

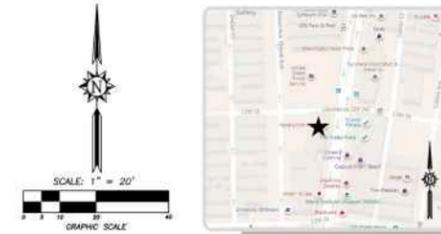
LANDSCAPE

---

# SKETCH OF BOUNDARY AND TOPOGRAPHIC SURVEY OF: 1234 & 1260 WASHINGTON AVE., MIAMI BEACH, FL

- LEGEND:**
- ⊕ CABLE TV RISER
  - ⊕ GAS METER
  - ⊕ GREASE TRAP MANHOLE
  - ⊕ STREET METAL LIGHT POLE
  - ⊕ WIRE PULL BOX
  - ⊕ FIRE DEPARTMENT CONNECTION
  - ⊕ METAL BOLLARD
  - ⊕ SIGN
  - ⊕ CATCH BASIN
  - ⊕ SANITARY SOWER MANHOLE
  - ⊕ STORM DRAIN MANHOLE
  - ⊕ CURB INLET
  - ⊕ UTILITY MANHOLE
  - ⊕ WATER METER
  - ⊕ WATER VALVE
  - ⊕ PARKING METER
  - ⊕ METAL LIGHT POLE
  - ⊕ FLAG POLE
  - NAV D 88 NORTH AMERICAN VERTICAL DATUM OF 1988
  - TRAV. PT. TRANSVERSE POINT

- LEGEND:**
- M.D.C.R. MIAMI-DADE COUNTY RECORDS
  - L.B. LICENSED BUSINESS
  - P.B. PLAT BOOK
  - P.G. PAGE
  - ID. IDENTIFICATION
  - A/C AIR CONDITIONING UNIT
  - (P) DENOTES INFORMATION BASED ON PLATS OF RECORDS
  - (R) DENOTES DISTANCE BASED ON RECORD INFORMATION
  - (C) CALCULATED
  - RM EL. RM ELEVATION
  - TR 426 TREE NUMBER 426
  - ⊕ CENTERLINE
  - VIEW 1
  - ⊕ HANDICAP PARKING SPACE
  - ⊕ SURFACE ELEVATION



LOCATION MAP  
NOT TO SCALE

**TREE TABLE**

TREE NUMBER	TREE TYPE	DIAMETER @ 4.5' DBH (IN)	CANOPY DIAMETER (IN)	TOTAL HEIGHT (FT)	CLEARWOOD (FT)
256	FLAMBOYANT	18"	30'	28'	28'
427	FIG	18"	17'	26'	26'
616	PALM	13"	17'	33'	29'
617	PALM	8"	10'	24'	20'
618	PALM	10"	10'	24'	20'
619	PALM	10"	10'	24'	20'
620	PALM	13"	10'	24'	20'
621	PALM	8"	8'	22'	18'
622	PALM	12"	10'	23'	18'
623	PALM	8"	10'	24'	20'
624	PALM	7"	10'	24'	20'
625	PALM	7"	10'	24'	20'
626	PALM	7"	10'	24'	20'
627	PALM	7"	10'	24'	20'
628	PALM	7"	10'	24'	20'
629	PALM	7"	10'	24'	20'
630	PALM	8"	10'	25'	21'
631	PALM	8"	10'	25'	21'
632	PALM	9"	10'	25'	21'
633	PALM	10"	10'	26'	22'
634	PALM	8"	10'	25'	21'
635	PALM	8"	10'	25'	21'
636	PALM	8"	10'	25'	21'
637	PALM	8"	10'	25'	21'
638	PALM	8"	10'	25'	21'

**LEGAL DESCRIPTION:**

LOTS 1, 2, 3, 4 AND THE NORTH 1/2 OF LOT 5, IN BLOCK 22, OF OCEAN BEACH ADDITION NO. THREE, ACCORDING TO THE PLAT THEREOF, RECORDED IN PLAT BOOK 2, AT PAGE 81 OF THE PUBLIC RECORDS OF MIAMI-DADE COUNTY, FLORIDA.

**SURVEY NOTES:**

1. THIS SURVEY REPRESENTS A BOUNDARY AND TOPOGRAPHIC SURVEY AS DEFINED BY STANDARDS OF PRACTICE FOR SURVEYING AND MAPPING CHAPTER 5-17, FLORIDA ADMINISTRATIVE CODES. THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.
2. THE BEARINGS SHOWN HEREON ARE BASED ON A BEARING OF N 88°01'17"E, ALONG THE SOUTH RIGHT OF WAY LINE OF 13TH STREET ARE RELATIVE TO THE FLORIDA STATE PLANE COORDINATES SYSTEM, EAST ZONE, 1983 (1990) ADJUSTMENT.
3. THE PROPERTY SHOWN HEREON LIES WITHIN FLOOD ZONE AE, ELEVATION 8' (NATIONAL GEODETIC VERTICAL DATUM OF 1929) OR 6.45' (NORTH AMERICAN VERTICAL DATUM OF 1988), AS SHOWN IN FLOOD INSURANCE RATE MAP NUMBER 12086C 0317 L, COMMUNITY NUMBER 120651, CITY OF MIAMI BEACH, MIAMI-DADE COUNTY, FLORIDA, MAP EFFECTIVE DATE, SEPTEMBER 11, 2009.
4. THE SYMBOLS REFLECTED IN THE LEGEND AND ON THIS SURVEY MAY HAVE BEEN ENLARGED FOR CLARITY. THE SYMBOLS HAVE BEEN PLOTTED AT THE CENTER OF THE FIELD LOCATION AND MAY NOT REPRESENT THE ACTUAL SHAPE OR SIZE OF THE FEATURE.
5. THE INFORMATION DEPICTED ON THIS SURVEY REPRESENTS THE RESULTS OF A FIELD SURVEY ON THE DATE INDICATED AND CAN ONLY BE CONSIDERED AS A REPRESENTATION OF THE GENERAL CONDITIONS EXISTING AT THAT TIME.
6. THE SURVEYOR DID NOT INSPECT THE PROPERTY SHOWN HEREON FOR ENVIRONMENTAL HAZARDS. OWNERSHIP OF WALLS OR FENCES WAS NOT DETERMINED.
7. BUILDING DIMENSIONS WERE MEASURED AT GROUND LEVEL AND ARE OVERALL. ARCHITECTURAL DETAILS MAY NOT BE SHOWN.
8. OWNERSHIP OF WALLS OR FENCES WAS NOT DETERMINED.
9. THE INFORMATION CONTAINED IN THIS DOCUMENT WAS PREPARED BY ECS LAND SURVEYORS, INC. ECS HAS TAKEN ALL REASONABLE STEPS TO ENSURE THE ACCURACY OF THIS DOCUMENT. WE CANNOT GUARANTEE THAT ALTERATIONS AND/OR MODIFICATIONS WILL NOT BE MADE BY OTHERS AFTER IT LEAVES OUR POSSESSION. THIS DOCUMENT MUST BE COMPARED TO THE ORIGINAL HARD COPY (WHICH BEARS THE RAISED SURVEYOR'S CERTIFICATION SEAL IF APPLICABLE) TO ENSURE THE ACCURACY OF THE INFORMATION CONTAINED HEREON AND TO FURTHER ENSURE THAT ALTERATIONS AND/OR MODIFICATIONS HAVE NOT BEEN MADE. ECS MAKES NO WARRANTIES, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OF THE INFORMATION CONTAINED IN THIS OR ANY DOCUMENT TRANSMITTED OR REVIEWED BY COMPUTER OR OTHER ELECTRONIC MEANS. CONTACT ECS DIRECTLY FOR VERIFICATION OF ACCURACY.
10. SUBSURFACE UTILITIES, FOUNDATIONS AND ENCROACHMENTS WERE NOT LOCATED AND ARE NOT SHOWN HEREON. THIS SITE COULD HAVE UNDERGROUND INSTALLATIONS THAT ARE NOT SHOWN HEREON. BEFORE DESIGN, CONSTRUCTION OR EXCAVATION, CONTACT SUNSHINE STATE ONE CALL OF FLORIDA (1-800-332-4700) AND THE APPROPRIATE UTILITY COMPANIES FOR FIELD VERIFICATION OF UTILITIES. THIS SURVEY IS LIMITED TO ABOVEGROUND FEATURES ONLY.
11. THE PROPERTY SHOWN HEREON CONTAINS AN AREA OF 0.77 ACRES (33,488 SQUARE FEET), MORE OR LESS.
12. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES ARE PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
13. HEDGES, ORNAMENTAL PLANTS, IRRIGATION LINES AND SPRINKLER HEADS (IF ANY), NOT LOCATED OR SHOWN HEREON.
14. THIS FIRM HAS IDENTIFIED VARIOUS TYPES OF TREES LOCATED ON THIS SITE BASED ON COMMON KNOWLEDGE OF TREE SPECIES. A QUALIFIED LANDSCAPE ARCHITECT SHOULD BE EMPLOYED FOR POSITIVE IDENTIFICATION OF TREE SPECIES. TREE DIAMETERS ARE APPROXIMATE AND WERE MEASURED AT BREAST HEIGHT. ONLY TREES 4" CALIPER INCHES IN DIAMETER OR LARGER WERE LOCATED AND SHOWN ON THE SURVEY. DEAD TREES, HEDGES AND GROUND COVER WERE NOT LOCATED AND ARE NOT SHOWN HEREON. EXOTIC TREES SUCH AS MELALEUCA, BRAZILIAN PEPPER AND AUSTRALIAN PINE WERE NOT LOCATED OR SHOWN HEREON.
15. THE ELEVATIONS SHOWN HEREON ARE BASED ON A CITY OF MIAMI BENCHMARK "12 02 04" AND REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). THE MARK IS LOCATED AT THE NORTH MEDIAN OF THE INTERSECTION OF 12TH STREET AND WASHINGTON AVENUE, ELEVATION=5.31'.

**THIS SURVEY IS CERTIFIED TO:**

LOCATION VENTURES.

**CERTIFICATE:**

THIS IS TO CERTIFY THAT THIS BOUNDARY AND TOPOGRAPHIC SURVEY WAS MADE UNDER MY RESPONSIBLE CHARGE AND IS ACCURATE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JAVIER DE LA ROCHA  
PROFESSIONAL SURVEYOR AND MAPPER NO. 6080  
STATE OF FLORIDA  
ECS LAND SURVEYORS, INC. L.B. 7551  
EMAIL: JAVIER@ECS-SURVEYORS.COM



Digitally signed by  
Javier De La Rocha  
Date: 2019.11.11  
08:31:36 -05'00'

TELEPHONE NO. 561-314-0769 FAX NO. 561-314-0770



13460 FAIRLANE FARMS ROAD, SUITE 6, WELLINGTON, FL 33414

SEAL  
NOT VALID UNLESS  
SEALED HERE  
WITH  
AN EMBOSSED  
SURVEYOR'S SEAL

SKETCH OF BOUNDARY  
AND TOPOGRAPHIC SURVEY  
OF  
LOTS 1, 2, 3, 4 AND  
THE N 1/2 OF LOT 5, IN BLOCK 22  
OCEAN BEACH ADDITION NO. THREE  
PLAT BOOK 2, PAGE 81, M.D.C.R.

CLIENT: LOCATION VENTURES

DATE: 11/08/19

DRAWN BY: J.E.C.

CHECKED BY: JDLR

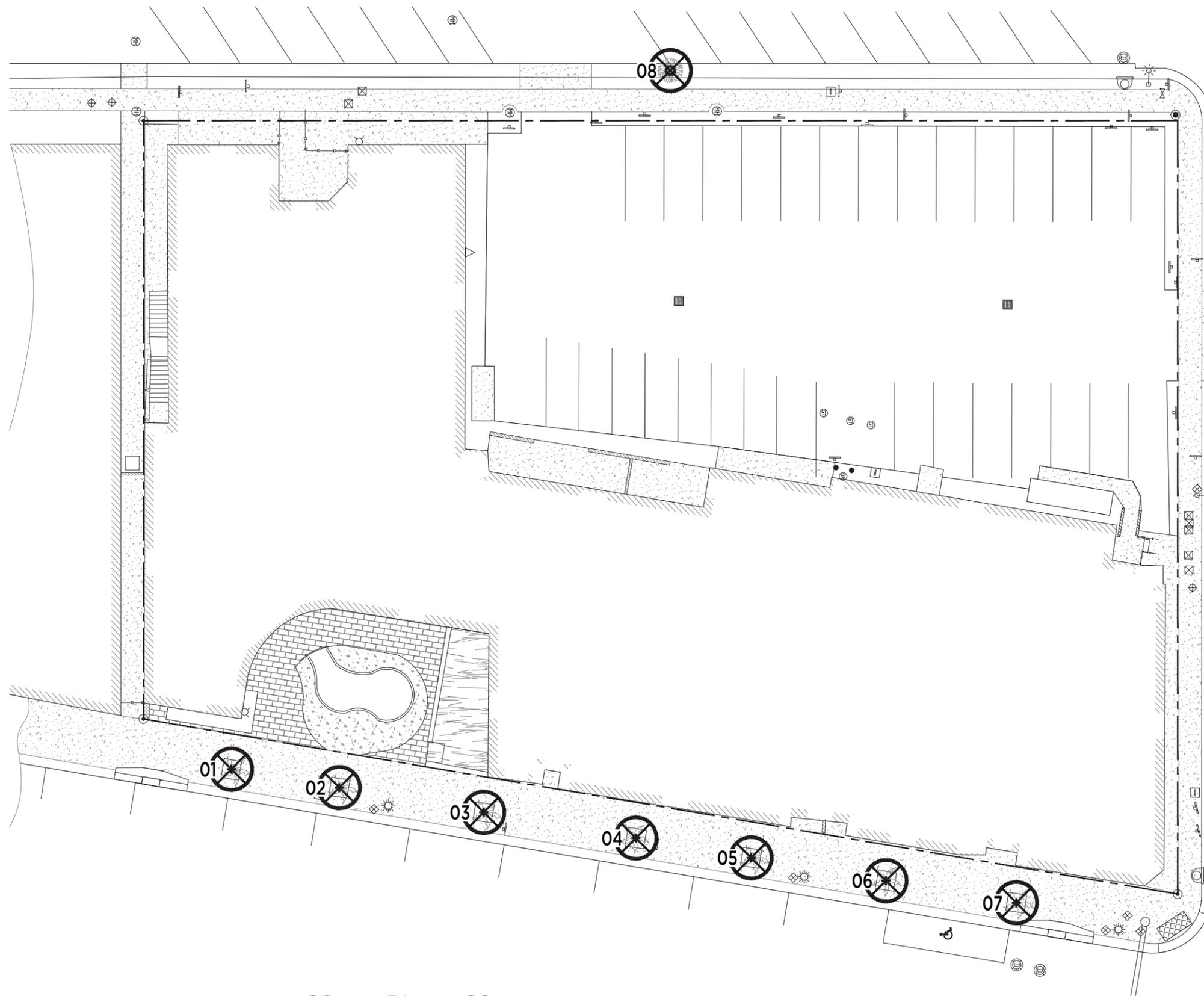
LAST FIELD DATE: 11/07/19

REVISIONS:

JOB NO.  
**ECS2058**

SHEET NO.  
01

OF  
01



TREE DISPOSITION LEGEND	
Symbol	Definition
## ⊗	Tree to Remove
## ⊗	Palm Tree to Remove

TREE DISPOSITION CHART							
#	Scientific Name	Common Name	DBH	Canopy Dia.	Height	Clearwood	Disposition
01	<i>Cocos nucifera</i>	Coconut Palm		33'	29'	300	REMOVE
02	<i>Cocos nucifera</i>	Coconut Palm		26'	23'	300	REMOVE
03	<i>Cocos nucifera</i>	Coconut Palm		24'	20'	300	REMOVE
04	<i>Cocos nucifera</i>	Coconut Palm		24'	25'	300	REMOVE
05	<i>Cocos nucifera</i>	Coconut Palm		28'	18'	300	REMOVE
06	<i>Cocos nucifera</i>	Coconut Palm		22'	18'	300	REMOVE
07	<i>Cocos nucifera</i>	Coconut Palm		23'	20'	300	REMOVE
08	<i>Tabebuia bahamensis</i>	Trumpet Tree	12"	17'	26' OA	227	REMOVE

TREE REPLACEMENT CHART			
#	Scientific Name	Common Name	Replacement Trees
01	<i>Cocos nucifera</i>	Coconut Palm	300
02	<i>Cocos nucifera</i>	Coconut Palm	300
03	<i>Cocos nucifera</i>	Coconut Palm	300
04	<i>Cocos nucifera</i>	Coconut Palm	300
05	<i>Cocos nucifera</i>	Coconut Palm	300
06	<i>Cocos nucifera</i>	Coconut Palm	300
07	<i>Cocos nucifera</i>	Coconut Palm	300
08	<i>Tabebuia bahamensis</i>	Trumpet Tree	227

FROM PLANT SCHEDULE (SEE SHEET L-3):  
 BS *Bursera simaruba* / Gumbo Limbo  
 CR *Clusia rosea* / Pitch Apple  
 MF *Myrcianthes fragrans* / Simpson's Stopper  
 AA *Archontophoenix alexandriae* / Alexandra Palm  
 AW *Acoelornapha wrightii* / Paurotis Palm  
 TR1 *Thrinax radiata* / Florida Thatch Palm  
 TR2 *Thrinax radiata* / Florida Thatch Palm



**URBIN RETREAT**  
 1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA

**cadence** No copies, transmissions, reproductions or electronic manipulation of any portion of these drawings in whole or in part are to be made without the express written permission of Cadence Landscape Architects. All designs indicated in these drawings are property of Cadence LLC.

