 GAL., 5-6' HT. x 36" SPRD., 3" CAL	YES	YES			
SHRUBS/GROUNDCOVERS									
156	ADM	ASPARAGUS DENSIFLORUS 'MEYERSII'	FOXTAIL FERN	3 GAL. 12-14" HT. x 10-12" SPD.	NO	NO			
40	EGB	EVOLVULUS GLOMERATUS	BLUE DAZE 'BLUE MY MIND'	1 GAL. 8" HT. FULL	NO	YES			
77	IGB	ILEX GLABRA	GEM BOX INKBERRY HOLLY	10' HT.X4' SPD.,2" CAL	YES	YES			
269	JM	JUNIPERUS CONFERTA COMPACTA	DWARF SHORE JUNIPER	1 GAL., 8" HT. X 12" SPD.	YES	YES			
40	JC	JASMINUM MULTIFLORUM	DOWNY JASMINE	3 GAL. 16" HT. X 12-14" SPD.	NO	YES			
23	LOS	LONICERA SEMPERVIRENS	CORAL HONEYSUCKLE	3 GAL., TRELLISED	NO	YES			
9	NC	NEOMARICA CAERULEA 'REGINA'	GIANT APOSTLE'S IRIS	3 GAL., 26" HT. x 10" SPD.	NO	YES			
65	POD	PODOCARPUS MACROPHYLLA	PODOCARPUS	7 GAL., 28" HT. x 16" SPD., DENSE	NO	YES			
45	RI	RAPHIOLEPIS INDICA 'WHITE'	DWARF INDIAN HAWTHORN	3 GAL., 16" HT. x 18" SPD., DENSE	YES	YES			

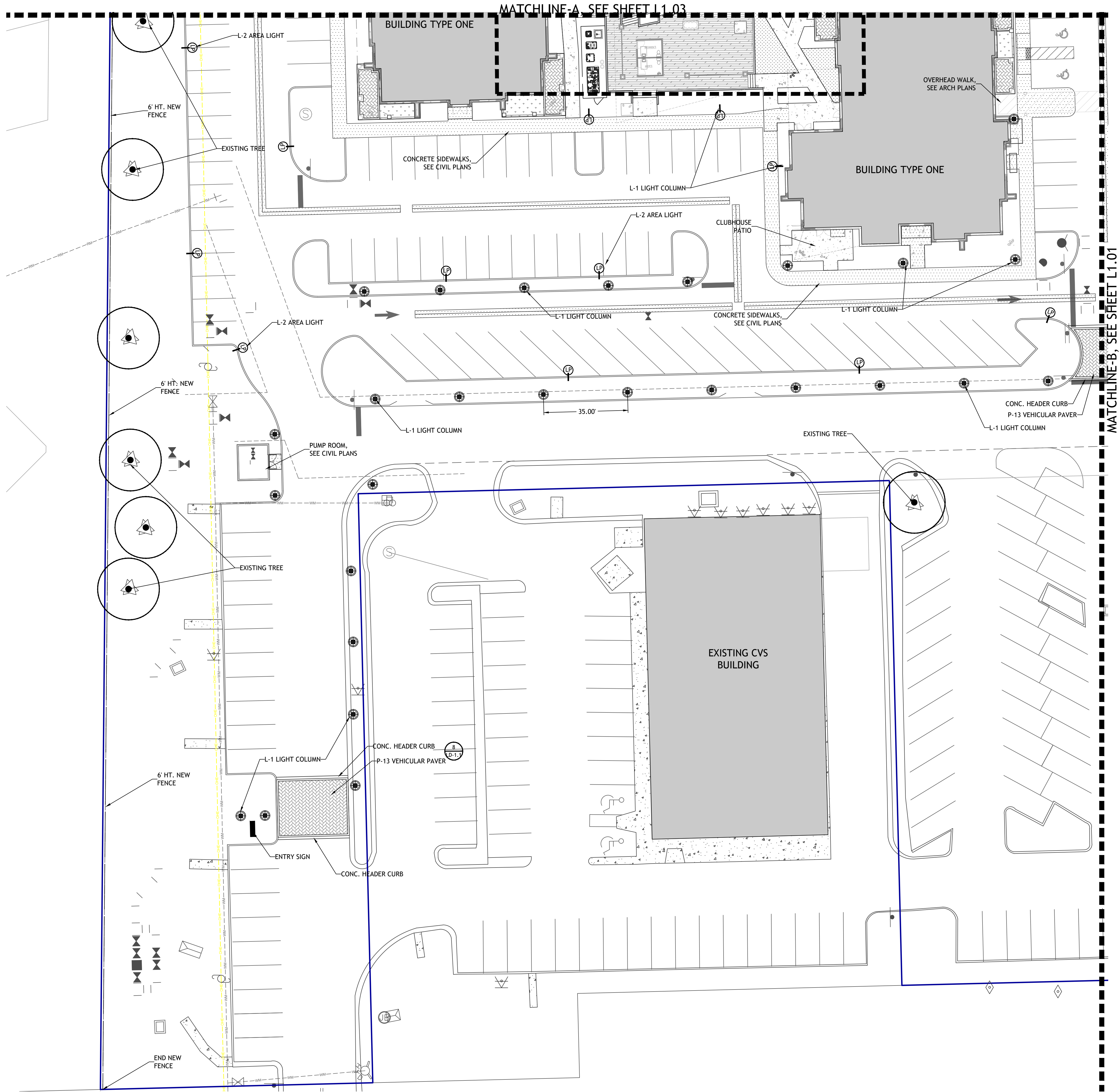
PLANT MATERIAL SCHEDULE : EAST COURTYARD									
PLANT MATERIAL NOTES:									
1. THE CONTRACTOR SHALL BID AND BE RESPONSIBLE FOR THE PLANT SIZE AND NOT SOLELY BY THE CONTAINER. CONTAINER IS PROVIDED AS A MIN. SIZE									
2. THE GENERAL CONTRACTOR/LANDSCAPE CONTRACTOR SHALL PERFORM A MIN. OF 3 SOIL 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.									

BUILDING LANDSCAPE	
ALLOW \$15,000 PER BUILDING FOR FOUNDATION LANDSCAPE	

MASTER LIGHTING SCHEDULE				
I.D.	QTY.	SYM.	TYPE	SPECIFICATION
LP-1	N.A.		SITE LIGHT	LUMENPULSE PUR100-120_277-CSL-M80-40K-CRI 80-3
LP-2	N.A.		LIGHT POLE	HESS AMERICA SE4000-LED-NW
LP-3	16		TREE UP LIGHTS	TARGETTI - DART SMALL 14W MWFL 30K, ITEM #: DASRPWFL23024, W/1E3013, EARTH STAKE: 1E3016
LP-4	64 L.F.	N.A.	STRAND LIGHTS	LUMINIS SYRIOS-LED SY310-L1L10-R30-120V-DGT-FS-K3-CAT3, 3 TREE STRAPS NEEDED FOR PALMS

NOTES:
-ALL PROPOSED LIGHTING LOCATIONS ARE SCHEMATIC. LANDSCAPE ARCH. TO APPROVE ALL LIGHT LOCATIONS PRIOR TO INSTALLATION. NO LIGHTS SHALL BE INSTALLED WITHOUT APPROVAL. ANY LIGHTS INSTALLED WITHOUT APPROVAL WILL BE REQUIRED TO BE MOVED AT THE CONTRACTORS COST IF CONFLICTS ARE PRESENT IN THE INSTALLED LOCATION.
-PROVIDE MINIMUM PHOTOCELL ON CONTROLS AND TIMER OFF WITH A MANUAL OVERRIDE SWITCH.
-ALL TRANSFORMERS TO BE MAGNETIC.
-CONTRACTOR TO VERIFY ELECTRICAL SOURCE LOCATION
-CONTRACTOR TO COMPLY WITH ALL STATE AND LOCAL ELECTRICAL BUILDING CODES

PLANT MATERIAL SCHEDULE									
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.									
QTY	CODE	BOTANICAL NAME	COMMON NAME	SPECIFICATION	NATIVE	DROUGHT TOLERANCE	NOTES		
TREES/PALMS									
13	ARS	ACER RUBRUM 'SUMMER RED'	RED MAPLE	12' HT. X 4' SPD., 3.5" CAL./2.5" D.B.H.	YES	YES			
2	BNS	BISMARKIA NOBILIS	BISMARK PALM	24' O.A. HEAVY TRUNKED, 10'-12' C.T.	NO	YES			
3	IAE	ILEX ATTENUATA 'EAGLESTON'	EAGLESTON HOLLY	10' HT. X 4-5' SPD., 3.5" CAL./2.5" D.B.HYES	YES	YES	FULL TO BASE		
8	INS	ILEX 'NELLIE R. STEVENS'	NELLIE STEVENS HOLLY	10' HT., 4' SPD., 3.5" CAL./2.5" D.B.H.	YES	YES	FULL TO BASE		
14	JS	JUNIPERUS VIR. SILICICOLA 'BRODIE'	SOUTHERN RED CEDAR	10' HT. X 3-4' SPD., 3.5" CAL./2.5" D.B.HYES	YES	YES	FULL TO BASE		
2	LIM	LAGERSTROEMIA INDICA 'MUSKOGEE'	GRAPE MYRTLE 'LAVENDER'	12-14' HT. x 5-6' SPD. /2.5" D.B.H.	NO	YES	MULTI-TRUNK, MIN. 3-5 TRUNKS		
29	LIN	LAGERSTROEMIA INDICA 'NATCHEZ'	GRAPE MYRTLE 'WHITE'	12-14' HT. x 5-6' SPD. /2.5" D.B.H.	NO	YES	MULTI-TRUNK, MIN. 3-5 TRUNKS		
5	LJT	LIGUSTRUM JAPONICUM TREE FORM	TREE FORM LIGUSTRUM	8' HT. x 8' SPD., MULTI-TRUNK	NO	YES	MIN. 3-5 TRUNKS		
5	MGB	MAGNOLIA GRANDIFLORA 'BRACKENS'	BRACKENS BROWN BEAUTY MAGNOLIA	10' O.A. X 4' SPD., 3.5" CAL./2.5" D.B.HYES	YES	YES			
22	SP	SABAL PALMETTO	CABBAGE PALM	SEE PLAN FOR CLEAR TRUNK HEIGHTS	YES	YES			
6	TD	TAXODIUM DISTICHUM	BALD CYPRESS	10' HT. X 4' SPD. 3.5" CAL./2.5" D.B.H.	YES	YES			
15	UPA	ULMUS PARVIFOLIA 'ALLEE 7552'	ALLEE ELM	12' HT. X 5' SPD., 4" CAL./3" D.B.H.	NO	YES			
SHRUBS/GROUNDCOVERS									
315	A	ANNUALS	ANNUALS	6" POT, FULL	NO	NO			
155	ADM	ASPARAGUS DENSIFLORUS 'MEYERSII'	FOXTAIL FERN	3 GAL. 12-14" HT. x 10-12" SPD.	NO	NO			
40	BOU	BOUGAINVILLEA 'HELEN JOHNSON'	DWARF BOUGAINVILLEA	3 GAL., 12" HT. X 12" SPD.	NO	YES			
190	DTV	DIANELLA TASMANICA	BLUEBERRY FLAX LILY	3 GAL., 16" HT. X 8" SPD., FULL	NO	YES			
70	FS	FEUJOA SELLOWIANA	PINEAPPLE GUAVA	3 GAL., 24" HT. X 12" SPD., DENSE	NO	YES			
30	HPD	HAMELIA NODOSA	DWARF FIREBUSH	3 GAL., 16"-18" HT. X 14" SPD.	YES	YES			
110	ICC	ILEX CORNUTA 'CARISSA'	CARISSA HOLLY	3 GAL., 18" HT. X 18" SPD.	NO	YES			
45	IVS	ILEX VOMITORIA 'STOKES DWARF'	DWARF YAU PON HOLLY	3 GAL., 16" HT. X 12" SPD.	YES	YES			
70	JM	JASMINUM MULTIFLORUM	DOWNY JASMINE	3 GAL. 16" HT. X 12-14" SPD.	NO	YES			
240	LSS	LIGUSTRUM SINENSE 'SUNSHINE'	'SUNSHINE' LIGUSTRUM	3 GAL., 30" HT. X 18" SPD.	NO	YES			
257	MUH	MUHLENBERGIA CAPILLARIS	MUHLY GRASS	3 GAL., 18-24" HT. X 12"-14" SPD.	YES	YES			
120	PLC	PLUMBAGO 'IMPERIAL BLUE'	IMPERIAL BLUE PLUMBAGO	3 GAL., 22" HT. X 24" SPD.	NO	YES			
289	POM	PODOCARPUS MACROPHYLLA	PODOCARPUS	7 GAL., 28" HT. x 16" SPD., DENSE	NO	YES			
105	PQ	PASPALUM QUADRIFARIUM	PASPALUM	3 GAL., 18" HT. X 12" SPD.	YES	YES			



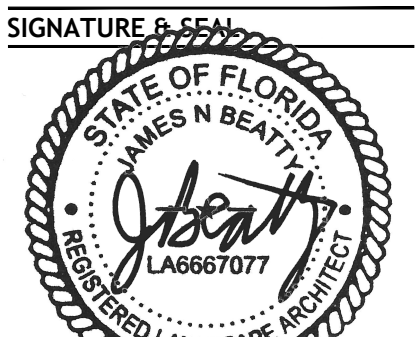
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FL Registered Landscape Architect
PRICING SET

ISSUE DATE		
1	PERMIT SET	08-31-20
2	PRICING SET	09-17-20

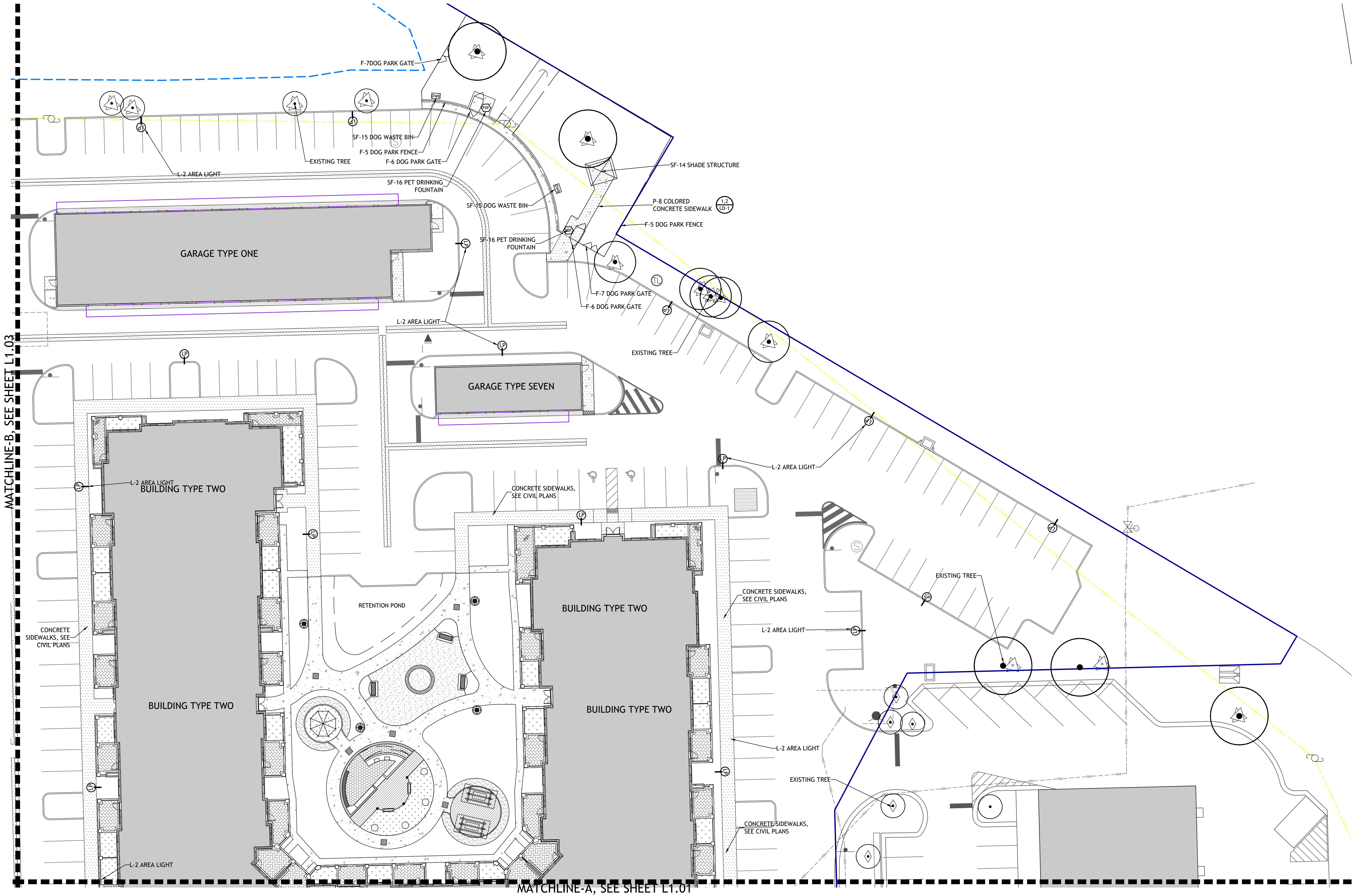
REVISIONS		

NO.	COMMENTS	DATE
SHEET INFORMATION		
JOB NUMBER	20045	
DRAWN BY	JB/JW	
CHECKED BY	JB/HB	

SCALE: 1"=20'-0"
0 10' 20' 40'

**LANDSCAPE
SITE PLAN**

L1.00
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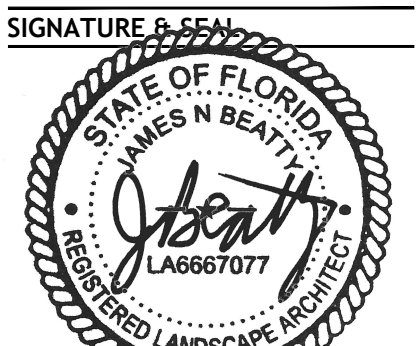
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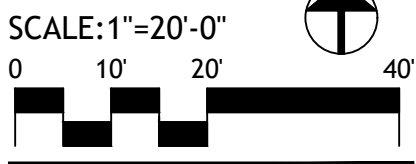


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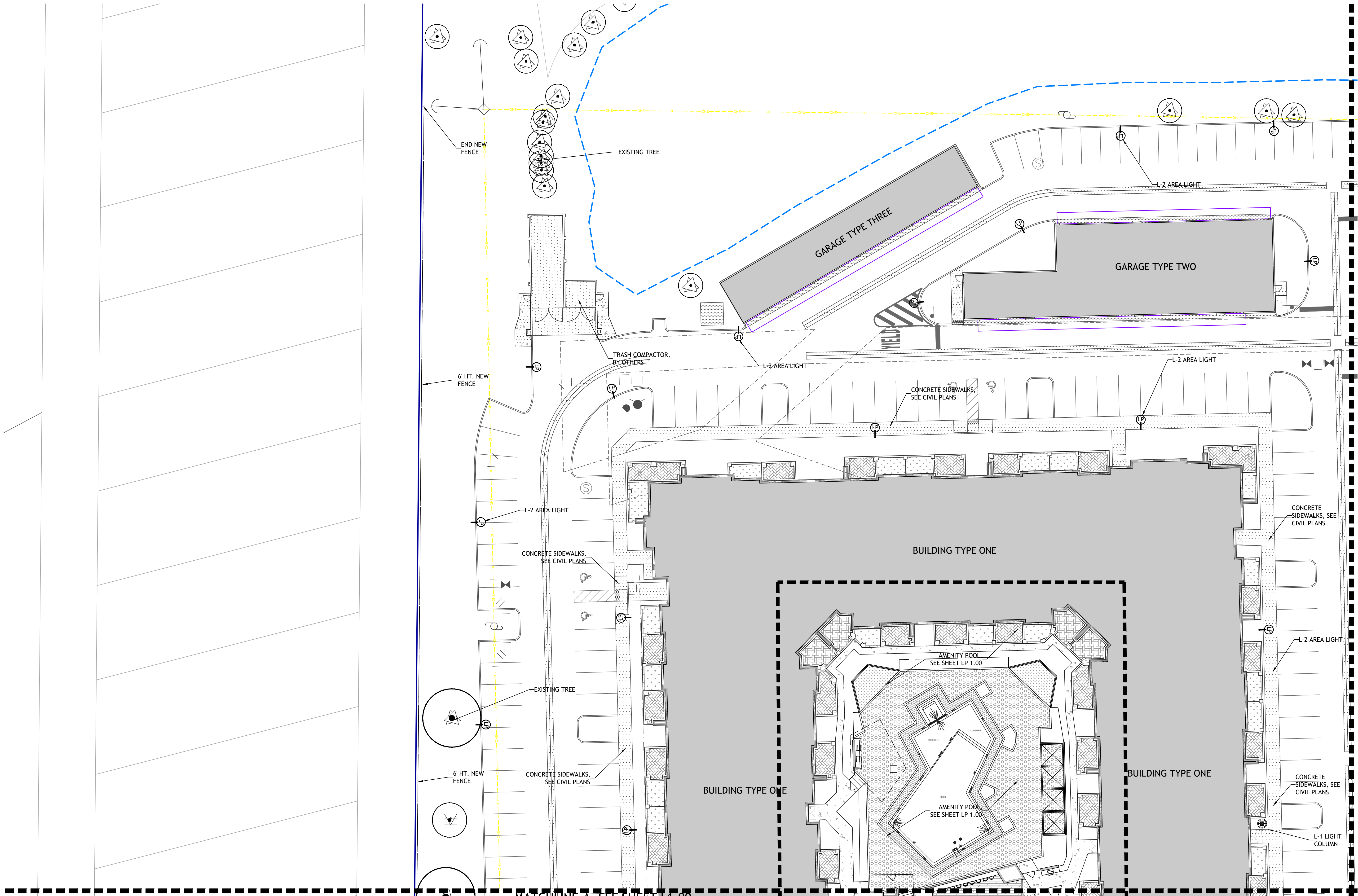
REVISIONS		

NO.	COMMENTS	DATE
SHEET INFORMATION		
JOB NUMBER	20045	
DRAWN BY	JB/JW	
CHECKED BY	JB/HB	



**LANDSCAPE
SITE PLAN**

L1.02



MATCHLINE-A, SEE SHEET L1.00

MATCHLINE-B, SEE SHEET L1.02



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St. Petersburg, FL 33701
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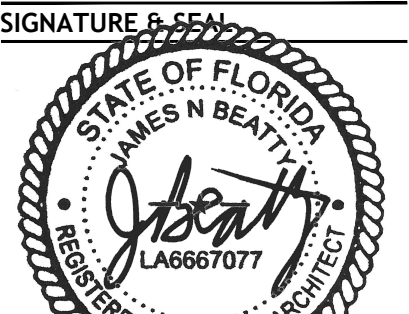
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Maitland 1 FL
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FRAMEWORK GROUP LLC
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TAMPA 1 FL
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CIRRUS

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ISSUE DATE		
1	PERMIT SET	08-31-20
2	PRICING SET	09-17-20