TREE DISPOSITION PLAN

**PLANT SCHEDULE - GROUND FLOOR**

TREES	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
BS	2	Bursera simaruba	Gumbo Limbo	Y	See Plan	16' - 18' OA	FG	Standard
CE	11	Conocarpus erectus	Green Buttonwood	Y	See Plan	12' - 14' OA, min. 6' CT, 3" CAL	FG	Standard
CF	3	Caesalpinia ferrea	Brazilian Leopard Tree	N	See Plan	18' OA	100 gal	Standard, Matching
CR	1	Clusia rosea	Pitch Apple	N	See Plan	20' OA	FG	Full Canopy, Specimen
MF	1	Myrcianthes fragrans	Simpson's Stopper	Y	See Plan	12' OA, 2" CAL.	100 gal	Multi Trunk, Full Structure
PALMS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
AA	5	Archontophoenix alexandrae	Alexandra Palm	N	See Plan	30' CT	FG	Straight Trunk, Matching
AW	1	Accolorrhaphe wrightii	Paurotis Palm	Y	See Plan	16' - 18' OA	FG	Multi Trunk, Full Structure to Base
CC	1	Coccothrinax crinita	Old Man Palm	N	See Plan	2' CT	50 gal	Full Structure, Min 7 Fronds
SM	9	Sabal minor	Dwarf Palmetto	Y	See Plan	4' OA	FG	Full Structure, Min 5 Fronds
TR1	10	Thrinax radiata	Florida Thatch Palm	Y	See Plan	10' CT	FG	Full Structure, Min 7 Fronds
TR2	7	Thrinax radiata	Florida Thatch Palm	Y	See Plan	14' - 16' CT	FG	Curved Trunk
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
ARD	5	Ardisia escallonioides	Marlberry	Y	See Plan	8' OA	100 gal	Multi Trunk, Full Structure
CAP	2	Calyptanthus pallens	Spicewood	Y	See Plan	5' OA	50 gal	Full Structure
CHR	32	Chrysobalanus icaco 'Horizontalis'	Horizontal Coccolup	Y	See Plan	2' - 3' OA	15 gal	Bush, Full to Base
EUG	12	Eugenia foetida	Spanish Stopper	Y	See Plan	6' OA	25 gal	Multi Trunk, Full to Base
PSL	4	Psychotria ligustrifolia	Bahama Coffee	Y	See Plan	3' OA	7 gal	Full to Base
RHA	10	Rhapis excelsa	Lady Palm	N	See Plan	4' OA	25 gal	Full Structure
SER	1	Sereoa repens 'Miami Select'	Silver Saw Palmetto	Y	See Plan	4' OA	100 gal	Full Structure
BROMELIADS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	HEIGHT	CONT	SPECIFICATIONS
BRO	3	Assorted Bromeliads	Bromeliad	N	See Plan	24" HT X 24" SPR	Varies	Assorted Species + Sizes
GRASSES	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
TRF	17	Tripsacum floridanum	Florida Gamagrass	Y	36" o.c.	2' OA	1 gal	Full Structure
TRI	6	Tripsacum dactyloides	Fakahatchee Grass	Y	See Plan	2' - 3' OA	3 gal	Full Structure
PERENNIALS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
PHI	3	Philodendron subincisum	Philodendron Wilsonii	N	See Plan	2' OA	7 gal	Full Structure
PRC	2	Philodendron 'Rojo Congo'	Rojo Congo Philodendron	N	See Plan	36" HT X 24" SPR	7 gal	Full Structure
STR	3	Strelitzia nicolai	Giant Bird of Paradise	N	See Plan	7' - 8' OA	25 gal	Full Structure
RAIN GARDEN PLANTS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
ASI	3	Asclepias incarnata	Pink Swamp Milkweed	Y	18" o.c.	24" HT X 18" SPR	1 gal	Full Structure w/ Blooms
ASP	17	Asclepias perennis	White Swamp Milkweed	Y	18" o.c.	24" HT X 18" SPR	1 gal	Full Structure w/ Blooms
IRV	27	Iris virginica	Blue Flag Iris	Y	See Plan	18" HT X 12" SPR	1 gal	Full Structure w/ Blooms
MON	4	Monstera deliciosa	Split-Leaf Philodendron	N	See Plan	36" HT	7 gal	Full Structure
MUH	6	Muhlenbergia capillaris	Pink Muhly Grass	Y	See Plan	24" HT X 24" SPR	1 gal	Full Structure w/ Blooms
MYC	1	Myrica cerifera	Wax Myrtle	Y	See Plan	5' OA	50 gal	Full Structure
ODO	5	Odontonema strictum	Firespike	N	See Plan	2' - 3' OA	3 gal	Full Structure w/ Blooms
OSM	17	Osmundastrum cinnamomeum	Cinnamon Fern	Y	30" o.c.	24" HT X 24" SPR	3 gal	Full Structure
PHY	73	Phylla nodiflora	Frogfruit	Y	16" o.c.		1 gal	No Gaps
ZAM	3	Zamia integrifolia	Coontie	Y	See Plan	24" HT X 24" SPR	15 gal	Full Structure
VINES & EPIPHYTES	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
FIC	13	Ficus pumila	Creeping Fig	N	See Plan		1 gal	Trellis, Full Structure
THU	4	Thunbergia laurifolia	Laurel Blue Trumpet Vine	N	See Plan		7 gal	Trellis, Full Structure w/ Blooms
TIL		Assorted Orchids and Airplants	Orchids and Airplants	Y	N/A		N/A	Assorted Species + Sizes
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
BAR	13	Barleria repens	Coral Creeper	N	24" o.c.	12" HT X 12" SPR	1 gal	Full Structure w/ Blooms
ERN	66	Ernodea littoralis	Golden Creeper	Y	24" o.c.	12" HT X 24" SPR	3 gal	Full Structure
MIC	549	Microsorium scolopendrum	Wart Fern	N	18" o.c.	12" HT X 12" SPR	1 gal	No Gaps
MIM	189	Mimosa strigillosa	Sunshine Mimosa	Y	18" o.c.	12" SPR	1 gal	Full Structure w/ Blooms
PBM	127	Philodendron 'Burlie Marx'	Burlie Marx Philodendron	N	18" o.c.	12" HT X 12" SPR	1 gal	Full Structure
PHL	94	Phlebodium aureum 'Blue Star'	Blue Star Fern	N	12" o.c.	12" HT X 12" SPR	1 gal	Full Structure
TRO	17	Tradescantia ohienis	Spiderwort	Y	24" o.c.	12" HT X 12" SPR	3 gal	Full Structure w/ Blooms
ZOT	92 sf	Zoysia tenuifolia	Bump Grass	N	12" o.c.	N/A	3 gal	No Gaps

**PLANT SCHEDULE - OFFICE ROOF + HOTEL LVL 02**

TREES	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
FT	4	Small Fruit Tree	Small Fruit Tree	N	See Plan			Standard
VINES & EPIPHYTES	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
PAI	3	Passiflora incarnata	Passion Flower Vine	Y	See Plan	60" HT X 24" SPR	7 gal	Full Structure w/ Blooms
PEN	4	Pentalon luteum	Wild Alamanda	Y	See Plan	36" HT X 36" SPR	7 gal	Full Structure w/ Blooms
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
NEP	46	Nephrolepis exaltata	Native Sword Fern	Y	18" o.c.	18" HT X 18" SPR	3 gal	Florida Native
VEG	192 sf	Assorted Vegetables/Herbs	Vegetables/Herbs	N	N/A	N/A	N/A	

**PLANT SCHEDULE - HOTEL ROOF**

TREES	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
MF	1	Myrcianthes fragrans	Simpson's Stopper	Y	See Plan	12' OA, 2" CAL.	100 gal	Multi Trunk, Full Structure
TB	1	Tabebuia bahamensis	White Tabebuia	N	See Plan	12' OA, 3" CAL.	100 gal	Standard
PALMS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
CM	1	Coccothrinax miraguama	Silver Palm	N	See Plan	2' - 3' CT	50 gal	Full Structure, Min 7 Fronds
SL	3	Satakentia luikiensis	Satake Palm	N	See Plan	8' - 10' CT	FG	Full Structure, Min 7 Fronds
TR1	5	Thrinax radiata	Florida Thatch Palm	Y	See Plan	10' CT	FG	Full Structure, Min 7 Fronds
TR4	2	Thrinax radiata	Florida Thatch Palm	Y	See Plan	4' CT	FG	Full Structure, Min 7 Fronds
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
CHR	3	Chrysobalanus icaco 'Horizontalis'	Horizontal Coccolup	Y	See Plan	2' - 3' OA	15 gal	Bush, Full to Base
RAD	48	Radermachera sinica	China Doll	N	See Plan	6' - 8' OA	50 gal	Multi Trunk, Full Structure
RHA	7	Rhapis excelsa	Lady Palm	N	See Plan	4' OA	25 gal	Full Structure
BROMELIADS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
BRO	1	Assorted Bromeliads	Bromeliad	N	See Plan	24" HT X 24" SPR	Varies	Assorted Species + Sizes
GRASSES	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
TRF	10	Tripsacum floridanum	Florida Gamagrass	Y	36" o.c.	2' OA	1 gal	Full Structure
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	NATIVE	SPACING	SIZE	CONT	SPECIFICATIONS
BAR	18	Barleria repens	Coral Creeper	N	24" o.c.	12" HT X 12" SPR	1 gal	Full Structure w/ Blooms
MIC	91	Microsorium scolopendrum	Wart Fern	N	18" o.c.	12" HT X 12" SPR	1 gal	No Gaps
PBM	15	Philodendron 'Burlie Marx'	Burlie Marx Philodendron	N	18" o.c.	12" HT X 12" SPR	1 gal	Full Structure

**LANDSCAPE LEGEND**

ZONING DISTRICT: CD-2 Commercial, Medium Intensity District	LOT AREA: 33,489 SF	ACRES: 0.7688
OPEN SPACE	REQUIRED/ALLOWED	PROVIDED
A Square feet of required Open Space, as indicated on site plan: Lot Area = 33,489 SF X 10% = 3,348.9 SF	3,384.9 SF	13,637.73 SF (40.7%)
B Square feet of parking lot open space required by Article 9, as indicated on site plan: Number of parking spaces 17 X 10 SF per parking space = 170 SF	170 SF	170 SF+
C Total square feet of landscaped open space required: A + B =	3,554.9 SF	13,807.73 SF
LAWN AREA CALCULATION	REQUIRED/ALLOWED	PROVIDED
A Square feet of landscaped open space required	3,554.9 SF	13,807.73 SF
B Maximum lawn area (sod) permitted = 20% X 13,807.73 SF	2,761.54 SF	N/A
TREES	REQUIRED/ALLOWED	PROVIDED
A Number of trees required per net lot area, less existing number of trees meeting minimum requirements: 22 trees X 0.31 net lot acres - number of existing trees = 6.82	7	7+
B % Natives required: Number of trees provided X 30% =	2.1	3+
C % Drought tolerant and low maintenance required: Number of trees provided X 50% =	3.5	4+
D Street Trees (maximum average spacing of 30' o.c.): 228.2 linear feet along street (Washington Ave.) / 30 = 7.6	8	8
E Street trees located directly beneath power lines: (maximum average spacing of 20' o.c.): linear feet along street / 25 =	N/A	N/A
SHRUBS	REQUIRED/ALLOWED	PROVIDED
A Number of shrubs required: Number of trees provided X 10 =	70	70+
B % Native shrubs required: Number of shrubs provided X 30% =	21	21+
C % Drought tolerant and low maintenance required: Number of shrubs provided X 50% =	35	35+
LARGE SHRUBS OR SMALL TREES	REQUIRED/ALLOWED	PROVIDED
A Number of large shrubs or small trees required: Number of shrubs provided X 10% =	7	7+
B % Native large shrubs or small trees required: Number of shrubs provided X 50% =	3.5	4+

**LANDSCAPE LEGEND**

	REMOVED	PROVIDED
Tree Removal & Mitigation	7 Palms, 1 Tree	ON-SITE REPLACEMENT 23 Palms with min. 6' CT + 4 Trees with min. 12' OA (2,350 Canopy Credits)

NATIVE TREE & PALM PERCENTAGE: 77% (49 of 64 trees)  
NATIVE SHRUB PERCENTAGE: 78% (132 of 169 shrubs)

**PLANTING NOTES:**

- All sizes shown for plant materials on the plans are to be considered minimum. All plant material must meet or exceed these minimum requirements for both height and spread. Any other requirements for specific shape or effect as noted on the plan(s) will also be required for final acceptance.
- In order to prevent adverse environmental impacts to existing native plant communities, Cabbage Palms (Sabal palmetto) that are harvested from the wild shall not be used to satisfy minimum landscaping requirements. Only existing Cabbage Palms (Sabal Palmetto) which are rescued from government approved donor sites, transplanted within the site, or commercially grown from seed shall be counted towards the minimum tree and native plant requirements.
- All plant material furnished by the landscape contractor shall be Florida #1 or better as established by "Grades and Standards for Florida nursery plants" and "Grades and Standards for Florida nursery trees". All material shall be installed as per CSI specifications.
- All plant material as included herein shall be warranty by the landscape contractor for a minimum period as follows: All trees and palms for 12 months, all shrubs, vines, groundcovers and miscellaneous planting materials for 90 days, and all lawn area for 60 days after final acceptance by the owner or owner's representative.
- All plant material shall be planted in planting soil that is delivered to the site in a clean loose and friable condition. All soil shall have a well drained characteristic. Soil must be free of all rocks, sticks, and objectionable material including weeds and weed seeds as per CSI specifications.
- Twelve inches (12") of planting soil 50/50 sand/topsoil mix is required around and beneath the root ball of all trees and palms, and 1 cubic yard per 50 bedding or groundcover plants.
- All landscape areas shall be covered with Eucalyptus or sterilized seed free Melaleuca mulch to a minimum depth of m three inches (3") of cover when settled. Cypress bark mulch shall not be used.
- All plant material shall be thoroughly watered in at the time of planting; no dry planting permitted. All plant materials shall be planted such that the top of the plant ball is flush with the surrounding grade.
- All landscape and lawn areas shall be irrigated by a full automatic sprinkler system adjusted to provide 100% coverage of all landscape areas. All heads shall be adjusted to 100% overlap as per manufacturers specifications and performance standards utilizing of rust free water source. Each system shall be installed with the rain sensor. Irrigation plans to be submitted for permitting.
- It is the sole responsibility of the landscape contractor to insure that all new plantings receive adequate water during the installation and during all plant warranty periods. Deep watering of all new trees and palms and any other supplemental watering that may be required to augment natural rainfall and site irrigation is mandatory to insure proper plant development and shall provided as a part of this contract.
- All plant material shall be installed with fertilizer, which shall be State approved as a complete fertilizer containing the required minimum of trace elements in addition to N - P - K, of which 50% of the nitrogen shall be derived from an organic source as per CSI specifications.
- Silva cells or approved equivalence will be implemented into the design for all canopy shade trees planted in areas where rooting space may be limited.
- Contractors are responsible for coordinating with the owners and appropriate public agencies to assist in locating in verifying all underground utilities prior to excavation.
- Plant size specifications take precedence over container size.
- The plan takes precedence over the plant list. Contractor to verify quantities and report any discrepancies to the Landscape Architect.
- All ideas, designs and plans indicated or represented by this drawing are owned by and are the exclusive property of Cadence.

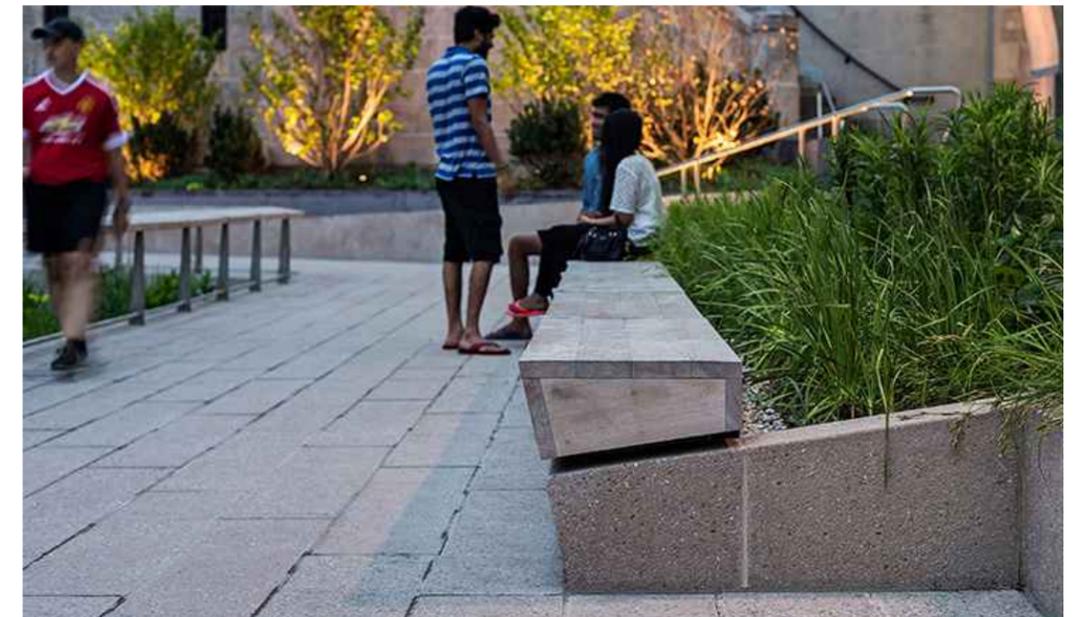
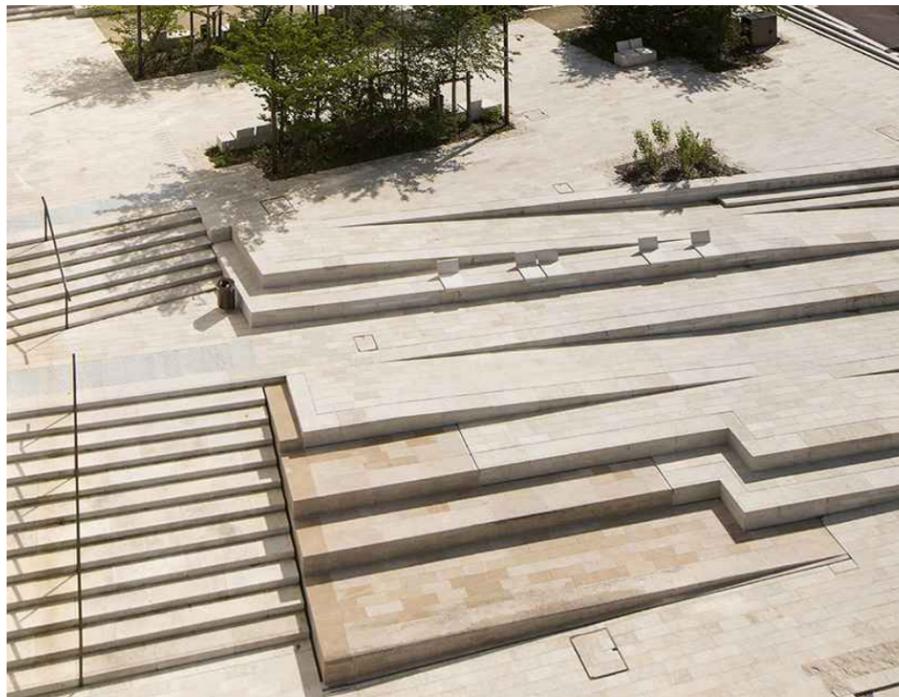


URBIN RETREAT  
1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA



No copies, transmissions, reproductions or electronic manipulation of any portion of these drawings in whole or in part are to be made without the express written permission of Cadence Landscape Architects. All designs indicated in these drawings are property of Cadence LLC.