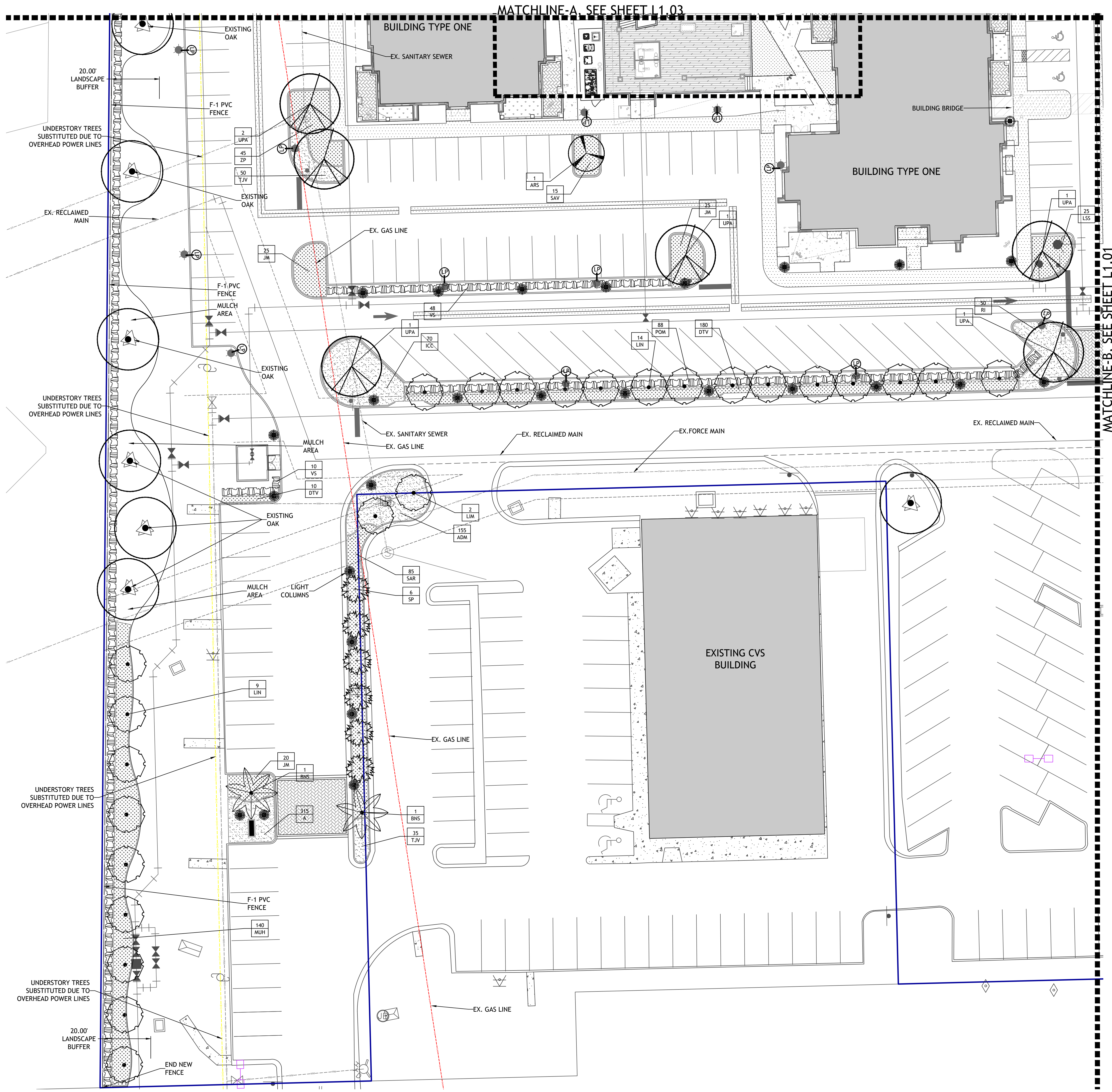
REVISIONS		

NO.	COMMENTS	DATE
SHEET INFORMATION		
JOB NUMBER	20045	
DRAWN BY	JB/JW	
CHECKED BY	JB/HB	

SCALE: 1"=20'-0"
0 10' 20' 40'

LANDSCAPE
SITE PLAN

L1.03



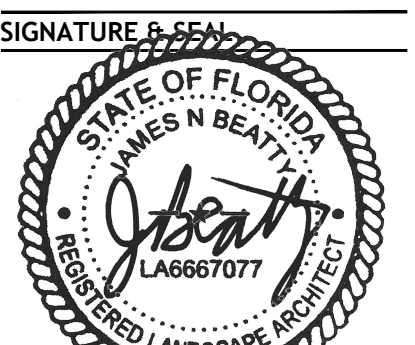
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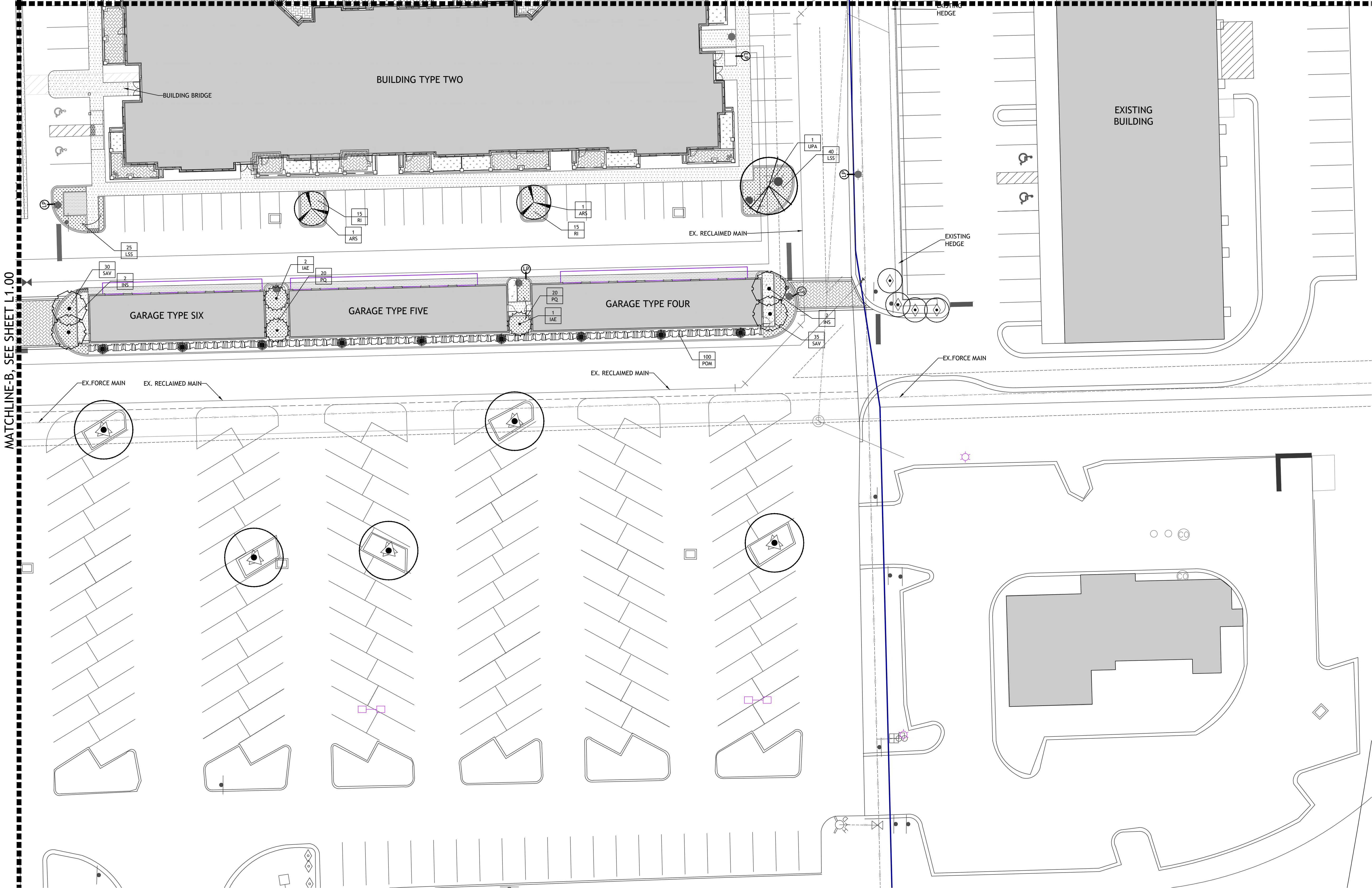
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SHEET INFORMATION		
JOB NUMBER	20045	
DRAWN BY	JB/JW	
CHECKED BY	JB/HB	

SCALE: 1"=20'-0"
0 10' 20' 40'

LANDSCAPE DEVELOPMENT PLAN

L2.00
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MATCHLINE-A, SEE SHEET L1.02



MATCHLINE-B, SEE SHEET L1.00



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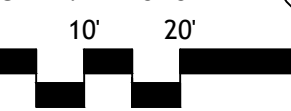
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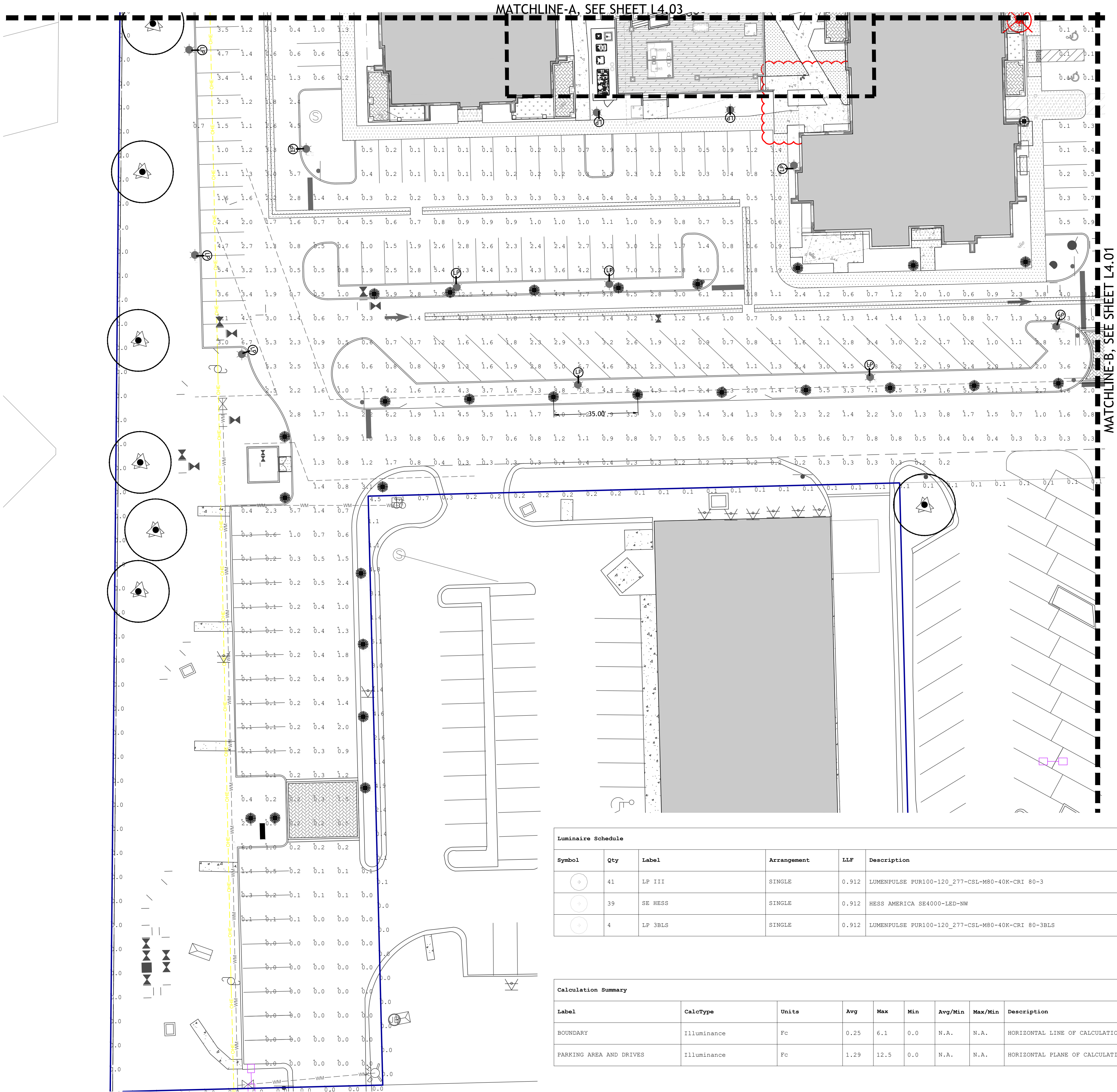
SCALE: 1"=20'-0"