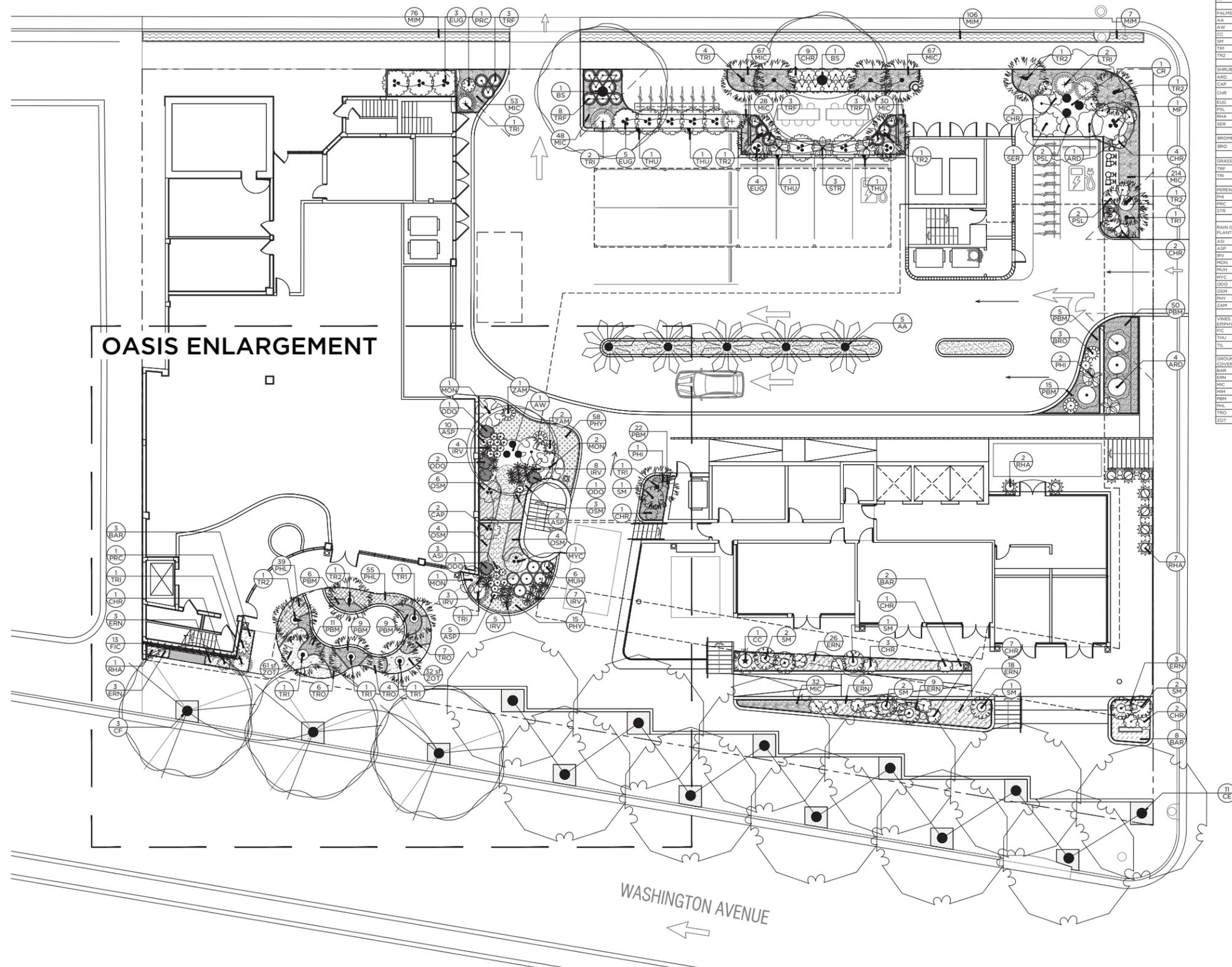
LANDSCAPE PLANT SCHEDULES AND NOTES




**URBIN RETREAT**  
 1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA

cadence No copies, transmissions, reproductions or electronic manipulation of any portion of these drawings in whole or in part are to be made without the express written permission of Cadence Landscape Architects. All designs indicated in these drawings are property of Cadence LLC.

LANDSCAPE CHARACTER IMAGERY - GROUND FLOOR



PLANT LIST - GROUND FLOOR			
TREES	QTY	BOTANICAL NAME	COMMON NAME
TR	2	Bursera simaruba	Gumbo Limbo
CF	1	Coccoloba erecta	Green Buttonwood
CF	3	Caesalpinia ferrea	Brazilian Leopard Tree
CR	1	Cordia rosea	Pitch Apple
MF	1	Myrsine hirsuta	Simpson's Stopper
PALMS			
QTY	BOTANICAL NAME	COMMON NAME	
AA	5	Archontophoenix alexandriae	Alexandra Palm
AW	1	Acrostichum wrightii	Paumotu Palm
CC	1	Coccothrinax crinita	Old Man Palm
SM	9	Sabal minor	Dwarf Palmetto
TR	50	Thrinax radiata	Florida Thatch Palm
TRZ	7	Thrinax rostrata (Curved)	Florida Thatch Palm
SHRUBS			
QTY	BOTANICAL NAME	COMMON NAME	
5	Ardisia acuminata	Manberry	
2	Calyptranthes patens	Spicewood	
32	Chrysobalanus icaco	Horizontal Coccoloba	
12	Eugenia foetida	Spanish Stopper	
4	Psychotria ligustrifolia	Bahama Coffee	
15	Rhus avicaria	Lady Palm	
1	Serenoa repens 'Miami Select'	Silver Saw Palmetto	
BROMELIADS			
QTY	BOTANICAL NAME	COMMON NAME	
3	Assorted Bromeliads	Bromeliad	
GRASSES			
QTY	BOTANICAL NAME	COMMON NAME	
17	Tripsacum floridanum	Florida Gamagrass	
6	Tripsacum dactyloides	Pasadenae Grass	
PERENNIALS			
QTY	BOTANICAL NAME	COMMON NAME	
3	Phlox subulata	Phlox	
2	Phlox subulata 'Red Comp'	Red Comp Phlox	
3	Stripteria nicotiana	Giant Bird of Paradise	
RAIN GARDEN PLANTS			
QTY	BOTANICAL NAME	COMMON NAME	
3	Asclepias incarnata	Pink Swamp Milkweed	
17	Asclepias perennis	White Swamp Milkweed	
27	Iris virginica	Blue Flag Iris	
4	Monarda didyma	Spice Leaf Phlox	
6	Muhlenbergia capillaris	Pink Muhly Grass	
1	Myrica cerifera	Wax Myrtle	
5	Oenothera biennis	Black-eyed Susan	
17	Osmunda cinnamomea	Cinnamon Fern	
73	Phyllanthus niruri	Frogfruit	
3	Zamia integrifolia	Coontie	
VINES & EPHYPHYTES			
QTY	BOTANICAL NAME	COMMON NAME	
13	Ficus pumila	Creeping Fig	
4	Thunbergia laurifolia	Laurel Blue Trumpet Vine	
	Assorted Orchids and Airplants	Orchids and Airplants	
GROUND COVERS			
QTY	BOTANICAL NAME	COMMON NAME	
13	Bartonia repens	Coral Creeper	
66	Erigeron annuus	Golden Creeper	
549	Microrhizon scolopendrum	Wart Fern	
181	Hemlockia virginiana	Burble Moss	
127	Phlox subulata 'Blue Star'	Blue Star Phlox	
84	Phlox subulata 'Blue Star'	Blue Star Phlox	
17	Trifolium repens	Spillwort	
12 if	Zoysia tenuifolia	Bump Grass	

URBIN RETREAT  
 1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA

LANDSCAPE PLAN - GROUND FLOOR

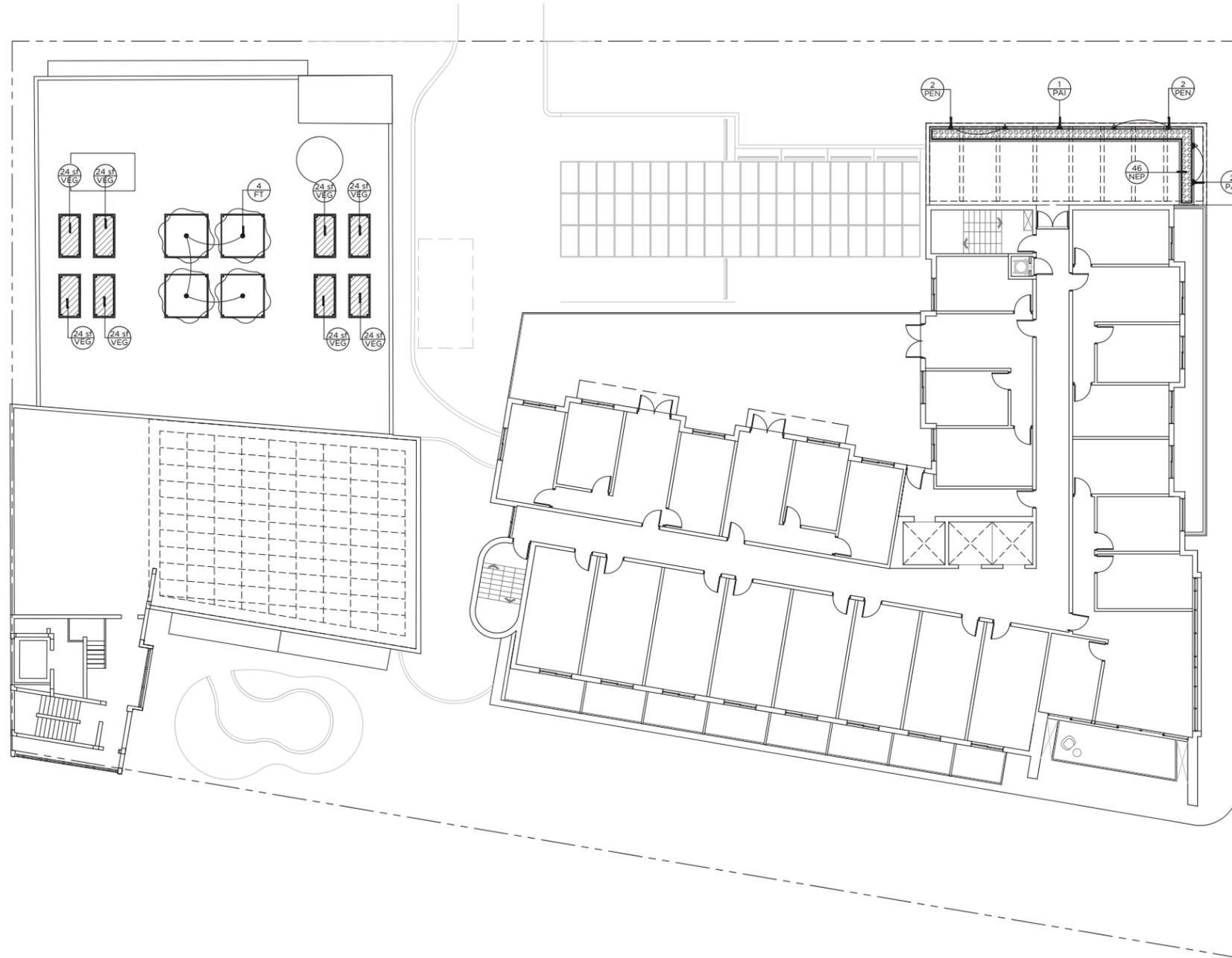
cadence No copies, transmissions, reproductions or electronic manipulation of any portion of these drawings in whole or in part are to be made without the express written permission of Cadence Landscape Architects. All designs indicated in these drawings are property of Cadence LLC.

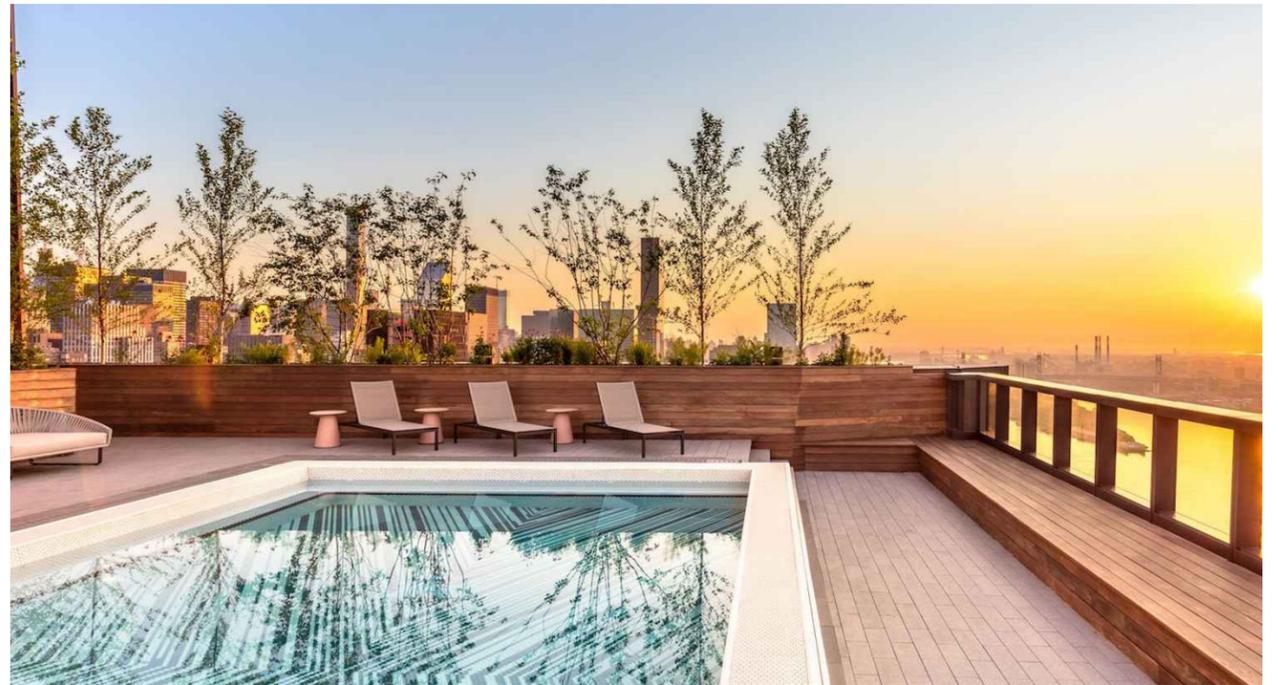
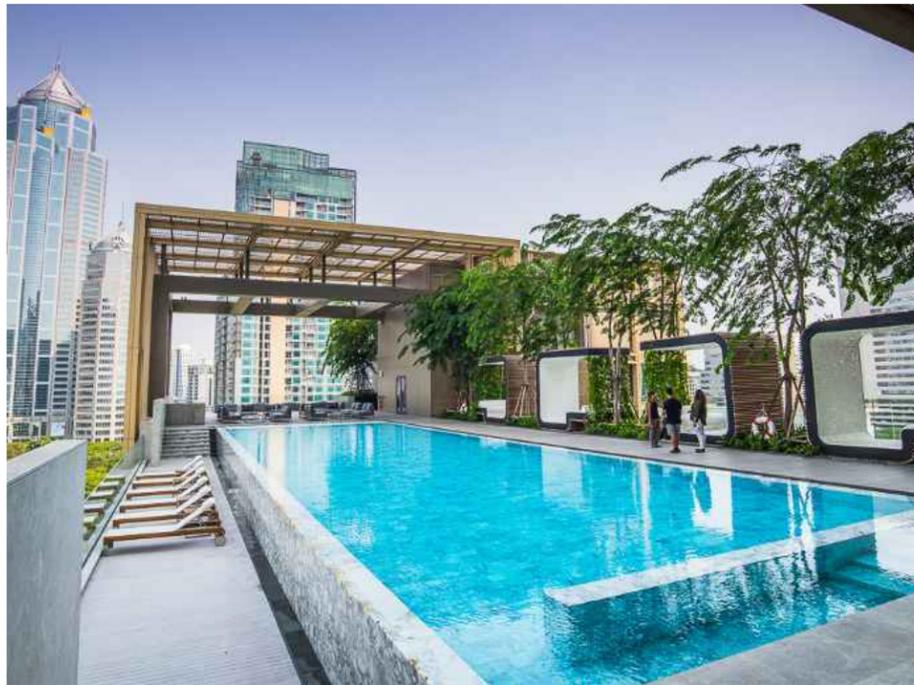
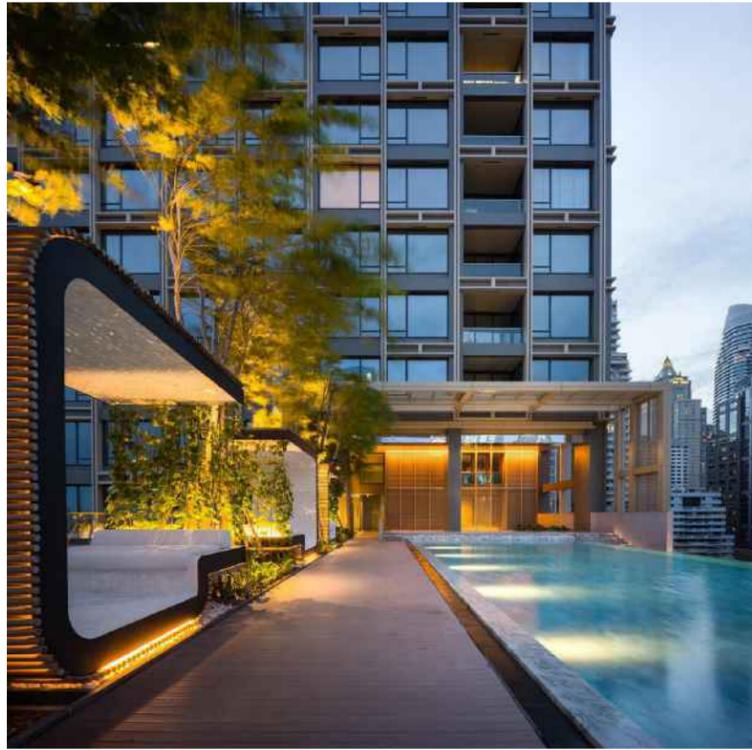
L-5