LANDSCAPE
DEVELOPMENT
PLAN

L2.01

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Luminaire Schedule									
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Total Watts	Lum. Lumens	BUG Rating
	41	LP III	SINGLE	0.912	LUMENPULSE PUR100-120_277-CSL-M80-40K-CRI 80-3	64	2624	8035	B2-U0-G2
	39	SE HESS	SINGLE	0.912	HESS AMERICA SE4000-LED-NW	36.2	1411.8	3831	B1-U4-G2
	4	LP 3BLS	SINGLE	0.912	LUMENPULSE PUR100-120_277-CSL-M80-40K-CRI 80-3BLS	64	256	4915	B0-U0-G2

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Description
BOUNDARY	Illuminance	Fc	0.25	6.1	0.0	N.A.	N.A.	HORIZONTAL LINE OF CALCULATION AT ZERO FT AFG
PARKING AREA AND DRIVES	Illuminance	Fc	1.29	12.5	0.0	N.A.	N.A.	HORIZONTAL PLANE OF CALCULATION AT ZERO FT AFG



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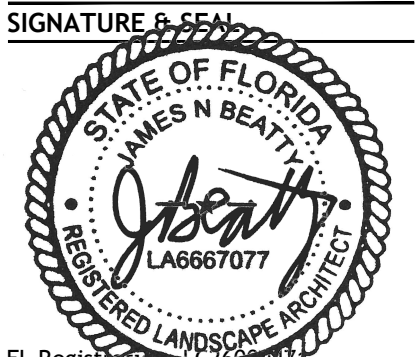
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REVISIONS		

NO. COMMENTS DATE

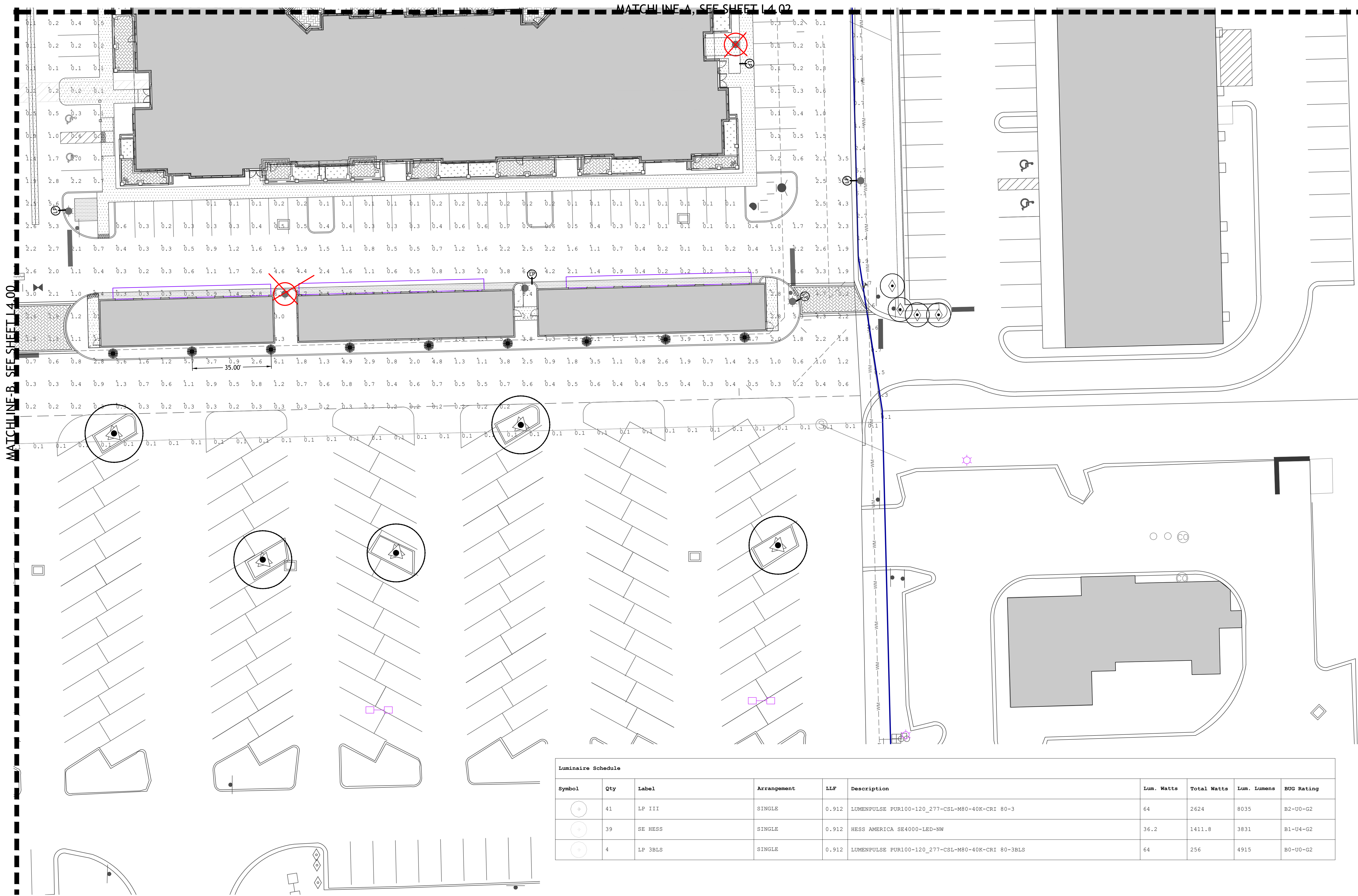
SHEET INFORMATION
JOB NUMBER 20045
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CHECKED BY JB/HB

SCALE: 1"=20'-0"
0 10' 20' 40'

**SITE
LANDSCAPE
LIGHTING**

L4.00

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Luminaire Schedule									
Symbol	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Total Watts	Lum. Lumens	BUG Rating
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	39	SE HESS	SINGLE	0.912	HESS AMERICA SE4000-LED-NW	36.2	1411.8	3831	B1-U4-G2
	4	LP 3BLS	SINGLE	0.912	LUMENPULSE PUR100-120_277-CSL-M80-40K-CRI 80-3BLS	64	256	4915	B0-U0-G2

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Description
BOUNDARY	Illuminance	Fc	0.25	6.1	0.0	N.A.	N.A.	HORIZONTAL LINE OF CALCULATION AT ZERO FT AFG
PARKING AREA AND DRIVES	Illuminance	Fc	1.29	12.5	0.0	N.A.	N.A.	HORIZONTAL PLANE OF CALCULATION AT ZERO FT AFG



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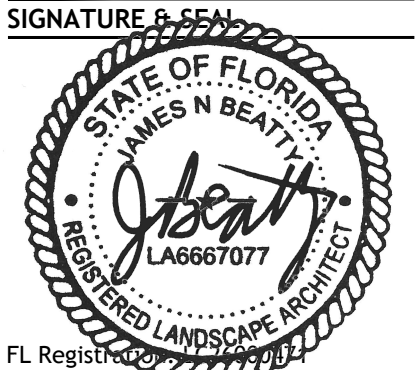
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SCALE: 1"=20'-0"



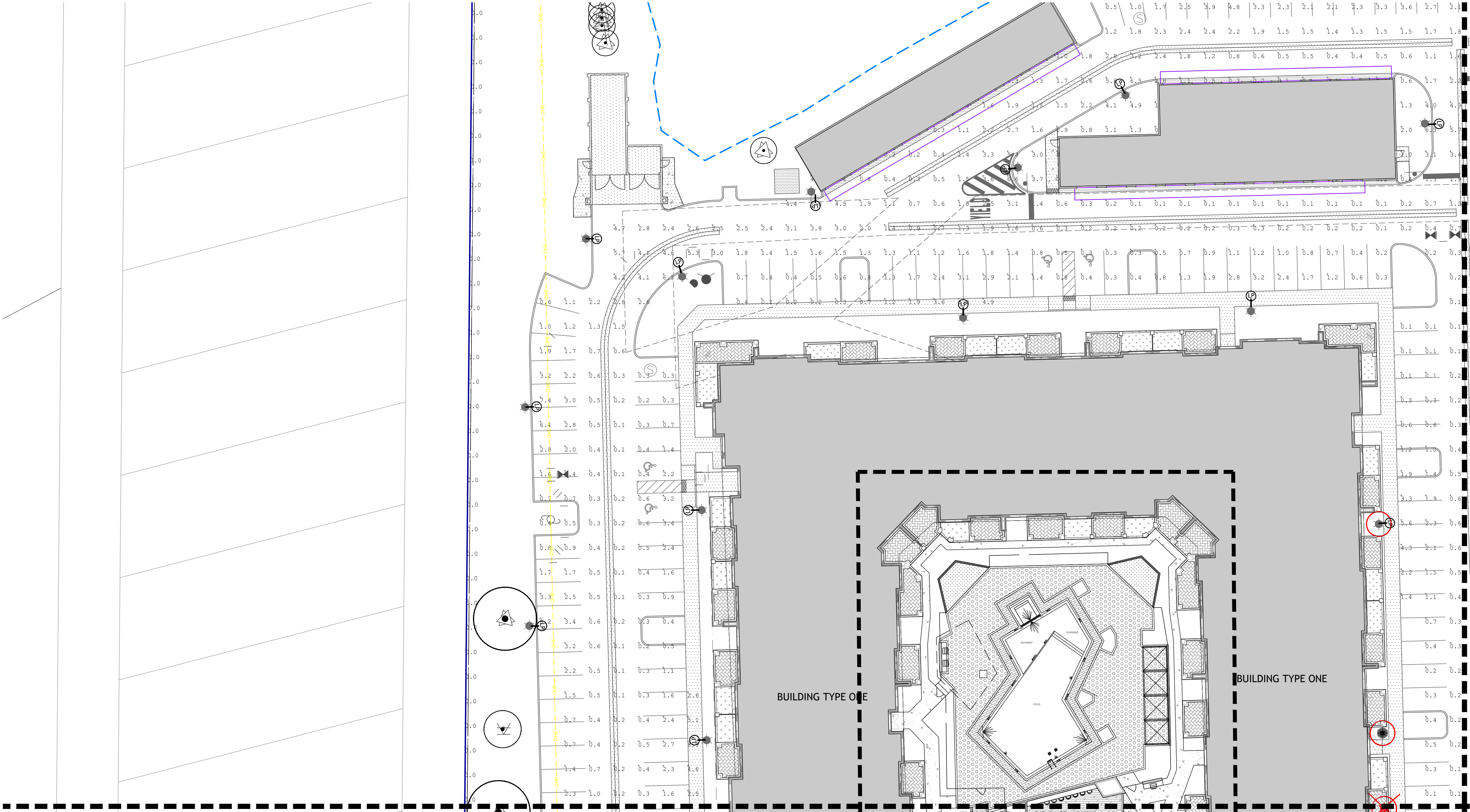
**SITE
LANDSCAPE
LIGHTING**

L4.01

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Luminaire Schedule									
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	39	SE HESS	SINGLE	0.912	HESS AMERICA SE4000-LED-NW	36.2	1411.8	3831	B1-U4-G2
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Calculation Summary								
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BOUNDARY	Illuminance	Fc	0.25	6.1	0.0	N.A.	N.A.	HORIZONTAL LINE OF CALCULATION AT ZERO FT AFG
PARKING AREA AND DRIVES	Illuminance	Fc	1.29	12.5	0.0	N.A.	N.A.	HORIZONTAL PLANE OF CALCULATION AT ZERO FT AFG



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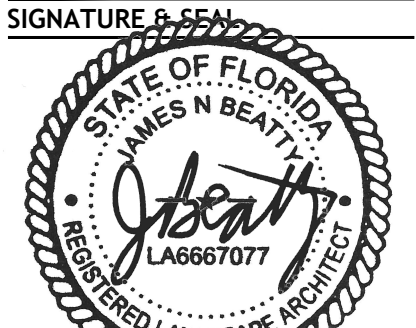
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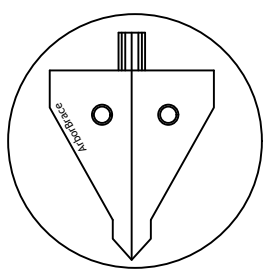
NO.	COMMENTS	DATE

SHEET INFORMATION
JOB NUMBER 20045
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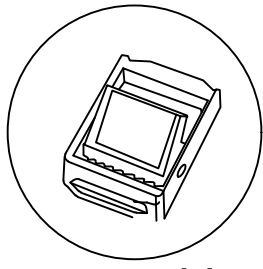
SCALE: 1"=20'-0"
0 10' 20' 40'

SITE LANDSCAPE LIGHTING

L4.03



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

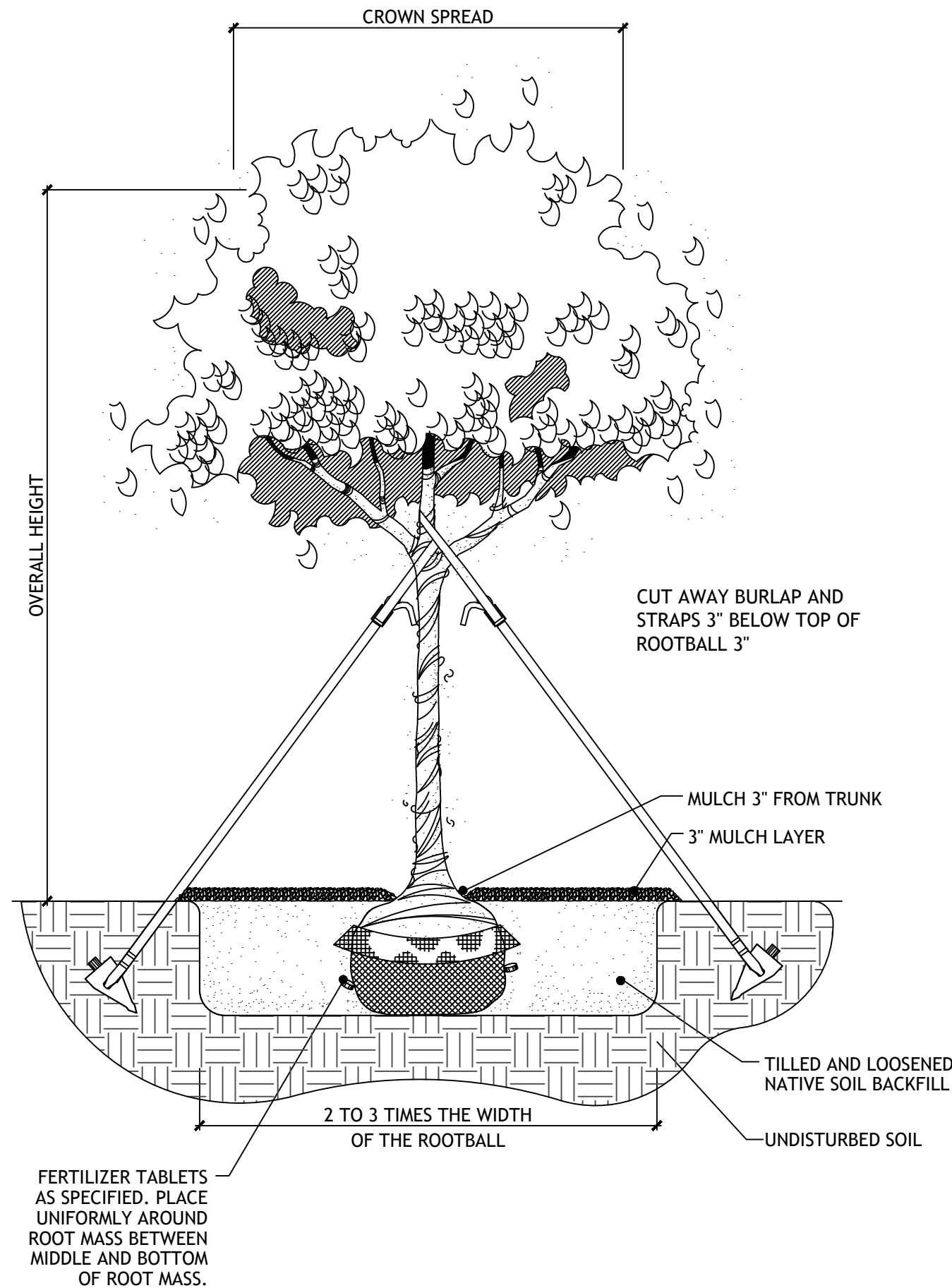


Tension Buckle
Loop loose end of webbing around leading branch of tree. Tie 1/2 knot onto backside of buckle. Pull buckle towards ArborAnchor to tension line.

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") or
(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")