06 MARCH 2020



PLANT LIST - OFFICE ROOF + HOTEL LVL 2			
TREES	QTY	BOTANICAL NAME	COMMON NAME
FT	4	Small Fruit Tree	Small Fruit Tree
VINES & EPiphyTES	QTY	BOTANICAL NAME	COMMON NAME
PAI	1	Passiflora incarnata	Passion Flower Vine
PEN	4	Pentaloon luteum	Wild Allamanda
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME
NEP	46	Nephrolepis exaltata	Native Sword Fern
VEG	192 sf	Assorted Vegetables/Herbs	Vegetables/Herbs



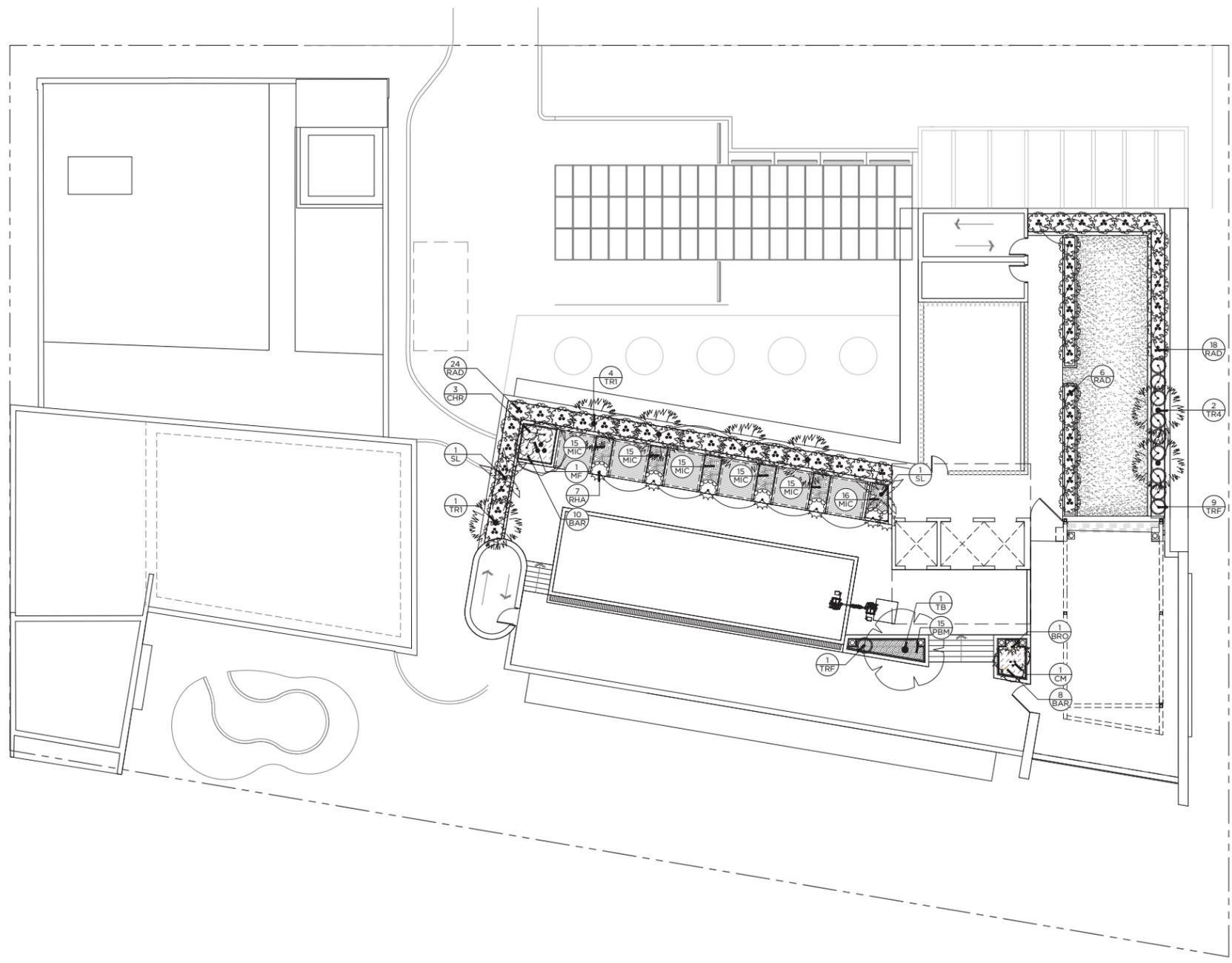


URBIN RETREAT  
1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA

cadence

No copies, transmissions, reproductions or electronic manipulation of any portion of these drawings in whole or in part are to be made without the express written permission of Cadence Landscape Architects. All designs indicated in these drawings are property of Cadence LLC.

LANDSCAPE CHARACTER IMAGERY - ROOF



TREES	QTY	BOTANICAL NAME	COMMON NAME
MF	1	Myrsine fragrans	Simpson's Stopper
TB	1	Tabebuia bahamensis	White Tabebuia

PALMS	QTY	BOTANICAL NAME	COMMON NAME
CH	1	Coconthrinax thrysoidea	Silver Palm
SL	5	Sabalera lutescens	Sabala Palm
TR1	5	Thrinax radiata	Florida Thatch Palm
TR4	2	Thrinax radiata	Florida Thatch Palm

SHRUBS	QTY	BOTANICAL NAME	COMMON NAME
CHR	5	Chrysothamnus icaco horizontalis	Horizontal Cocoplum
RAD	48	Radermachera sinica	China Doll
RHA	7	Rhaps excelsa	Lady Palm

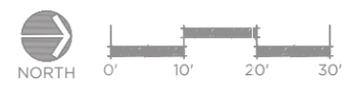
BROMELIADS	QTY	BOTANICAL NAME	COMMON NAME
BRO	1	Assorted Bromeliads	Bromeliad

GRASSES	QTY	BOTANICAL NAME	COMMON NAME
TRF	10	Tripsacum floridanum	Florida Ganagrass

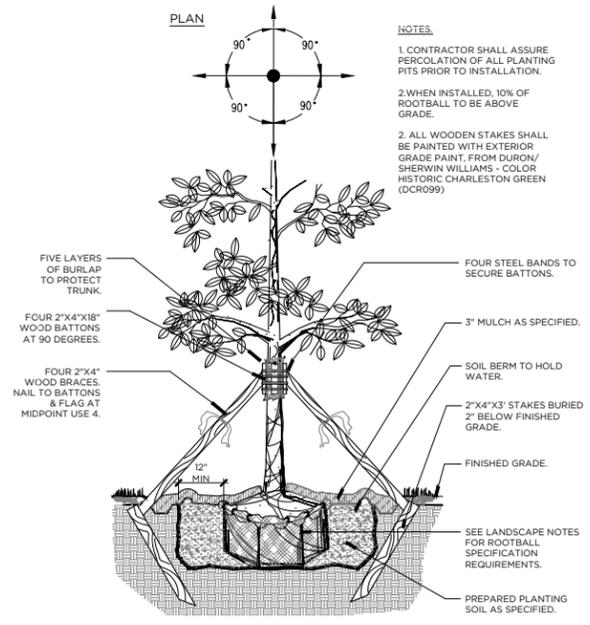
  

GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME
BAR	18	Mariera repens	Coral Creeper
MIC	91	Microsorium scolopendrum	Moss Fern
PBM	15	Philodendron 'Burla Mar'	Burla Mar Philodendron

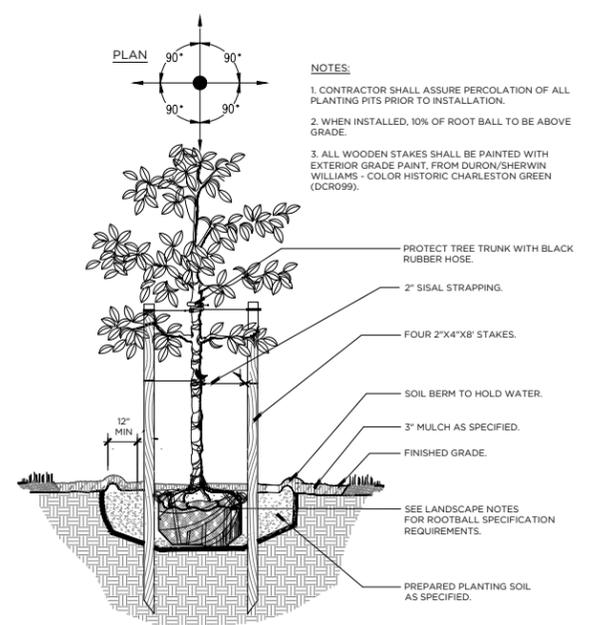


URBIN RETREAT  
 1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA

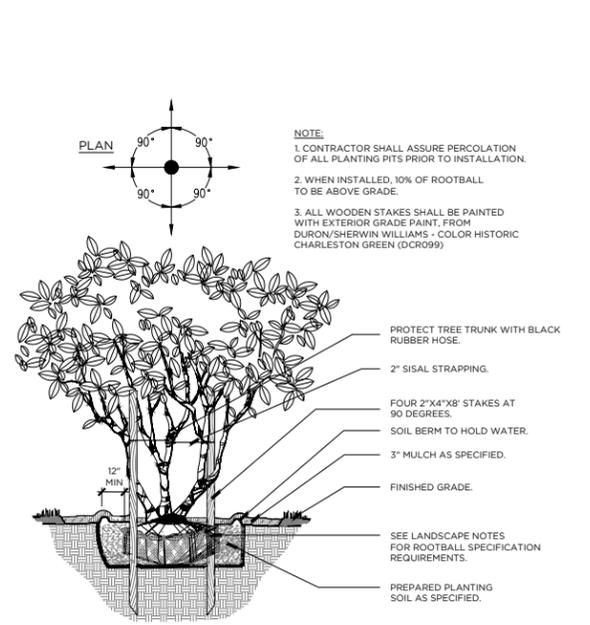
LANDSCAPE PLAN - ROOF



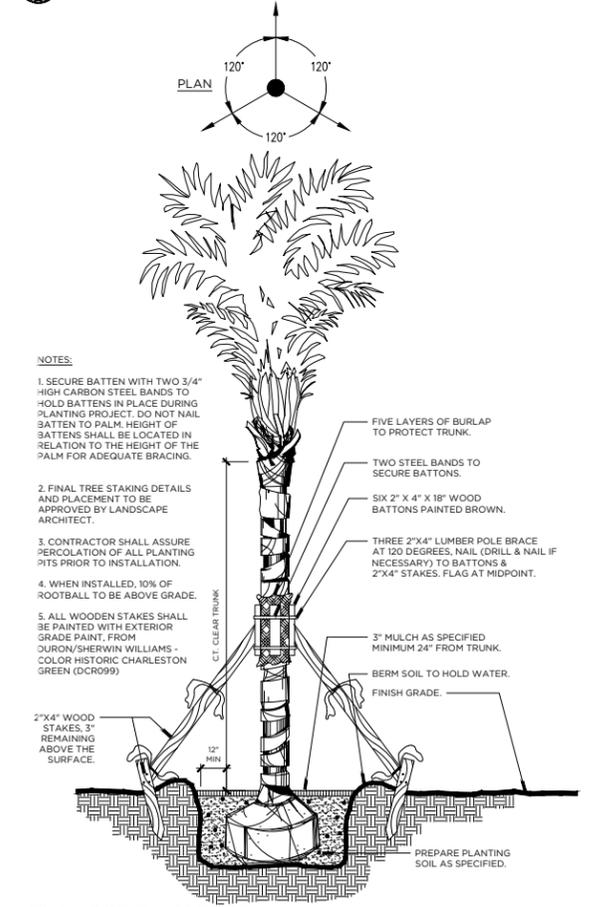
**1** LARGE TREE - UP TO 4" CALIPER  
SECTION NOT TO SCALE



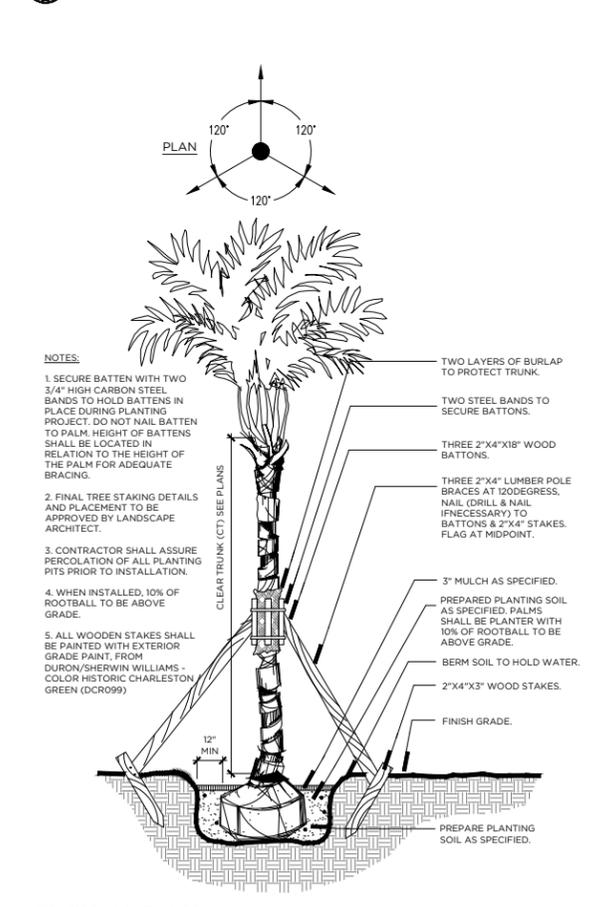
**2** SMALL TREE  
SECTION NOT TO SCALE



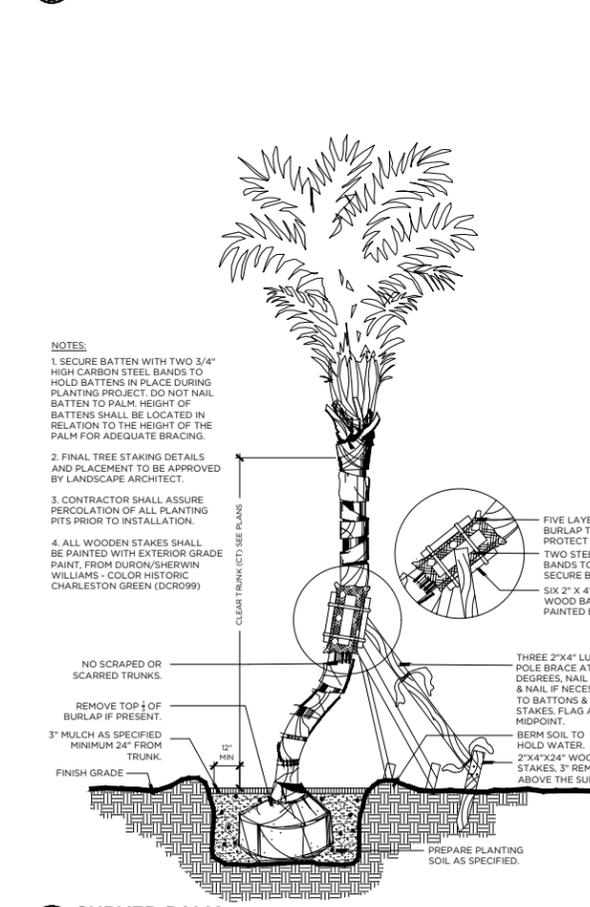
**3** MULTI-TRUNK TREE  
SECTION NOT TO SCALE



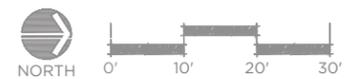
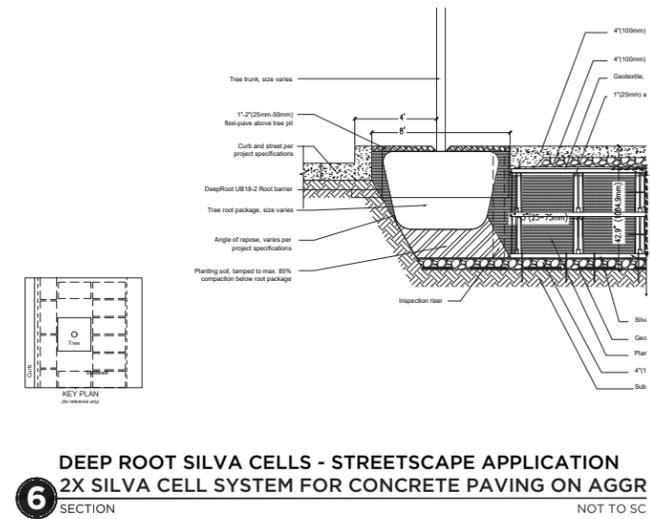
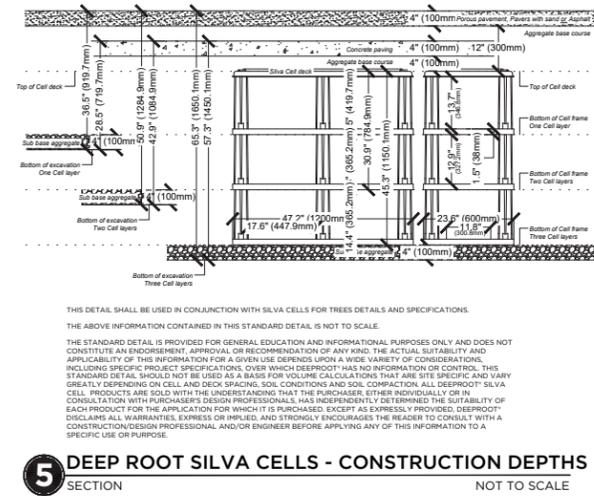
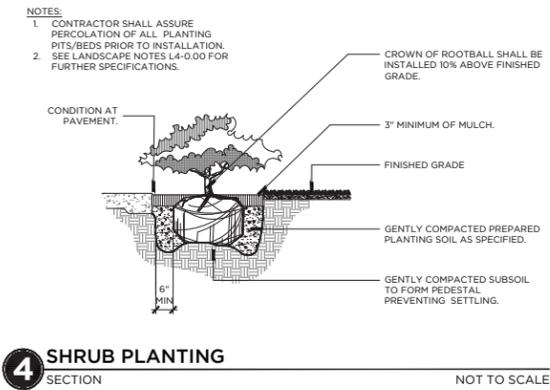
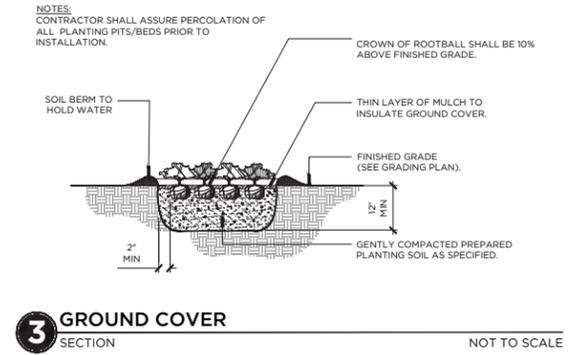
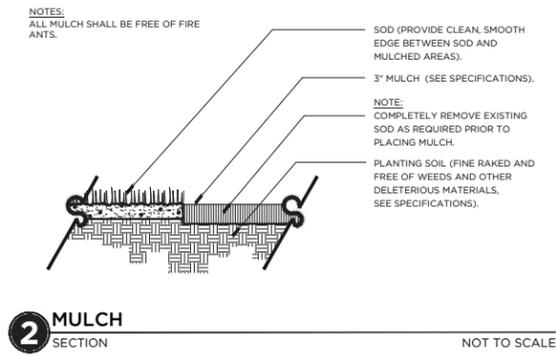
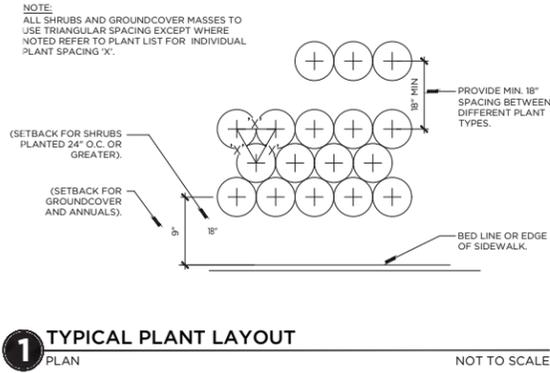
**4** LARGE PALM TREE  
SECTION NOT TO SCALE



**5** SMALL PALM  
SECTION NOT TO SCALE



**6** CURVED PALM  
SECTION NOT TO SCALE





**Legend**

-  Attracts hummingbirds
-  Food source and/or nesting site for small birds
-  Food source and/or shelter for small animals
-  Larval host plant for caterpillars
-  Attracts insect pollinators such as butterflies, moths, etc.
-  Florida Native

**TREES AND PALMS**

**Leopard Tree**  
*Caesalpinia ferrea*





**Green Buttonwood**  
*Conocarpus erectus*





**Pitch Apple**  
*Clusia major*





**White Tabebuia**  
*Tabebuia roseo-Alba*





**Simpson's Stopper**  
*Myrcianthes fragrans*





**Alexander Palm**  
*Archontophoenix alexandrae*





**Miraguama Palm**  
*Coccothrinax miraguama*





**Satake Palm**  
*Satakeria hukuensis*





**PALMS (CONT.)**

**Paurotis palm**  
*Accolormiapha wrightii*





**Florida Thatch Palm**  
*Thrinax radiata*





**Old Man Palm**  
*Coccothrinax crinita*





**Coconut Palm**  
*Cocos nucifera*





**Lady Palm**  
*Rhapis excelsa*





**Dwarf Palmetto**  
*Sabal minor*





**Silver Saw Palmetto**  
*Serenoa repens*





SHRUBS



GRASSES, CYCADS AND FERNS

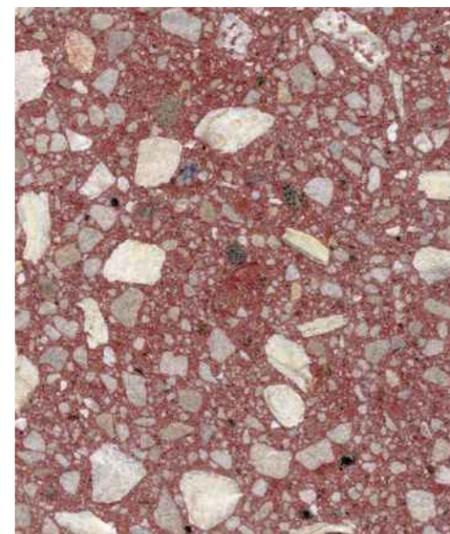
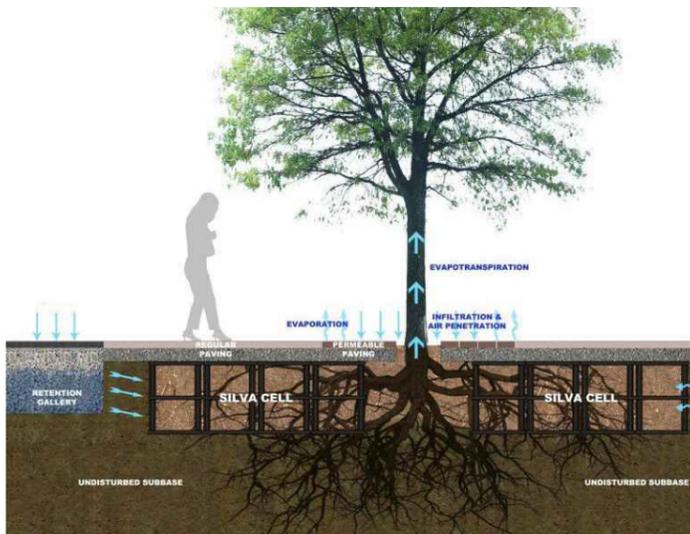
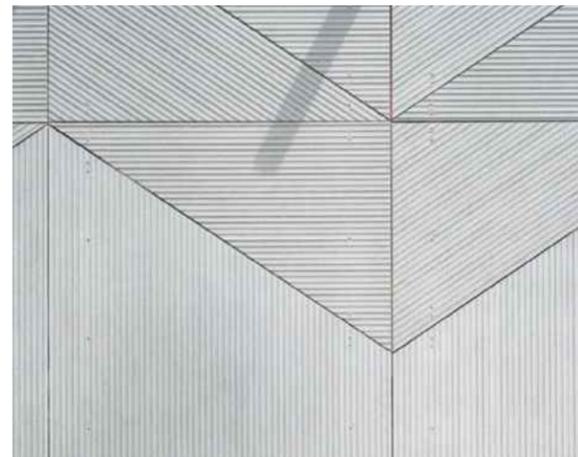
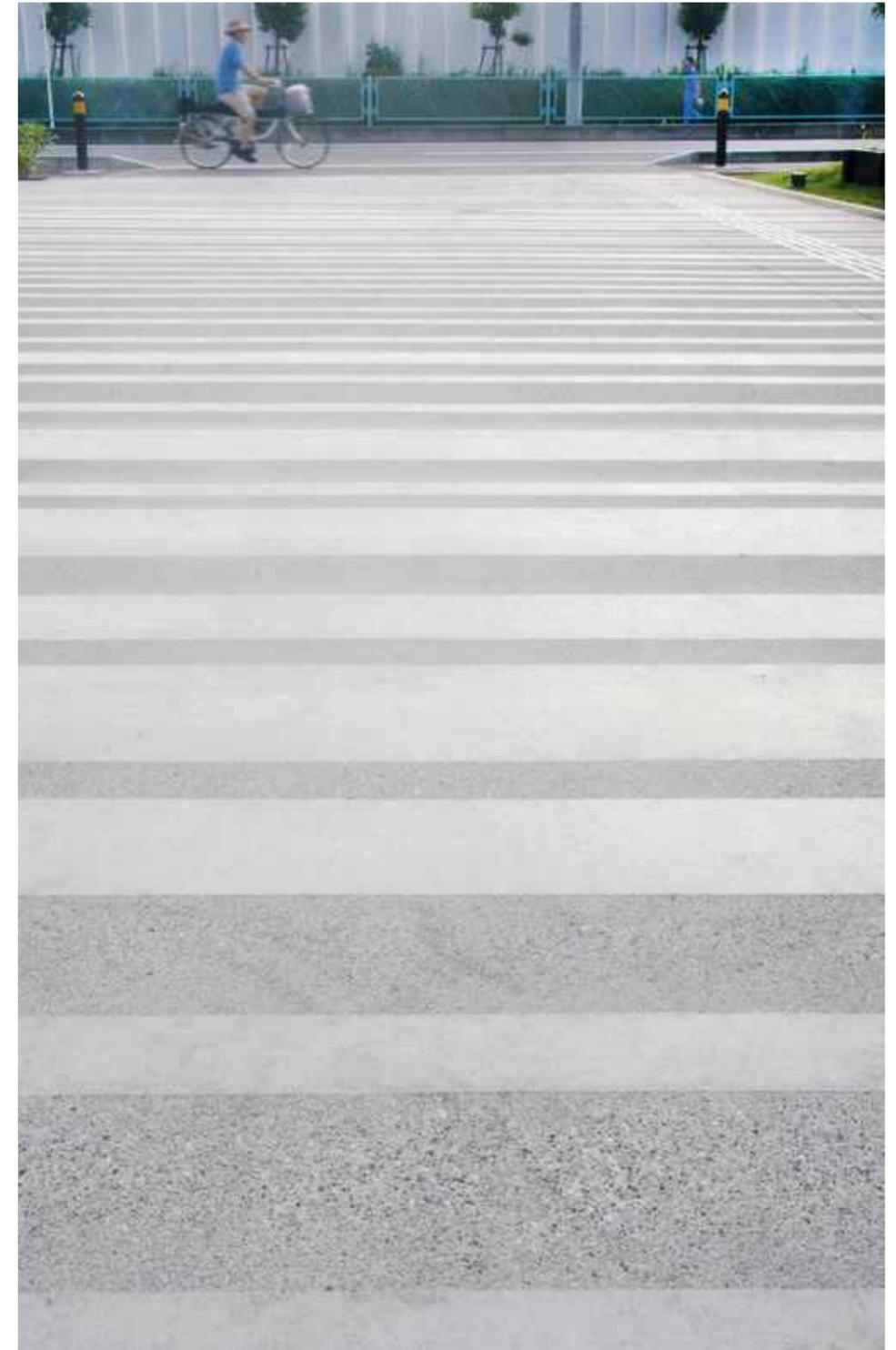
GROUNDCOVERS AND PERENNIALS

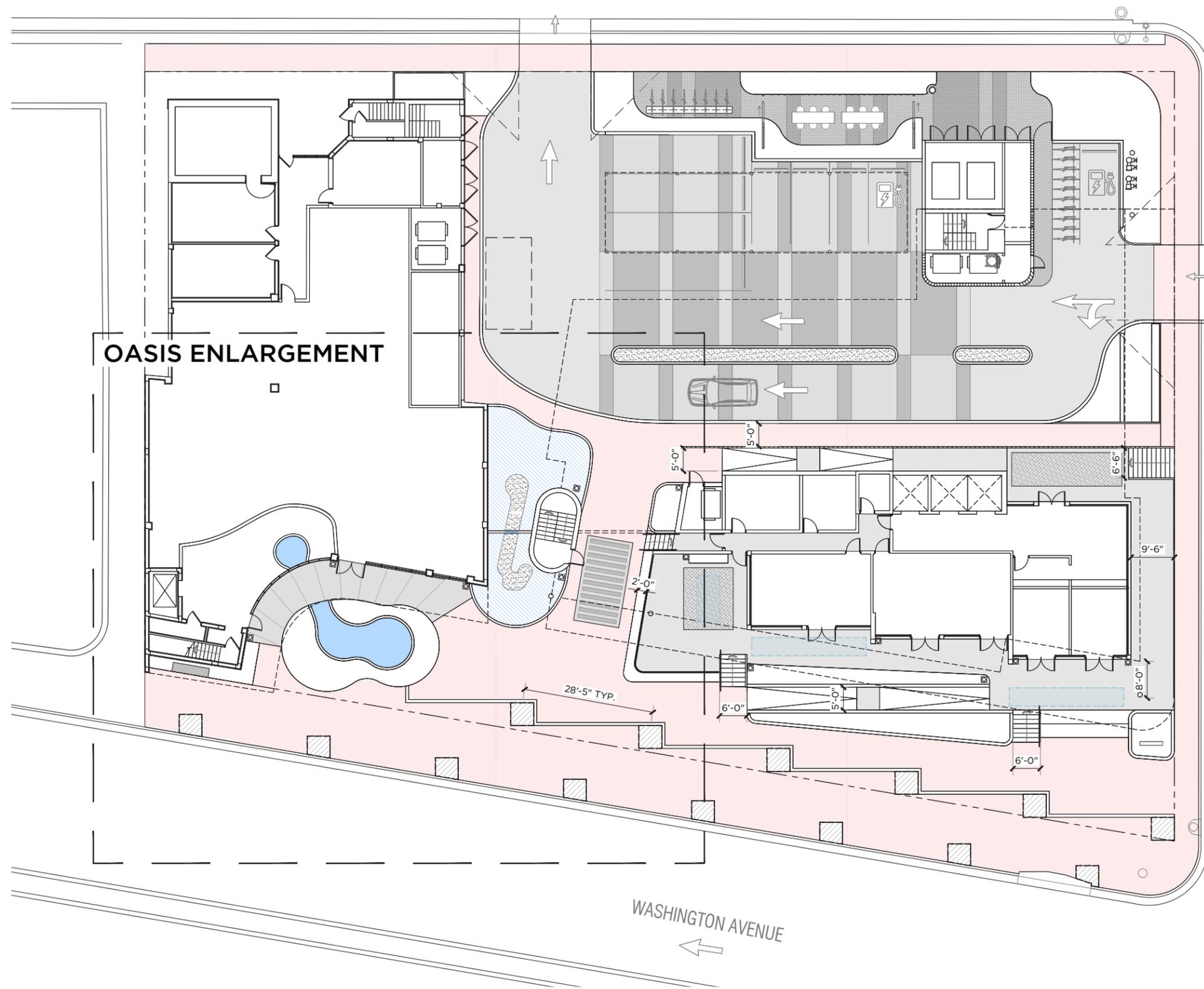


PERENNIALS AND VINES



URBIN RETREAT  
1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA





### HARDSCAPE LEGEND

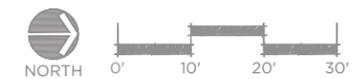
Symbol	Definition
	"Miami Beach Red" Concrete
	Concrete
	Textured Concrete
	Terrazzo
	Concrete Pavers Color: Alternating Grey Tones
	Terrazzo Tiles inlayed in Concrete
	Crushed Stone
	Silva Cell Suspended Pavement System
	Water Harvesting Cistern
	Rain Garden

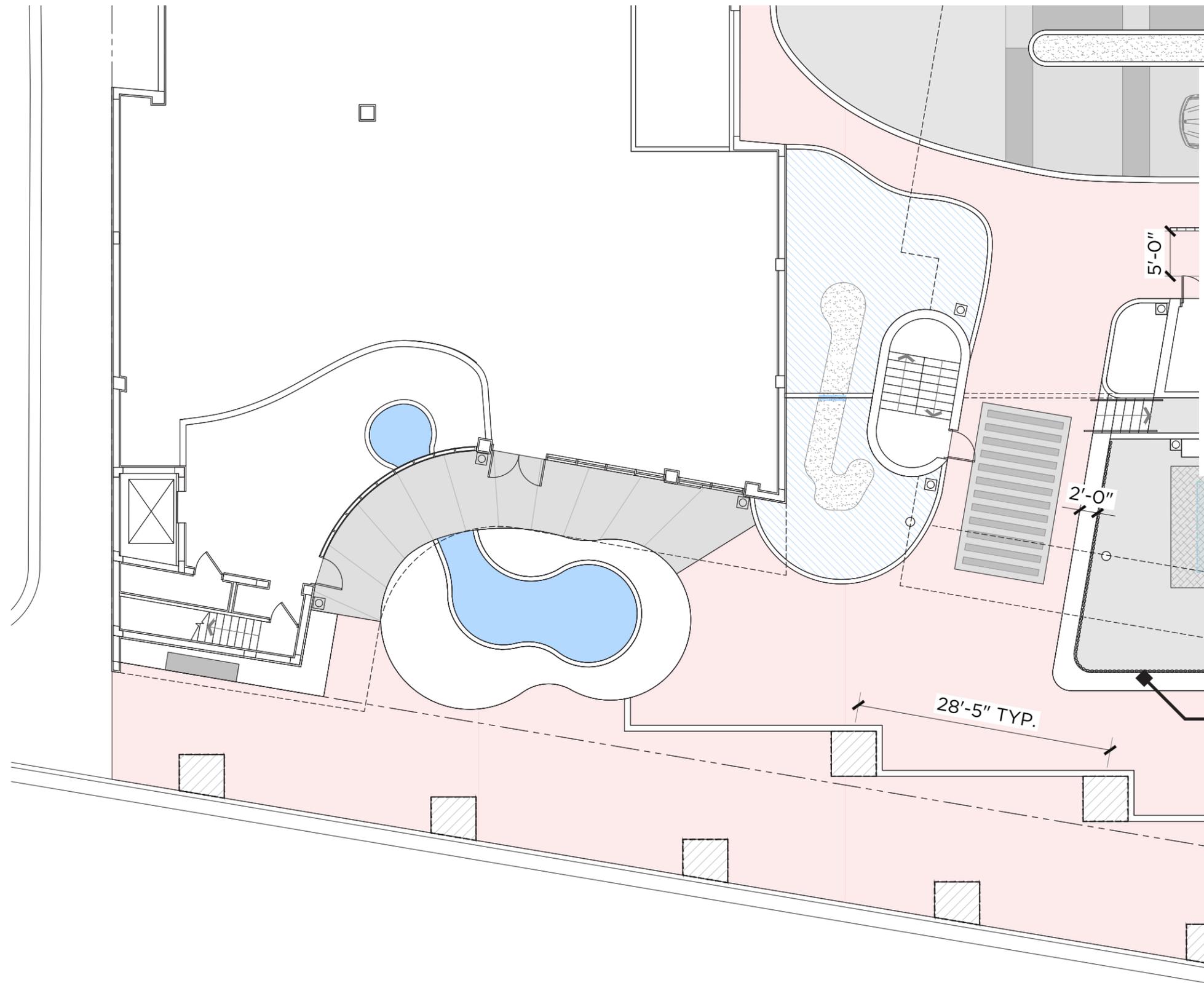
### HARDSCAPE NOTES:

- Information provided on this plan is general in nature; dimensions, areas, and distances are approximate and should be field verified prior to bidding. Discrepancies shall be reported to the landscape architect for resolution prior to starting work.
- The contractor is to thoroughly familiarize him/herself with all plans, specifications and the site prior to bidding. Failure to do so will not reduce the contractor's obligation to perform the work as described for the price bid.
- The contractor shall locate and verify the existence of all improvements and utilities (including those proposed with this project), i.e. irrigation, wastewater, water storm sewer, gas, underground electric, lighting conduit, pavement, etc. prior to starting work.
- The contractor is responsible for coordinating installation of material, equipment, irrigation sleeving, and lighting sleeving with other trades.
- No substitutions of material, equipment, furnishings, locations, etc. will be allowed without prior approval from the landscape architect.
- All materials, equipment, and furnishings shall be installed as per details.
- All materials, equipment, and furnishings shall be set plumb unless otherwise specified.
- The contractor to layout hardscape elements and verify layout with landscape architect prior to construction. Any discrepancies or conflicts with existing conditions or other drawings shall be reported to the landscape architect immediately for proper clarification or adjustment.