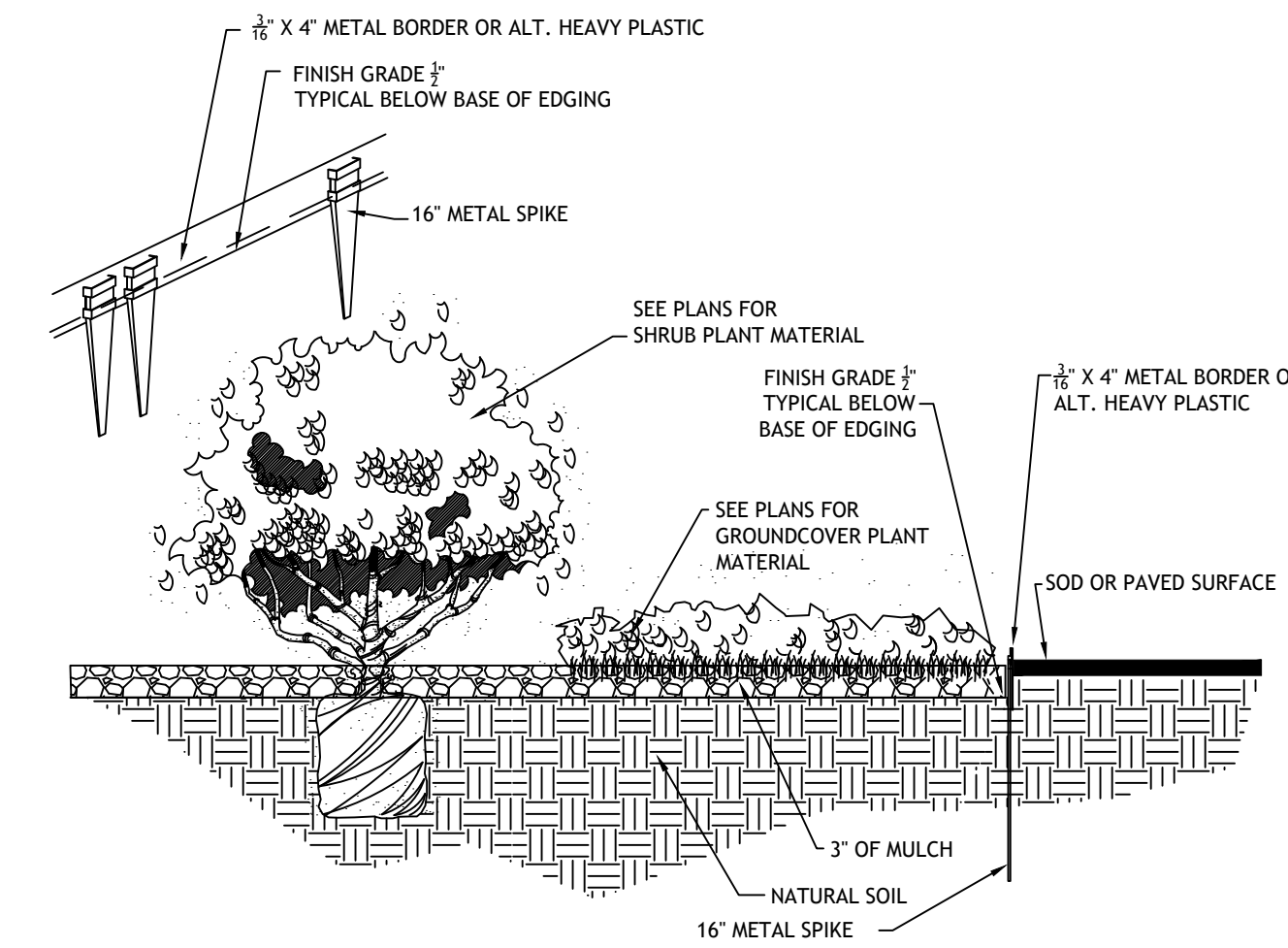
OTHER TREE STAKING SYSTEMS MAY BE ACCEPTABLE IF APPROVED



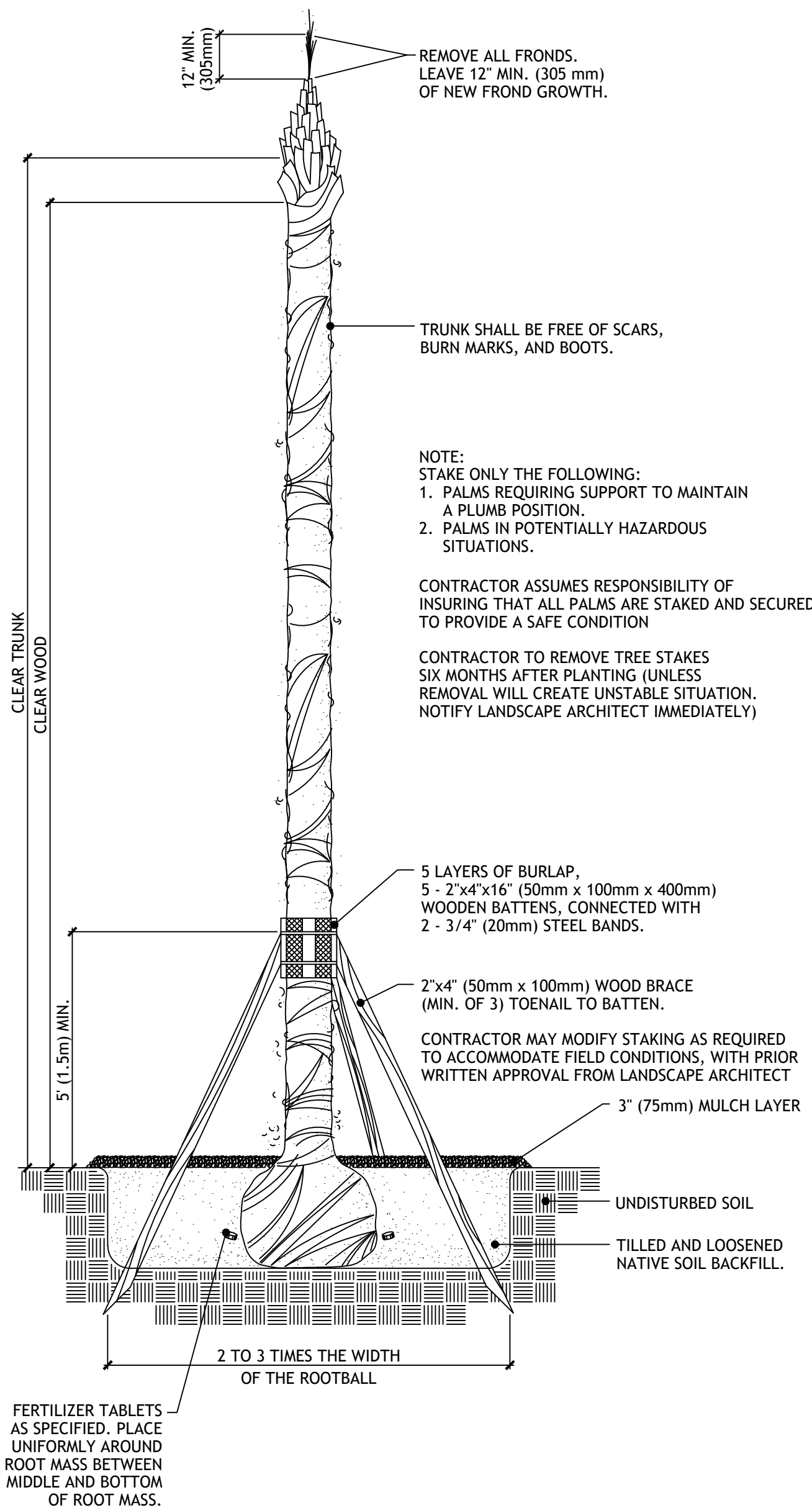
1 ARBOR BRACE TREE PLANTING DETAIL

SCALE: N.T.S.

NOTES:
1. ALUMINUM EDGING SHALL BE USED INSTEAD OF STEEL EDGING.
2. COLOR SHALL NATURAL (SILVER) ALUMINUM
3. CONTRACTOR SHALL PROVIDE SAMPLE FOR APPROVAL.