### WATER EFFICIENCY NOTES:

- Recommended bioswale depth 6 to 18 inches. Civil to determine final depth. Drainage soil beneath swale shall be 18 inch minimum depth. Underneath drainage soil there should be a 12 inch depth of clean gravel/aggregate for water to infiltrate into perforated pipe, which will direct water to a storm drain and/or cistern(s). A 4 inch level of pea gravel shall be placed over clean gravel to filter additional pollutants and keep from clogging from soil above.
- Stormwater directed to cisterns will then drain to Silva Cells (Suspended Paver System) and be reused to irrigate raised planters.
- Rain water collection/Irrigation Systems shall supplement irrigation for new landscaping. New structures to include rainwater cistern(s) and system to provide at least 50 percent of exterior irrigation during the normal rainfall year.
- All sites utilizing a reuse water system shall install and maintain a backflow prevention device as required by water distribution system operator that will be supplying water to site.
- Civil to confirm and engineer detail of bioswale and cistern locations for final Construction Documentation.



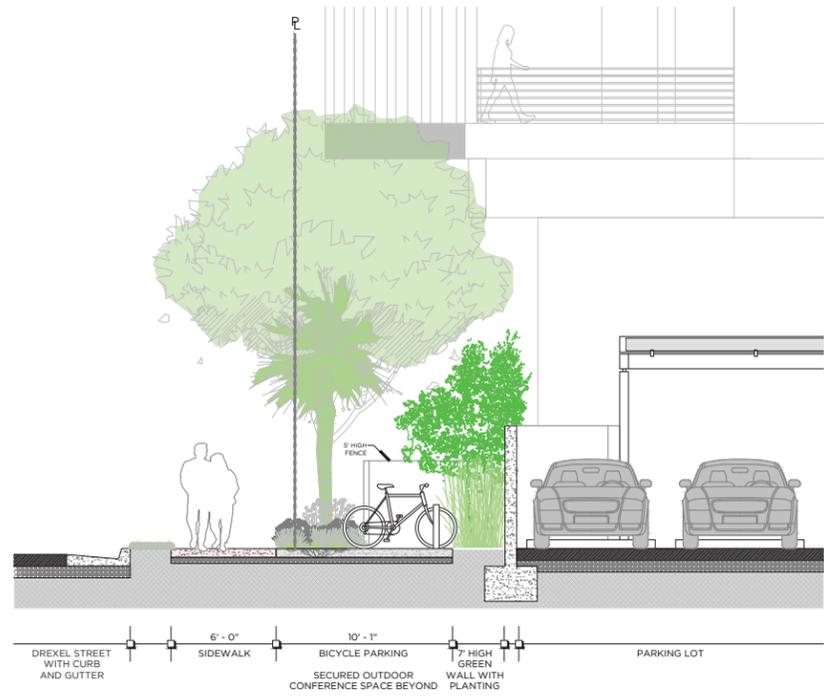


HARDSCAPE LEGEND	
Symbol	Definition
	"Miami Beach Red" Concrete
	Textured Concrete Banding
	Concrete
	Textured Concrete
	Terrazzo
	Terrazzo Tiles inlayed in Concrete
	Crushed Stone
	Silva Cell Suspended Pavement System
	Water Harvesting Cistern
	Rain Garden