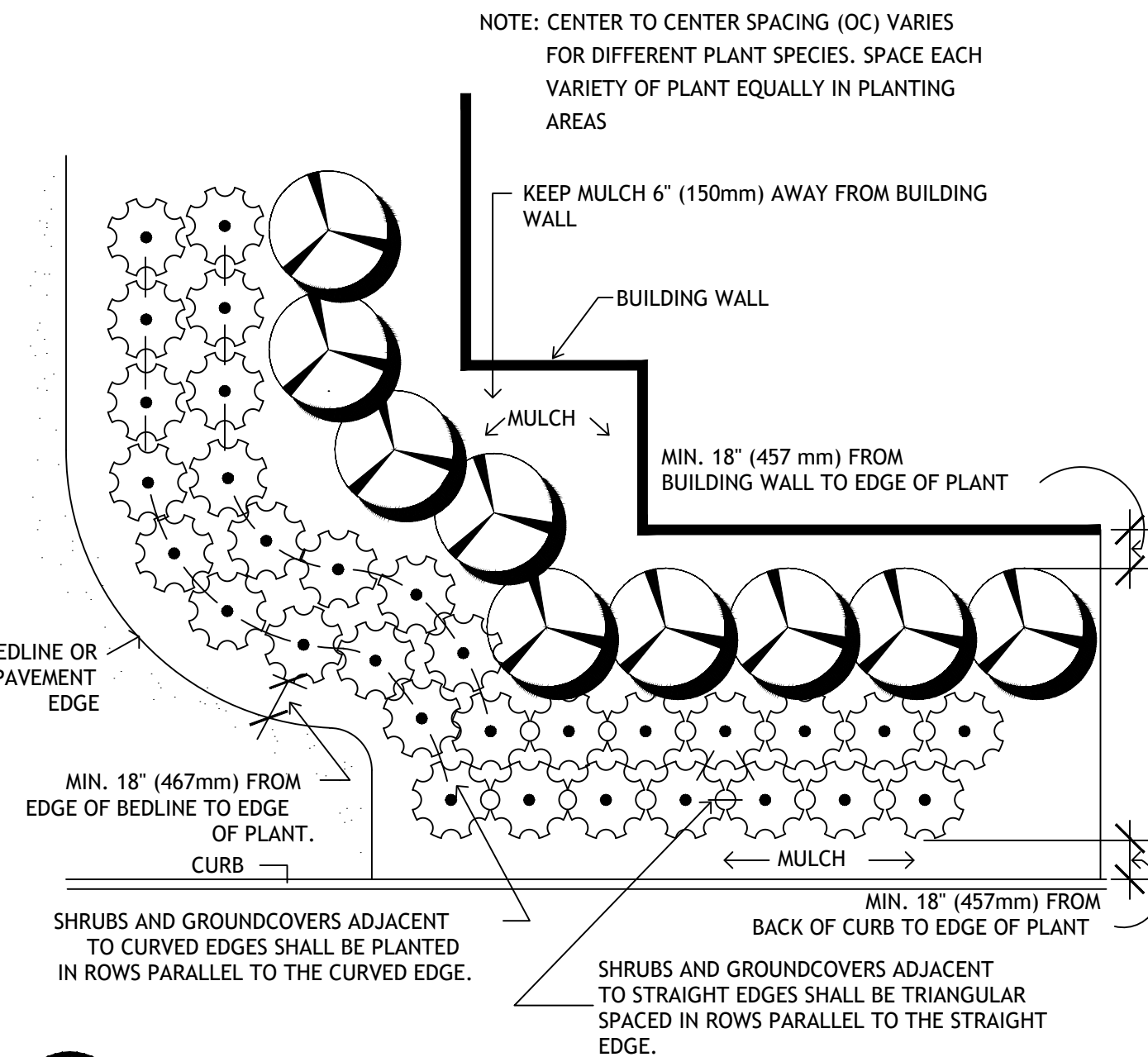


5 METAL LANDSCAPE BED EDGING



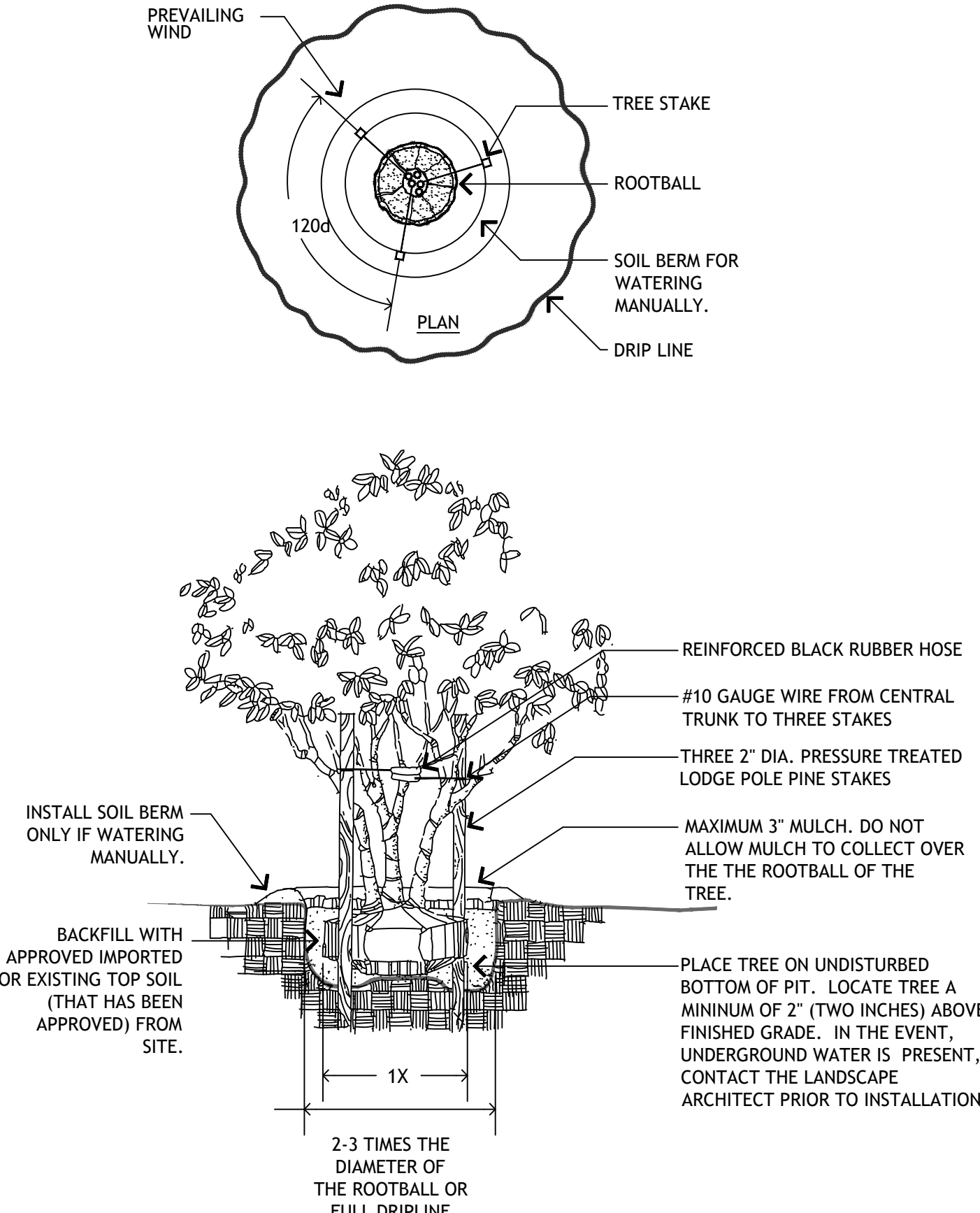
2 SABAL PALM PLANTING DETAIL

LD-2



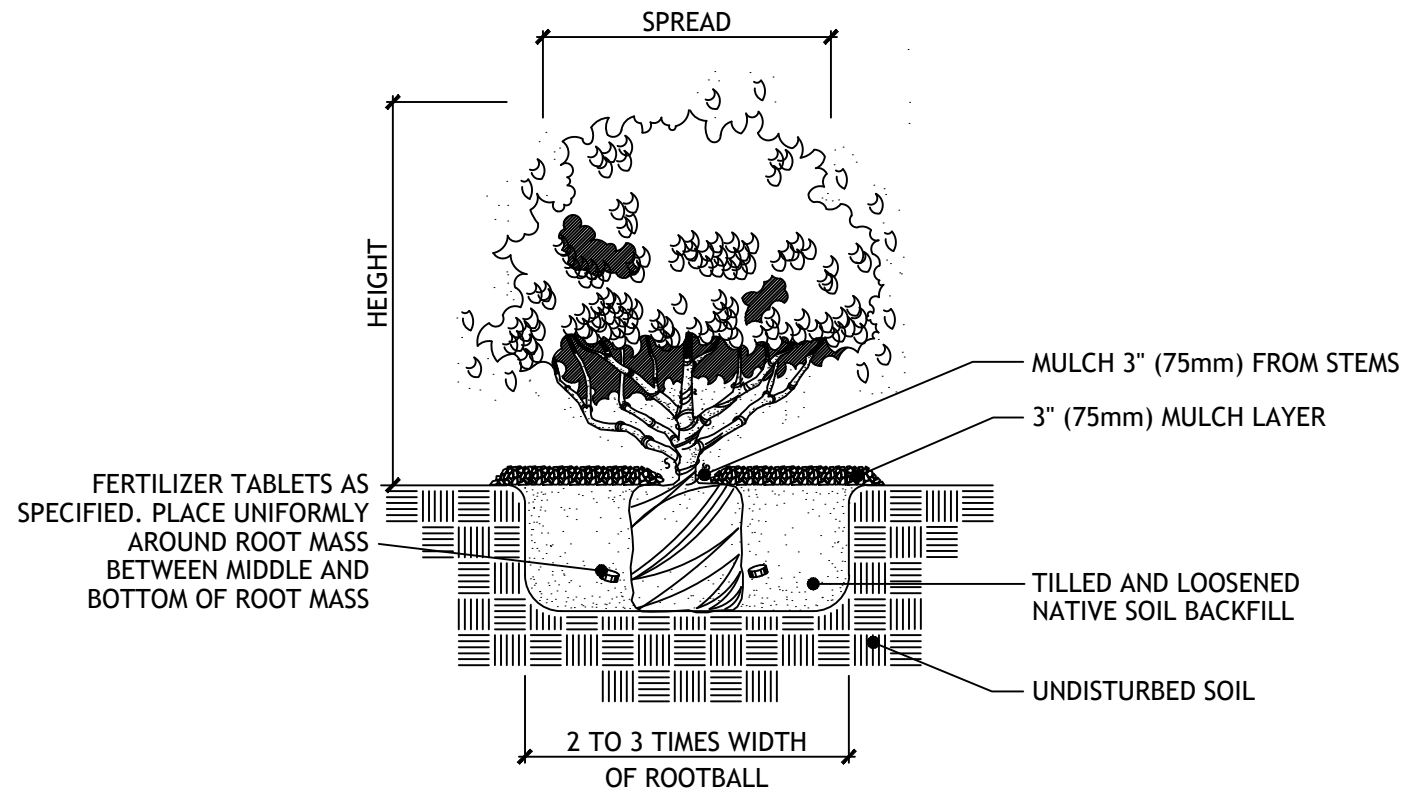
6 SHRUB AND GROUNDCOVER LAYOUT DETAIL

LD-2



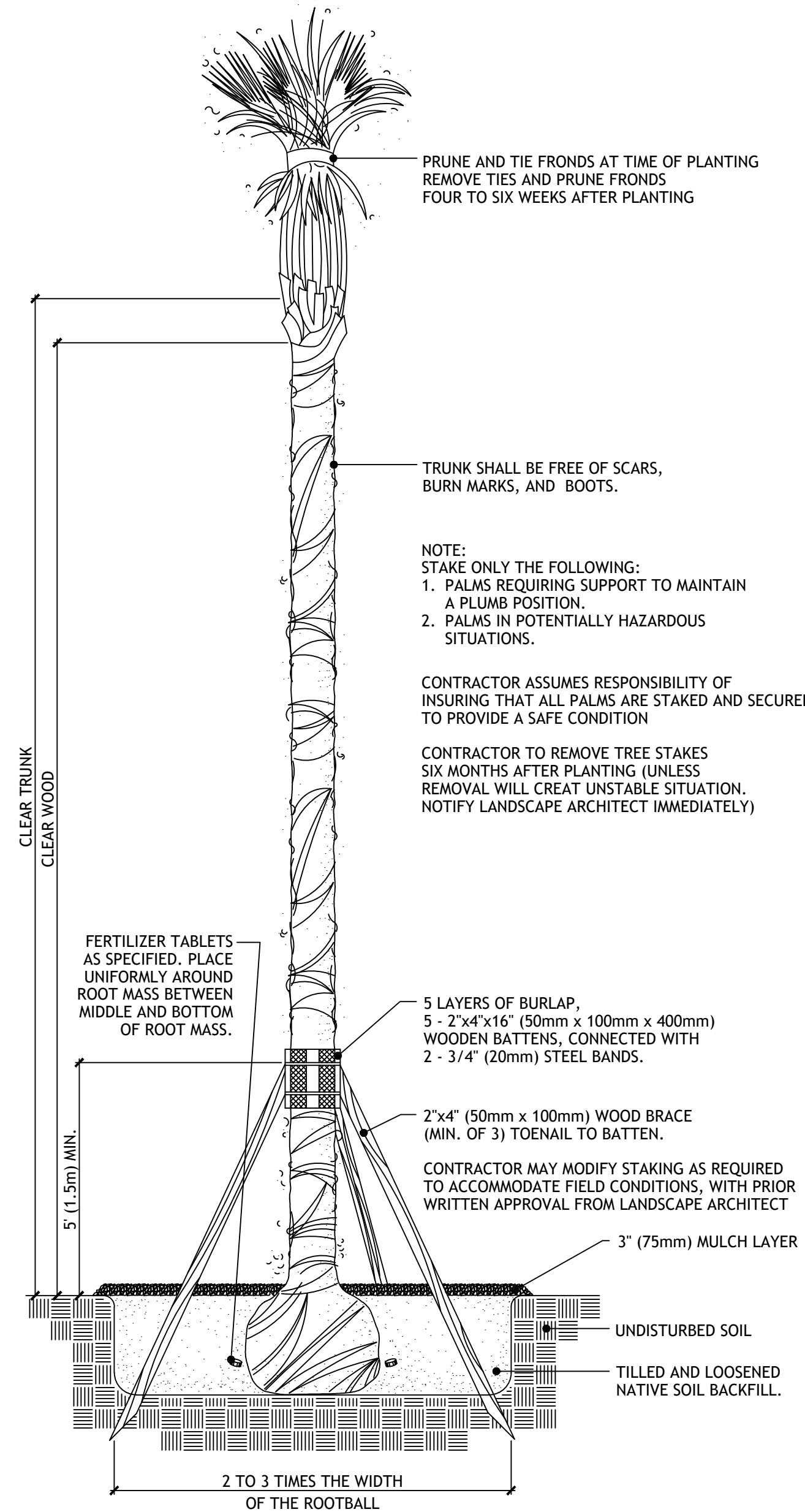
3 MULTI-TRUNK TREE PLANTING DETAIL

LD-2



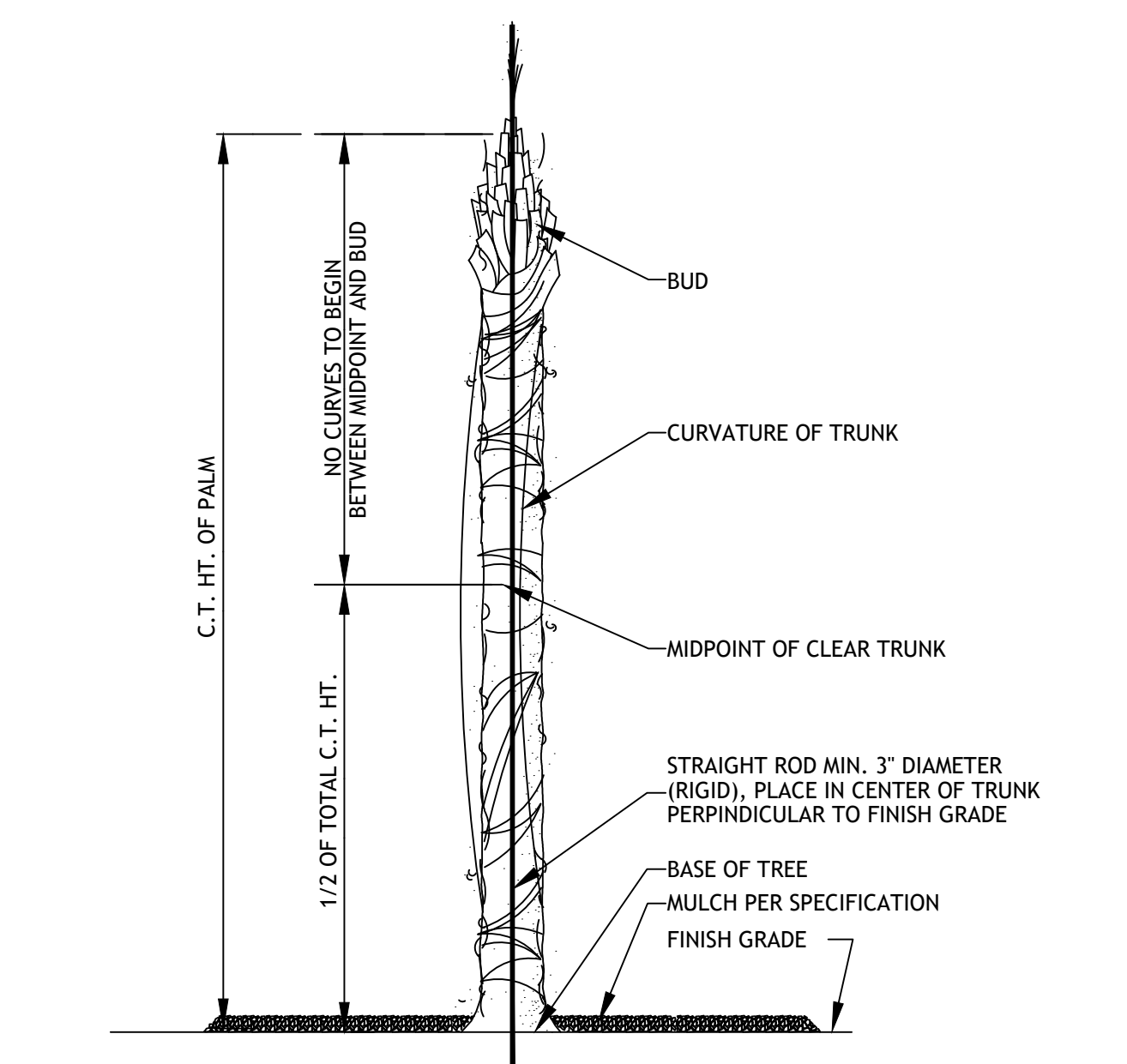
7 SHRUB PLANTING DETAIL

LD-2



4 PALM PLANTING DETAIL (EXCEPT SABAL PALMS)

LD-2



8 SABAL PALM ACCEPTABLE CURVATURE DETAIL

LD-2



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REVISIONS

NO.	COMMENTS	DATE

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JOB NUMBER 20045
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CHECKED BY JB/HB

SCALE: N/A



LANDSCAPE DETAILS

LD-2

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0.01 GENERAL

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 the Scope of Work. The Scope of Work includes everything from 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 any and/or transplant existing plants if indicated; to furnish, plant, fertilize, and water trees, shrubs, and plants and prune all plant material 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, 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 submit subcontract 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 controlling 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. "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 by the Owner 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/alternates 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 entry at the Contractor's risk.

D. All material acquired through additions or substitutions shall be subject to all conditions and warranties stated herein.

1.07 ABBREVIATIONS/DEFINITIONS

A. O.A. or H.T.: The over-all-height of the plant measured from the ground to the natural, unstate 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 trunk 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. 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 includes the "nut" at the base of the fronds.

D. S.P.: Spread, branches measured in natural untid position to the average crown diameter, not including extreme leaves, branches, or fronds.

E. S.T.R.: Straight trunk.

F. MIN.: Minimum.

G. GALL: 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 (1.37 meters) above grade.

M. CAL: Caliper, the outside diameter of up to a four inch (100 millimeters) tree is measured at 150 millimeters (15 inches) 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 except upon special approval. Plants shall not be pulled by the tops or stems, nor handled in a rough or careless manner at any time.
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 be no 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. Balled and burlapped trees and shrubs shall be planted. Balled palms shall be planted within 24 hours of delivery.

6. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and cover to keep roots moist.

7. 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.

8. Sod: Time delivery so that sod will be placed within twenty four (24) hours after grading. 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 the 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 completed work.
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, may request work stoppage. Upon written request from the Owner's Representative, the Landscape Contractor shall suspend delivery of material and stop all work for such a period as deemed necessary 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. Locate and excavate, as required, to maintain a minimum 18" depth clearance. 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 Standardized Plant Names as adopted by the latest edition 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 other diseases, plant diseases, defects, and injuries. Plants shall be well-branched and densely foliated when in leaf and shall have healthy, well-developed root systems.
2. Trees shall be heavily branched or, in the case of palms, be heavily leaved. Some plant materials may be collected stock with immediate terminal growth. All measurements shall 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 unacceptable.
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 I 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 non-available. In such event, if the Landscape Architect designates an available source, such shall be acquired from designated source. When authorized, substitutions shall be kept most prior to and after installation, 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 Contract. Measurements shall be taken from the trunk, 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 earth of sufficient diameter and depth to encompass the feeding root system necessary for full development of the plant and to conform with the standards of the American Association of Nurserymen. Root balls and tree trunks shall not be damaged by improper binding and/or baling & burlapping procedures.
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 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/if 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 stacked more than 24 hours before laying and it must be grown in soil compatible to that in which it will be installed. (20-9 square meters to 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 specified in the requirements.

D. Mulch:

1. Mulch shall be 100% recycled wood mulch, thoroughly mixed with a pre-emptive 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 application 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 amount of nutrients for the type of plant material specified.
3. Agriform 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 backfilling.
4. Ground cover and annual areas shall receive fertilization with Osmocote 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 kilogram) of nitrogen per one thousand (1,000) square meters. Fertilizer shall be applied in a 1/4" layer, in the top 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 such as (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 millimeters) x 4 inch (100 millimeters) pressure treated lumber, with a stake 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. The soil must be free of rocks, sticks 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.
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. Rototill organic loam (150 millimeters) to 6 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.s.) stock with lagging 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 trunk of the tree from any zone in which is the base surround a tree within a circle described by the DBH of a one foot for each inch (25 millimeter) of the tree's diameter at breast height radius 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 paved surfaces according to specific product name or instruction. 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.
1. 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 with Monsanto's "Round-Up" 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 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. Rototill 150mm organic loam to 150 millimeters (6 inches) to 8 inches (200 millimeters) into the native soil. Grade the planting bed by "crowning" to insure that surface drainage, percolation, and seepage occur at rapid rates. Add Osmocote 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 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 kilogram) 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. Moisten 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 shown is for finished berm with soil at natural composition.
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 to 7.0). No heavily organic soil, such as muck or peat shall 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 obstructions, prevent blockage of doors, 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 edges 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.

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 dead areas) will be planted 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 Agriform 20-10-5 planting tablets, or approved equal, at time of installation and prior to completion of pit backfilling. Uniform planting tablets shall be placed in the soil directly 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)	3 – 21 gram tablet
5 gallon (18.9 liter)	3 – 21 gram tablet
7 gallon (26.5 liter)	4 – 21 gram tablet
 - Tree:

3 tablets each 1/2 inch (12 millimeters) caliper
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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 filled and loosened native soil around the sides of the root ball. Remove the top 4 inches (100 millimeters) of soil, wire, and all balled 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. Culture 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 filled 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 between a variety of plant species shall be 10 feet. Shrubs and ground covers adjacent to straight or curved edges shall be triangular-spaced in rows parallel to the edges. Plant minimum distance between plants shall be 45 inches (450 millimeters) from the back of 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.

D. Sodding

1. During periods of drought, sod shall be watered sufficiently at its origin to moisten the soil adequately to the depth which 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 prior to 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 curb 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). Watering shall be done 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 surface. Watering shall be repeated as necessary to keep the sod moist.
5. The sod shall be pressed firmly into contact with the sod 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 spaces of sodded areas. The edges of the sod 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, clean 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 watering 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.

E. Seeding

1. Seed shall be installed or placed at 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, a minimum of 2 stakes per tree or on optional 3- to 4 stakes per tree at equal 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. Install the stakes to below the planting of 3 layers of burlap and to 5 – 2 inch (50 millimeters) 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 meter) 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. Stakes 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 beds 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 6 inch (150 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) top 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, disposal of all excess soil and debris leaving pavements and work areas in a safe and orderly condition.
3. The clean-up of the site shall include the removal and proper disposal of the tree guying, staking, and bracing materials as described in these specifications.

J. Protection

1. The Contractor shall provide safeguards for the protection of workmen and others on, about, or adjacent to the work, as required under the parameters of the Occupational Safety and Health Administration (O.S.H.A.) standards.
2. The Contractor shall protect the Owner's and adjacent property from damage.
3. The Contractor shall protect the landscape work and materials from damage due to landscape operations. Maintain protection during installation and maintenance periods.
4. The Contractor shall provide protection (tree barricades) for all existing trees and palms as specified.

K. 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 or work. Patchwork and replacement of damaged work may be done by others, at the Owner's direction, but the cost thereon shall be paid by the Contractor.

Stolen Plant Materials and Other Materials Pertinent to the Project Installation

1. The Landscape Contractor shall be responsible for the entire replacement of plant materials and other materials pertinent to the project installation that are missing or stolen prior to the first final landscape inspection.

2. Plant materials that have been documented as installed and accepted by a landscape inspection performed by the Owner or the Owner's Representative shall not require replacement by the Landscape Contractor.

3. The Landscape Contractor shall be responsible for retaining the proper insurance coverage to protect against theft of plant materials and other materials pertinent to the project installation.

3.03 MAINTENANCE

A. The Contractor shall maintain all plant materials in a first class condition from the beginning of landscape construction until final acceptance. Cost of maintenance until final acceptance to be included in bid, no change orders for maintenance will be accepted.

B. Operations:

1. Maintenance shall include, but not be limited to, watering of turf and planting beds, mowing, fertilizing, cultivating, weeding, pruning, disease and pest control, replacement of dead materials, straightening, turf or planter settlement corrections, replacement of rejected materials, staking and guying repair and tightening, wash-out repairs and repainting, and any other procedures consistent with the good horticultural practice necessary to insure normal, vigorous and healthy growth of all work under the Contract. Mowing shall be consistent with the recommended height per the University of Florida Cooperative Extension Service.

2. Within the warranty period, the Contractor shall notify the Owner of any maintenance practices being followed or omitted which would be detrimental to the healthy vigorous growth of the landscape.

3. The Contractor shall be responsible for the final watering of not less than one inch of water for all planted materials before leaving the site.

3.04 INSPECTION, REJECTION, AND ACCEPTANCE

A. Inspection Contractor.

1. Upon completion of the installation, the Contractor will notify the Owner or the Owner's Representative that the job is ready for inspection. Within 15 days of notification, the installation will be inspected by the Landscape Architect. A written and/or graphic inspection report will be sent to the Owner and/or Landscape Architect.

2. If the Landscape Contractor's work is not completed and a final landscape inspection is requested by the Landscape Contractor, then all subsequent landscape inspections after the first inspection, including written and/or graphic inspection reports shall be charged to the Landscape Contractor at a rate of \$80.00 per hour. The Landscape Contractor shall be responsible for compensation to the Landscape Architect for all final inspections and reports under the above-mentioned circumstances.

B. Rejection and Replacement

1. The Landscape Architect shall be the final judge as to the suitability and acceptability of any part of the work. Plant material will be rejected if it does not meet the requirements set forth in the Plans and Specifications.

2. Replace any rejected materials immediately or not later than 20 days, and notify the Landscape Architect in writing that the correction has been made.

C. Acceptance

1. After replacement of rejected plant material (if any) have been made, and completion of all other correction items, the Owner or Owner's Representative will accept the project in whole.

2. Upon final acceptance, the Owner assumes responsibility for maintenance within the terms of the Contract. Acceptance will in no way invalidate the Contractor's warranty period.

3. The Contractor's warranty period will begin after final acceptance of the project by the Owner.

3.05 OWNER'S OPTIONS

A. If evidence exists of any lien or claim arising out of or in connection with default in performance of this Contract, the Owner shall have the right to retain any payment sufficient to discharge such claim and all costs in connection with discharging such claim.

B. Where the Specifications call for any stipulated item or an "approved equivalent", or in words to that effect, the Contractor shall indicate the price of the type and species specified in the proposal, giving the price to be added or deducted from his contract price. The final selection rests with the Owner or Owner's Representative.

C. Where plants installed do not meet Specifications, the Owner reserves the right to request plant replacement or an appropriate deduction from the Contract amount to compensate for the value not received from the under-specified plant materials. No additional compensation will be made to the Contractor for plants installed that exceed Specifications.

3.06 WARRANTY

A. The Contractor shall warrantly all trees furnished under this contract for a period of 1 year and all shrubs for a period of 4 months. Material which is either dead or in poor health during this period or at completion will be replaced at no charge to the Owner. Should any of the plant materials show 50% or more defoliation during the Warranty Period, due to the Contractor's use of poor quality or improper materials or workmanship, the Contractor, upon notice shall replace without delay same with no additional cost to the Owner. Should any plant require replacing, the new plant shall be given the equal amount of warranty.

4.00 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

1. The quantity of Landscape for which payment will be made shall be the actual number of units measured in place and accepted. The units measured shall be as listed in the Bid Schedule. If a payment item for Landscape is not specifically included in the Bid Schedule, the quantity for which payment will be made shall be the quantity required to complete the work.

4.02 PAYMENT

A. Payment for Landscape shall be made at the prices stated in the Bid Schedule. If a payment item for Landscape is not specifically included in the Bid Schedule, payment for the work specified in this Section shall be included in the several unit and lump sum prices for all applicable items of work.

END OF SECTION

B

D

G

BOOTH

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SIGNATURE & SEAL

STATE OF FLORIDA

JAMES N. BEATTY



LA6667077

REGISTERED LANDSCAPE ARCHITECT

FL Registered Professional

PRICING SET

ISSUE DATE

1	PERMIT SET	08-31-20
2	PRICING SET	09-17-20

REVISIONS

SHEET INFORMATION

JOB NUMBER	20045
DRAWN BY	JB/JW
CHECKED BY	JB/HE

SCALE: N/A

SECTION 02441 – IRRIGATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

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 wilfully 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, railings 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.

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:

- Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include the following:
 - Rain Bird Sprinkler Mfg. Corp.
 - Hunter Industries
 - Netafim Irrigation
 - 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, blisters, 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 Lasco, 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 shall be a merchant coupling.

3. Under Pavement Lines: All piping under concrete and asphalt vehicle pavement, curbs, unpaved areas subject to above 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 Marlex 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 with purple markings for Reclaimed Waste Water.

1. 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. #14-600 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 cut shall be provided within three (3) feet of each wire connection and at least every one hundred (100) feet in length. Expansion cuts shall be formed by wrapping at least five (5) turns of wire around a pipe 1" (or more) in diameter, then without-wrap pipe. All splice fasteners shall be made with pan-tilt 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 pulling. 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 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 WW 54, Type I, Class A, with all brass or bronze body, non_rising stem, "Kennedy #42" 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 Marks 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:

- Main lines and quick coupler lines shall be 18".
- Lateral sprinkler lines shall be 12".
- Non-pressure rotor head lines shall be 15".
- Emitter lines shall be 6"below finish grade.
- 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. Cooling 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 "ankered" 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 valve, gate valve sleeves, and concrete meter box as required. Coordination 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 slump 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 external load at any point. Any 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:

- Thoroughly clean the mating pipe and fitting with a clean dry cloth.
- Apply primer to all connections prior to applying solvent. Use only compatible primer following manufacturer's specifications.
- 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.
- 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.
- Hold in position for 15 seconds. Wipe off excess solvent that appears at the outer shoulder of the fittings.
- Core 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 paint. 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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