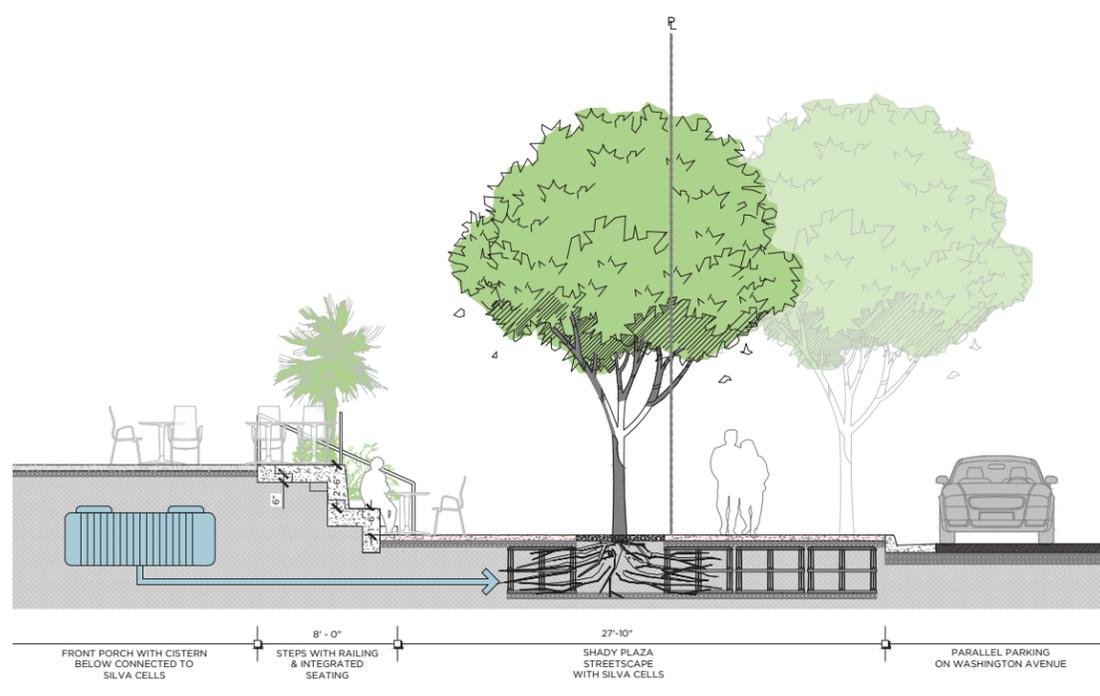


**GUARDRAIL (TYP.)**  
**MANUFACTURER: SECOSOUTH**  
**MODEL: RB1-2000 ROD SYSTEM**  
**MATERIAL: STAINLESS STEEL**

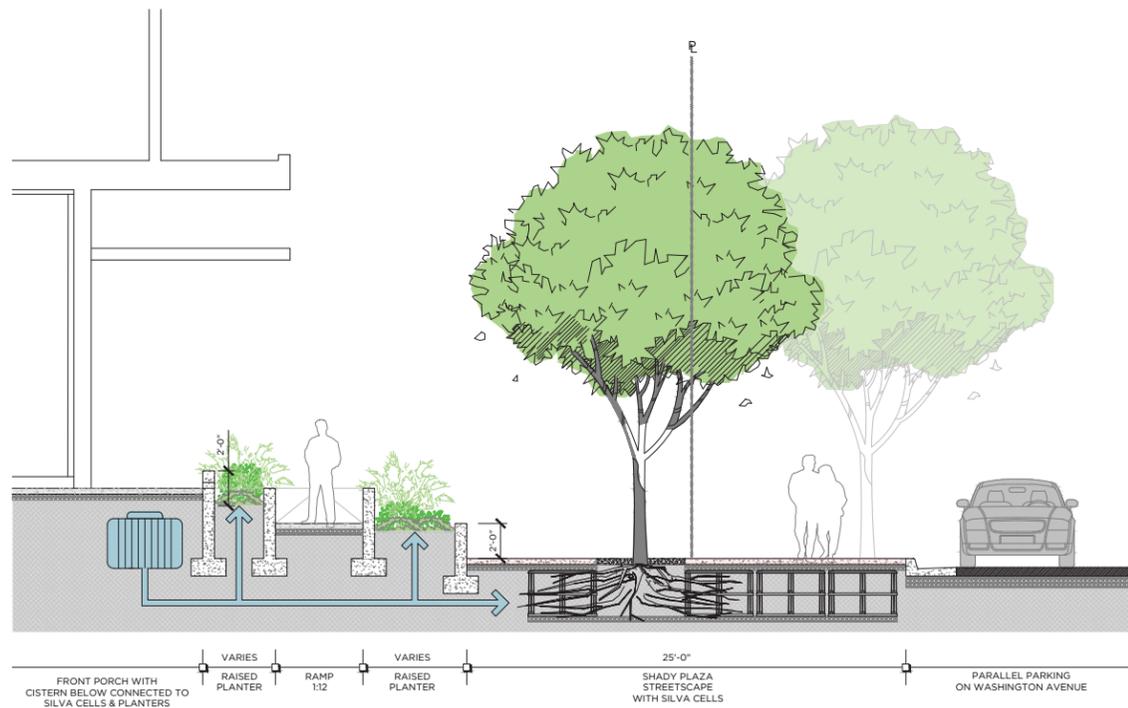




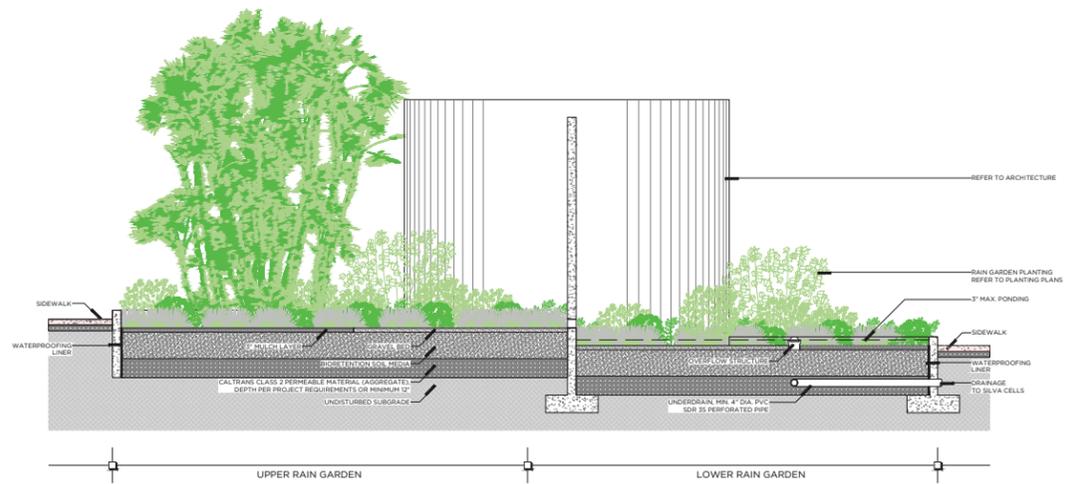
**A** SCREEN WALL AND PARKING LOT



**B** FRONT PORCH STEPS

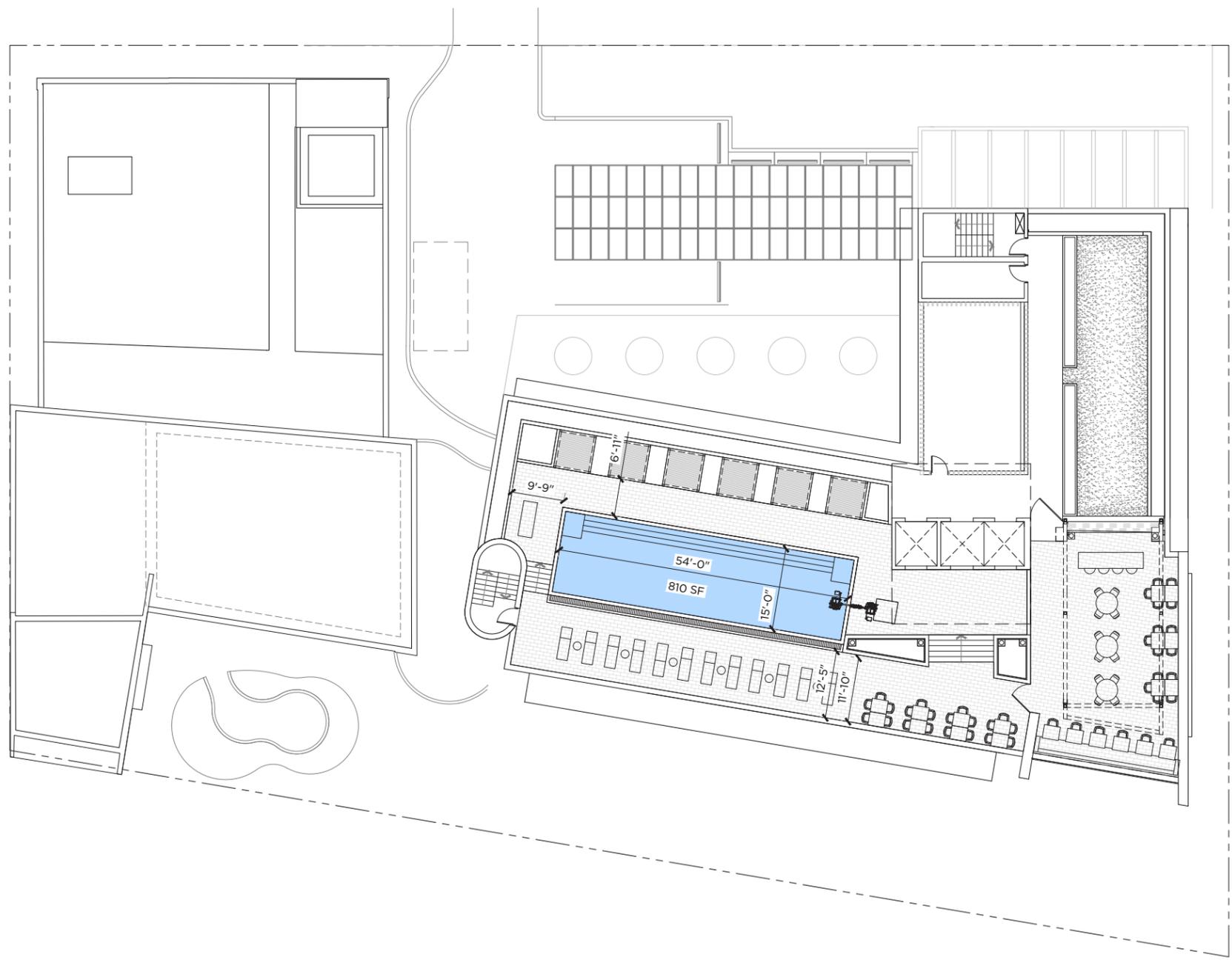


**C** RAMP & SHADY PLAZA

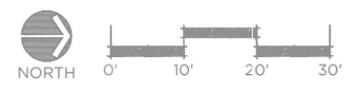


**D** RAIN GARDEN



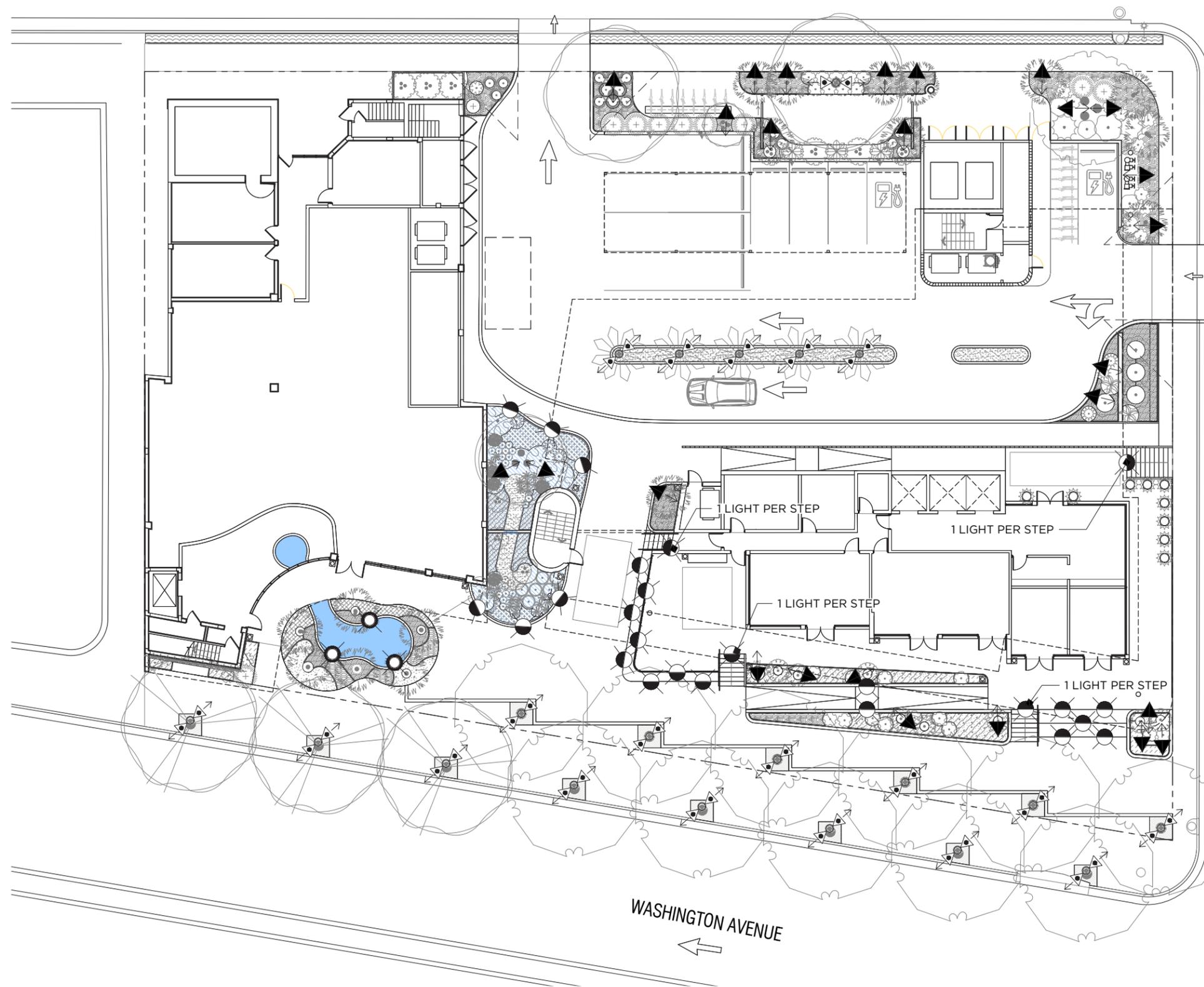


HARDSCAPE LEGEND	
Symbol	Definition
	Elevated Paver Deck System
	Artificial Turf



HARDSCAPE PLAN - ROOF

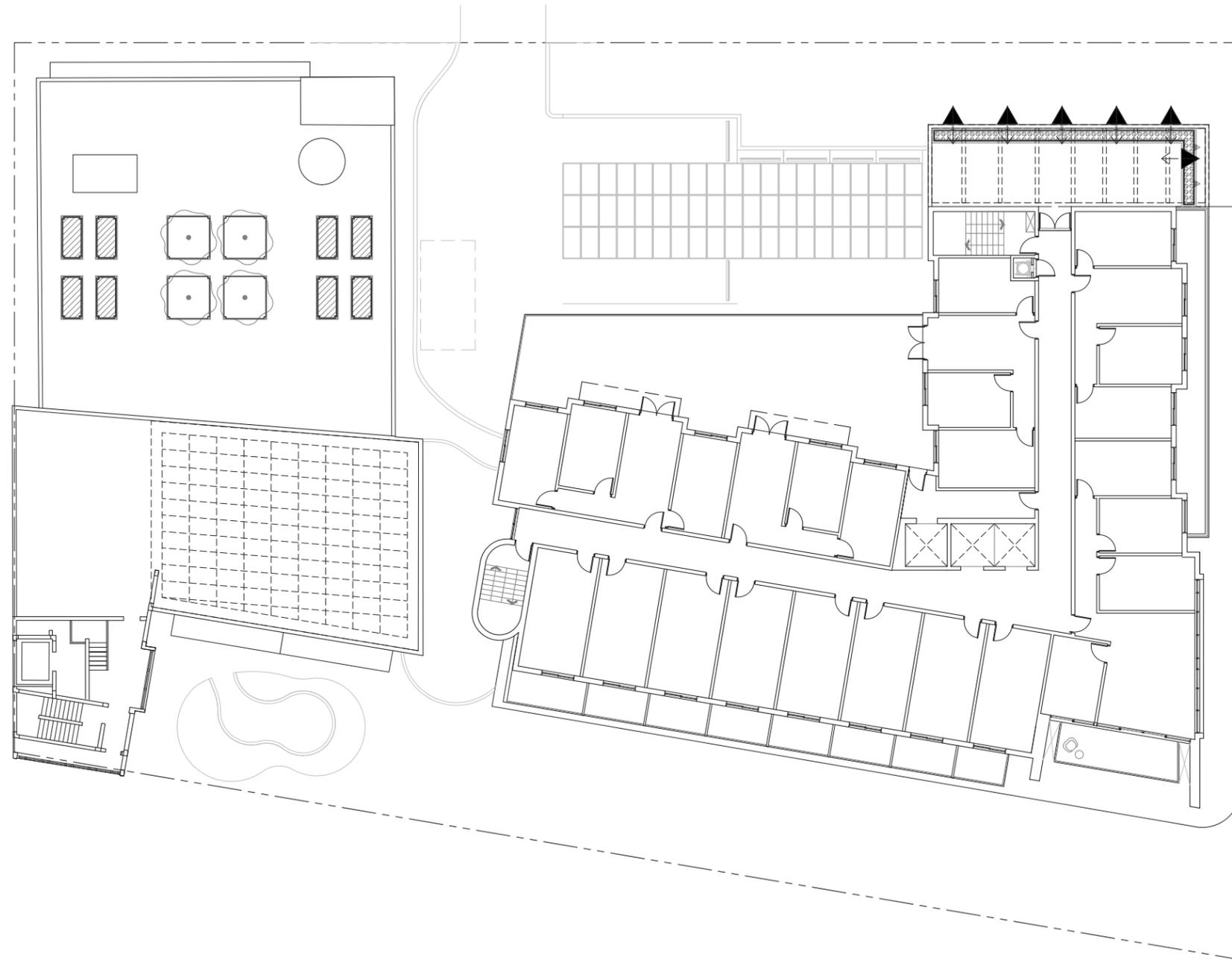
 **URBIN RETREAT**  
 1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA



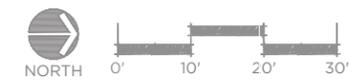
LIGHTING LEGEND	
Symbol	Definition
◀▶	Up Light on Riser
◀○▶	Up Light on Tree Strap
●	Step/Wall Light
⊙	Water Feature Light

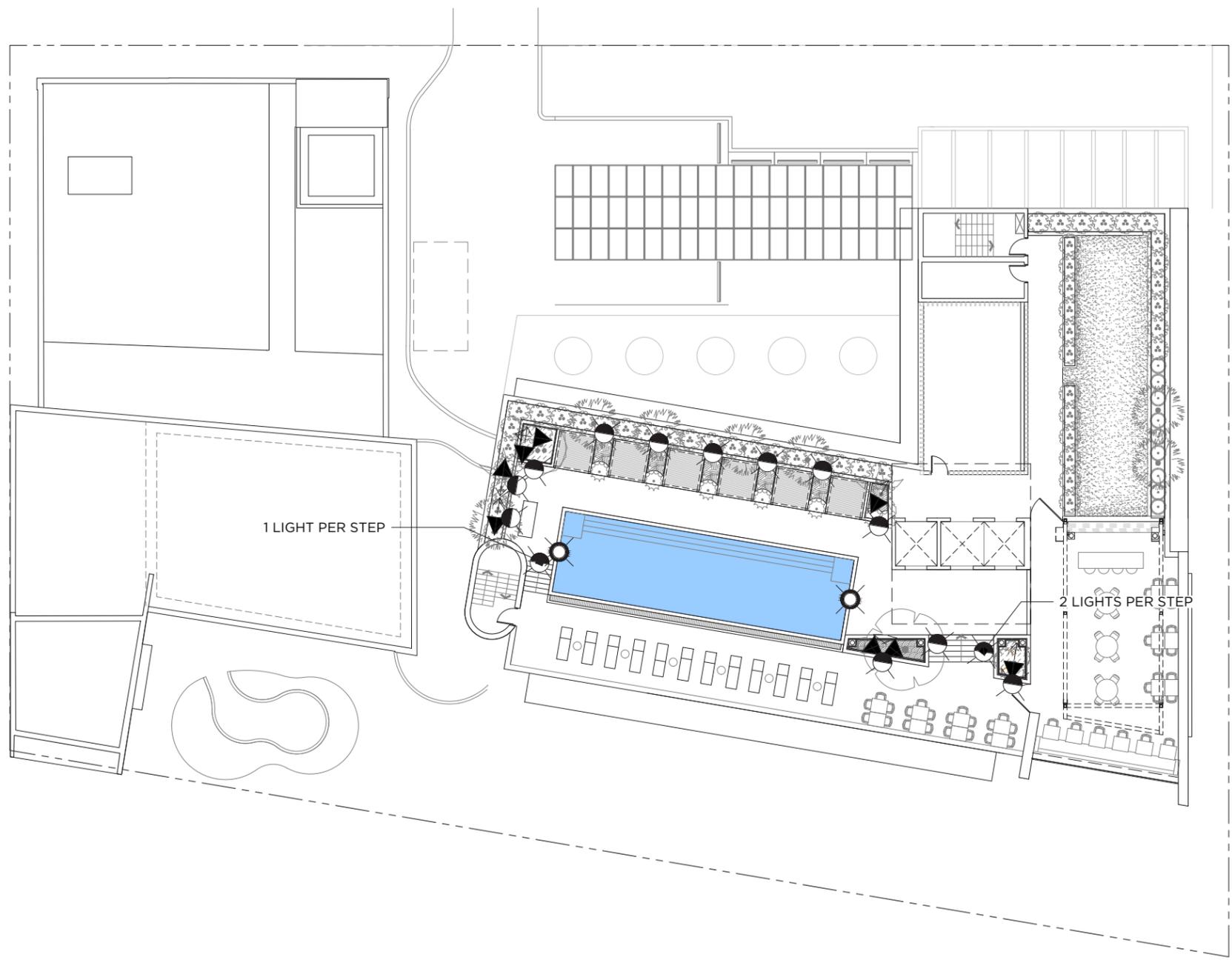

**URBIN RETREAT**  
 1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA

LIGHTING PLAN - GROUND FLOOR



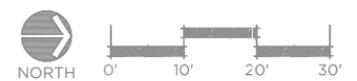
LIGHTING LEGEND	
Symbol	Definition
←▶	Up Light on Riser





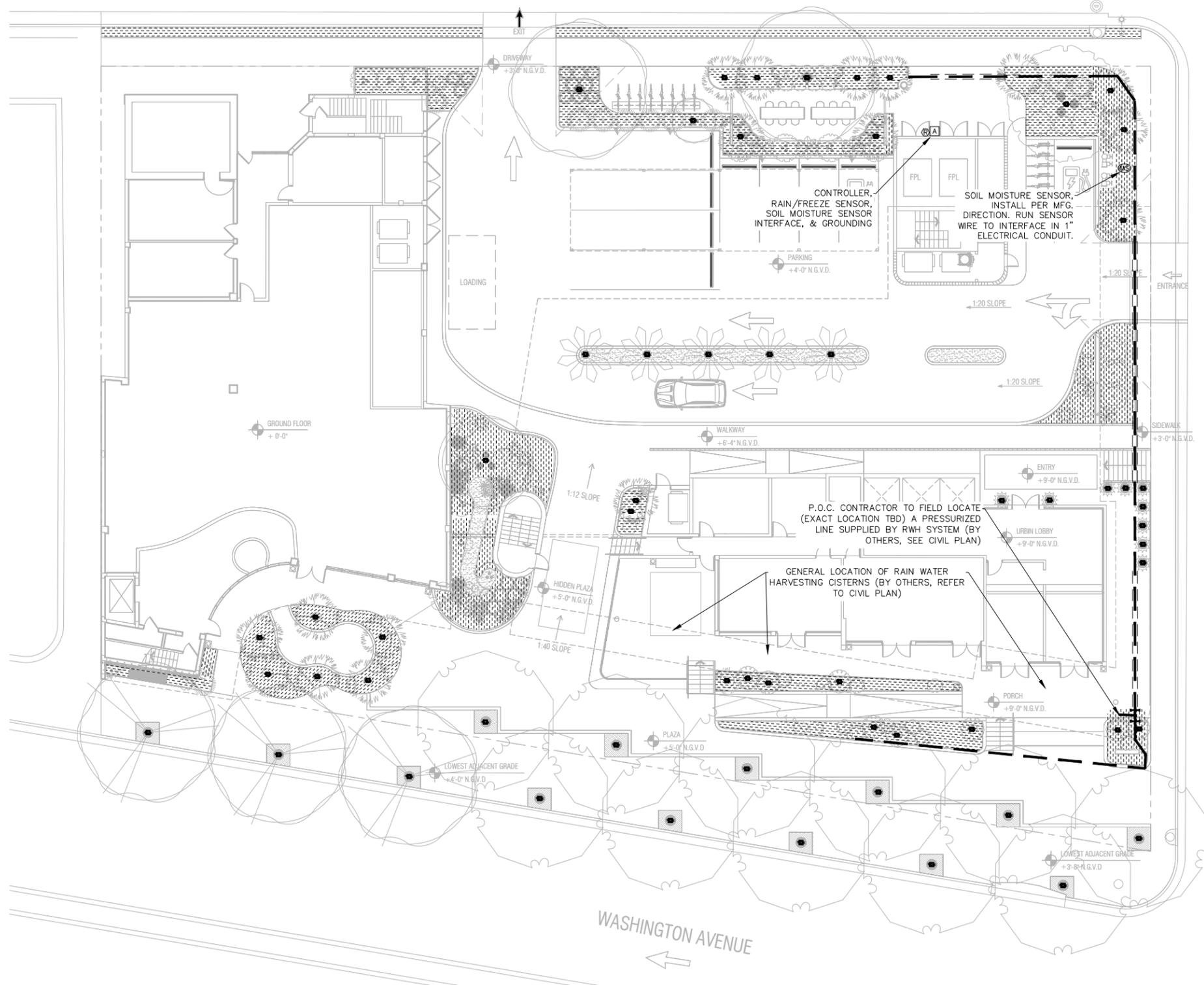
**LIGHTING LEGEND**

Symbol	Definition
◀▶	Up Light on Riser
⊙	Step/Wall Light
⊗	Water Light



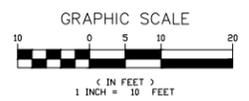
LIGHTING PLAN - ROOF

**URBIN RETREAT**  
 1234 WASHINGTON AVENUE \_ MIAMI BEACH \_ FLORIDA

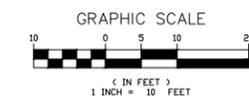
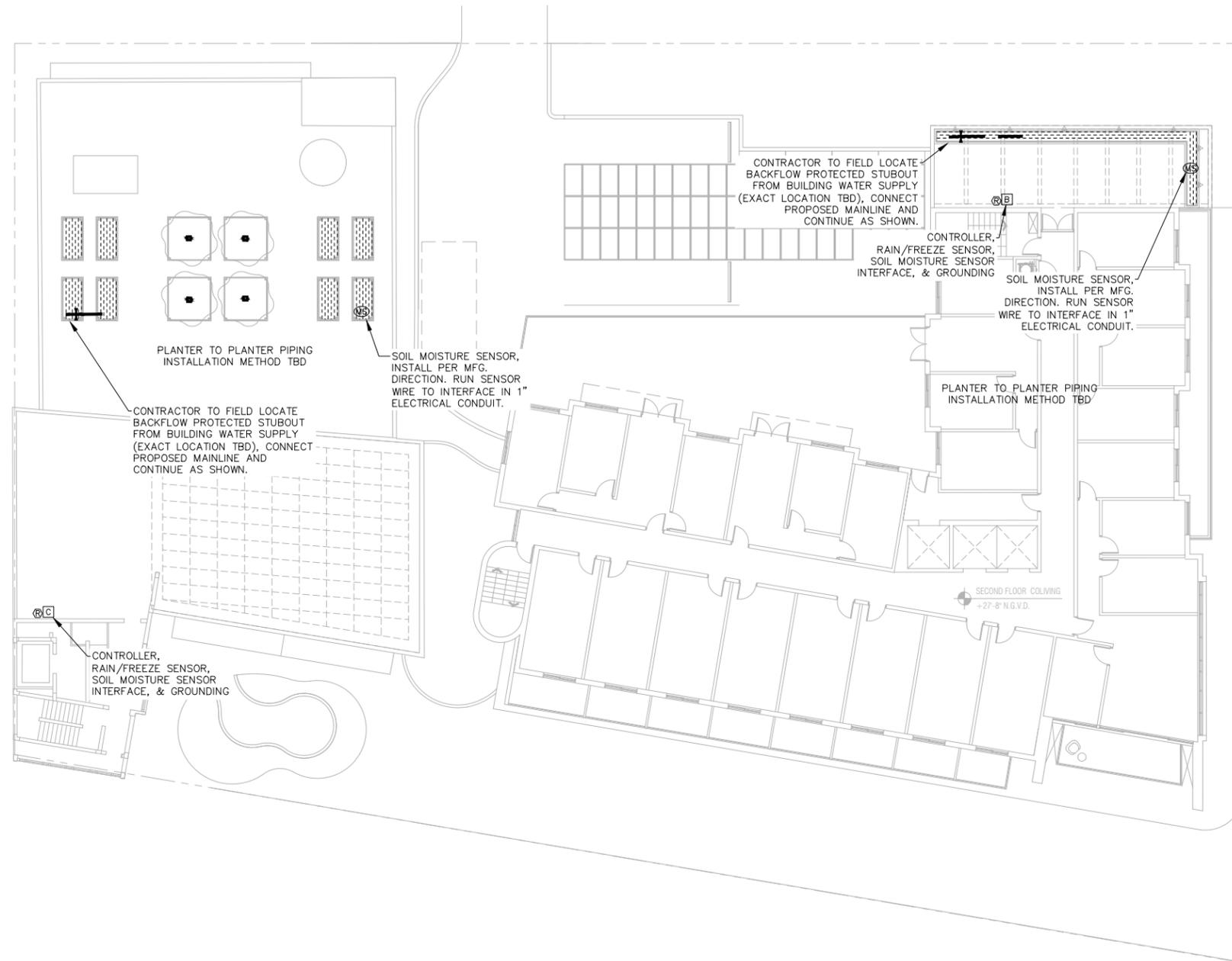


13TH STREET

WASHINGTON AVENUE

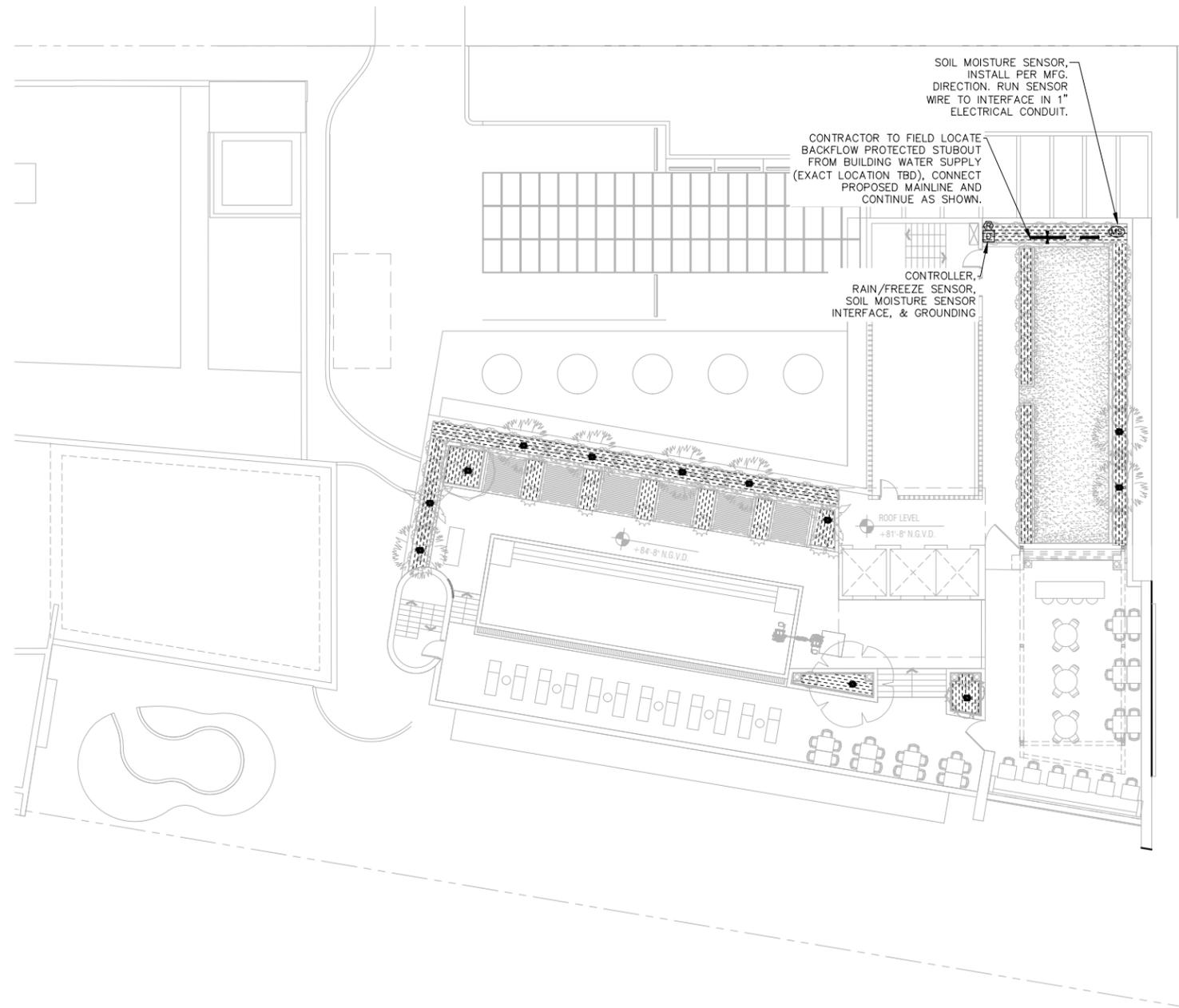


MAINLINE LOCATION, WHERE SHOWN, IS FOR GRAPHIC CLARITY PURPOSES ONLY. INSTALL AT THE BACK OF CURB, FRONT OF WALK, BACK OF WALK, OR ADJACENT TO OTHER HARDSCAPES TO FACILITATE FUTURE LOCATION AND TO PROTECT FROM DAMAGE. ENSURE MAINLINE IS INSTALLED ACCORDING TO THE IRRIGATION SPECIFICATIONS AND DETAILS.



MAINLINE LOCATION, WHERE SHOWN, IS FOR GRAPHIC CLARITY PURPOSES ONLY. INSTALL INSIDE UPPER LEVEL PLANTERS WHEN POSSIBLE. WHEN IT IS NOT POSSIBLE TO RUN THE MAINLINE INSIDE A PLANTER, USE PLANTER TO PLANTER PIPE ROUTING AS SHOWN ON THE DETAILS. IN ALL CASES INSTALL MAINLINE AS INDICATED IN THE IRRIGATION SPECIFICATIONS AND DETAILS. MASUEN CONSULTING LLC IS NOT RESPONSIBLE FOR LINER, WATERPROOFING, DRAINAGE FROM ROOF, WEIGHT LOAD BEARING ISSUES, MAINTENANCE, SAFETY, AND MEANS AND/OR METHODS OF THE CONTRACTOR INSTALLING OUR WORK.





IRRIGATION LEGEND			
QTY	SYM	DESCRIPTION	DET.
A-1	⬇	CONTROLLER LETTER-STATION NUMBER	
2"	⊕	GALLONS PER MINUTE-CATALOG FLOW	
20.0	⊕	VALVE SIZE	
-	⊕	RAIN BIRD PEB SERIES RCV (SIZED PER PLAN) WITH A NIBCO T-113 GATE VALVE IN A CARSON 1220 JUMBO VALVE BOX WITH BOLT DOWN LID.	B1
-	⊕	RAIN BIRD PEB SERIES REMOTE CONTROL VALVE WITH A NIBCO T-113 GATE VALVE & NETAFIM MANUAL DISC FILTER MODEL DF100/150/200 (PER MFG DIRECTION)-140, EACH IN A SEPARATE CARSON 1220 JUMBO VALVE BOX W/ BOLT DOWN LID.	B1 B2
1	A	RAIN BIRD ESP-LXME WALL MOUNT 12 STATION CONTROLLER, GROUNDING GRID AND BASELINE WATERTEC S100 SOIL MOISTURE SENSOR INTERFACE MOUNTED ADJACENT TO CONTROLLER	C1
1	B	RAIN BIRD ESP-LXME WALL MOUNT 8 STATION CONTROLLER, GROUNDING GRID AND BASELINE WATERTEC S100 SOIL MOISTURE SENSOR INTERFACE MOUNTED ADJACENT TO CONTROLLER	C1
1	C	RAIN BIRD ESP-LXME WALL MOUNT 8 STATION CONTROLLER, GROUNDING GRID AND BASELINE WATERTEC S100 SOIL MOISTURE SENSOR INTERFACE MOUNTED ADJACENT TO CONTROLLER	C1
1	D	RAIN BIRD ESP-LXME WALL MOUNT 8 STATION CONTROLLER, GROUNDING GRID AND BASELINE WATERTEC S100 SOIL MOISTURE SENSOR INTERFACE MOUNTED ADJACENT TO CONTROLLER	C1
4	R	EAVE MOUNTED HUNTER RAIN FREEZE CLIK SENSOR MODEL RFC, WIRE TO BE CONNECTED TO CONTROLLER VIA 1" CONDUIT	C2
4	MS	BASELINE WATERTEC S100 SOIL MOISTURE SENSOR (SENSOR INSTALLED ON SITE PER MANUFACTURER'S RECOMMENDATIONS. COMMUNICATION WIRE TO BE CONNECTED TO SMS INTERFACE AT CONTROLLER VIA 1" CONDUIT	C3
5	⊕	NIBCO T-113 BRONZE MAINLINE ISOLATION VALVE (LINE SIZE) IN A CARSON 1419 VALVE BOX.	D
		CLASS 200 PVC LATERAL LINE W/ SCH 40 SOLVENT WELD PVC FITTINGS (SIZE PER PLAN, MINIMUM PIPE SIZE SHALL BE 3/4", NO 1/2" PIPES PERMITTED)	L
		SCHEDULE 40 SOLVENT-WELD PVC MAINLINE W/SCH 40 SOLVENT-WELD PVC FITTINGS (SIZE PER PLAN)	L
		SCH 40 GRAY PVC CONDUIT W/SCH 40 SOLVENT-WELD PVC FITTINGS, SHOWN WHERE NOT WITH MAINLINE (SIZE PER PLAN)	L
		NETAFIM TECHLINE TLHCVR7-12 - 12" O.C TRIANGULAR SPACED GRID EMITTER PATTERN-SEE DETAILS	M,N
		CLASS 200 PVC HEADER W/SCH 40 SOLVENT-WELD PVC FITTINGS (SIZE PER PLAN)	M,N
		CLASS 200 PVC SLEEVES W/SCH 40 SOLVENT-WELD PVC FITTINGS (SIZE PER PLAN)	O

QUANTITIES GIVEN ARE FOR CONTRACTOR CONVENIENCE ONLY. THE ACCURACY IS NOT GUARANTEED. ALL QUANTITIES SHALL BE VERIFIED.  
 \*DET (ON THE LEGEND) - THE LETTER IN THIS COLUMN DENOTES THE CORRESPONDING DETAIL SHOWN ON THE DETAIL SHEET.

IRRIGATION HEAD LEGEND			
SYMBOL	DESCRIPTION	DETAIL	QTY
75	EACH SYMBOL DENOTES TWO (2) RAIN BIRD 1804-SAM-1401 FLOOD BUBBLERS	Q	30

WASHINGTON AVENUE



NETAFIM™ IRRIGATION NOTES

PART 1 – SUBMITTALS

1.01 Submit (5) five copies of manufacturers catalog cut sheets of the following listed items:

1. Netafim dripper tubing specified with pressure compensating emitters
2. Netafim insert barbed fittings
3. Netafim in-line disc filter
4. Netafim pressure regulator
5. Stainless steel clamps
6. Metal ground stakes for tubing
7. PVC threaded and insert fittings

1.02 Spare parts – upon completion of the installation, turn over the following spare parts and specialty tool to the owner's authorized representative. Include with the following quantities of items a list of each part with appropriate part number (for ordering replacement products) and local supply store of where these parts can be purchased:

- (10') of dripper line for each dripper interval and discharge rate used on the project
- (6) Barbed couplings
- (6) Barbed 90 degree elbow fittings
- (6) Barbed tee fittings
- (6) 180 degree 2-way adapter tee fittings
- (6) Male adapters with 3/4" fpt
- (1) Spare filter element of the same mesh size used on the project

PART 2 – MATERIALS

2.10 Piping materials – dripper tubing (model #TLHCVXR-7-12) with pressure compensating emitters shall be of nominal sized one-half inch low density, ultraviolet resistant, linear polyethylene tubing with internal pressure-compensating, self-cleaning, integral drippers (each with a built in check valve) at a specified interval. The tubing shall be brown in color and shall conform to an outside diameter (O.D.) of .66" and an inside diameter (I.D.) of .56". The low volume tubing shall be capable of discharging .77 gallons per hour (G.P.H.) between operating pressures of 15 to 50 PSI for each dripper. The individual self-cleaning, pressure-compensating drippers shall be co-extruded to the inside of the tubing wall. The emitters are constructed of three individual pieces:

1. A black-colored dripper containing a filtration system on the inlet side, compensation cell, and recessed chamber with a water outlet.
2. A hard plastic diaphragm retainer, colored black (0.77 gph) with chamfered edges and a recessed groove in the center, the full length of the diaphragm.
3. A flexible black rubber diaphragm that allows excessive pressure to build up within the chamber to purge sediment or other debris that may not have been captured by the disc filter.

2.20 Insert barbed fittings – shall be constructed of molded, ultraviolet resistant, brown colored plastic having a nominal inside dimension (I.D.) of .56". Each fitting shall have a minimum of two ridges or barbs per outlet. All fittings shall be of one manufacturer and shall be available in one of the following end configurations:

- Barbed insert fittings
- Male pipe threads (MPT) with barbed insert fittings
- Female pipe threads (FPT) with barbed insert fittings

2.30 Pressure regulation valves –N/A

2.40 Disc filter – the disc filter body shall be molded black plastic with male pipe threads (MPT) for both the inlet and the outlet ports. A threaded cap on one end of the body shall be capable of periodic servicing by unscrewing the cap from the main filter body. On the 3/4" model, a manual shutoff valve shall be co-molded to the opposing end of the removable cap as a part of the main body. This device shall be capable of closing off the inlet port so the disc element can be removed when the main line is still pressurized. The filter elements shall be either a disc-type or a conister screen filter. The disc-type shall be color coded in one of four colors denoting filtration of 80,120,140, and 200 mesh. The conister type screen shall be available in three levels of filtration, 80,120, and 140 mesh.

2.50 Stainless steel clamps – tubing clamps shall be constructed to 304 ANSI stainless steel and shall be one "ear" type. The "ear" shall be capable of being pinched with a pinching tool to secure the tubing around the insert barbed fitting. The interior clamp wall shall be smooth to prevent crimping or pinching of the tubing. Wall thickness of clamps shall be .0236" with an overall band width of 1/4". Properly secured clamps shall be capable of withstanding a maximum operating pressure of 441 psi.

PART 3 – EXECUTION

3.10 Staking for lateral dripper line layout – verify existing field dimensions of the area to be irrigated using the irrigation plans for reference/accuracy. Begin dripper tubing layout 4" away from both hardscape surfaces, i.e., concrete sidewalks, curbs, asphalt, and/or undefined edges, i.e., shovel-cut headers. Mark tubing intervals on the ground with flags, paint, or some other markings that can be maintained throughout the installation.

3.11 Installation of dripper tubing – tubing can be installed in one of two following methods:

1. Over excavation – In small areas, where it is feasible, over-excavate the entire area to a depth of 4" below finish grade. Plant all specimen trees and shrubs, then place tubing at the row spacing interval indicated on the plans.
2. Trenching – hand or mechanically trench to the pipe depth (4") and back fill flush with finish grade. Avoid mechanically trenching within the drip line of existing trees and shrubs. Hand trench around existing trees and shrubs when root sizes greater than 1" in diameter are encountered. Remove all rock 1-1/2" in diameter and larger when excavating and remove from site. Do not back fill trenches with rock that will come in direct contact with tubing or rigid PVC piping.

3.12 Cover – Install all underground piping horizontally and as level as possible. PVC piping should be installed to the depths and in the manner outlined in the general irrigation notes. Netafim tubing should be installed to a depth of 4" in shrub areas and 6" in turf areas. Netafim tubing should be installed with the water outlets in upward or downward facing position. Offset the outlets in adjacent rows to obtain a triangular pattern throughout the tubing layout. In irregular areas, some water outlets may end up too close to fixed improvements and may have to be capped off with a dripper plug ring.

3.13 Barbed fittings – Connect dripper tubing to barbed fittings by pushing on and over both barbs until the tubing has seated against another piece of tubing or has butted against another portion of the barbed fitting. For water pressures in excess of 40 psi, use stainless steel clamps as outlined in section 3.50 (pipe clamping).

3.14 Pipe clamping – When design operating pressure exceeds 40 psi, stainless

steel pipe clamps shall be used. Slip clamps over tubing before slipping tubing over insert barbed fitting. Place clamp between the first and second ridge of the barbed fittings and crimp the "ear" of the clamp tightly. Crimp the "ear" a second time to ensure proper seating.

3.15 Pressure regulator – If a pressure regulator is specified, install it below grade, downstream, and in line with the remote control valve. Refer to the detail sheet. If a prv is specified it will be detailed with the remote control valve. Place the regulator with the arrow, that is molded into the side of the body, pointing in the direction of the flow of water. Provide straight piping on the outlet side of the regulator for a dimension not less than three lengths of the overall body dimension.

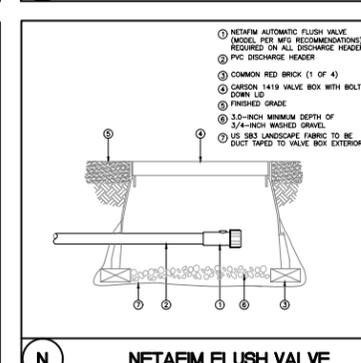
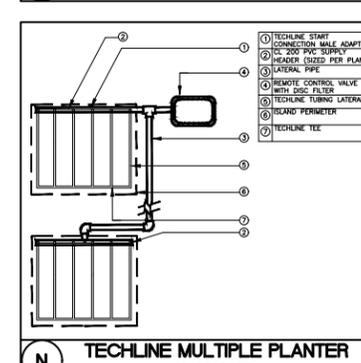
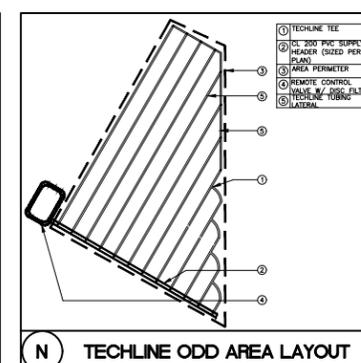
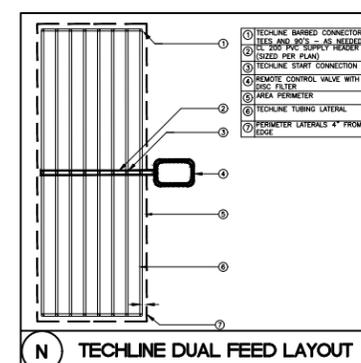
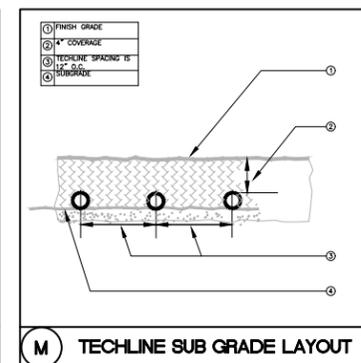
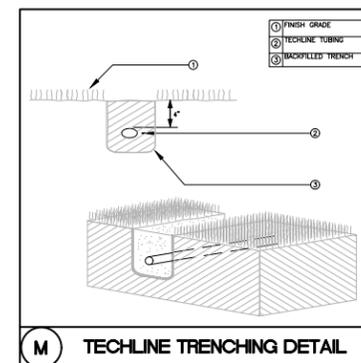
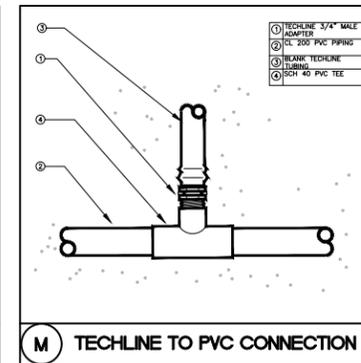
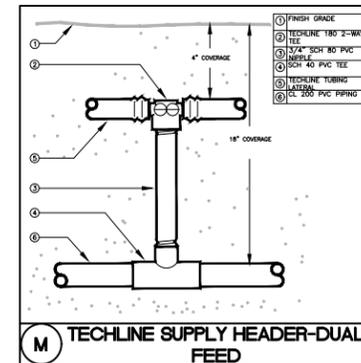
3.16 Remote control valve – Install the remote control valves level and below grade with a minimum of 4" of clearance to the top of the inside of the valve box cover. The arrow cast or molded into the side/bottom of the remote control valve should be pointing in the direction of the flow of water. Place a minimum of one cubic foot of 3/4" gravel in the bottom of the valve box. Support each corner of the valve box with a common red brick. At finish grade, the top of the valve box shall be two inches above surrounding grades.

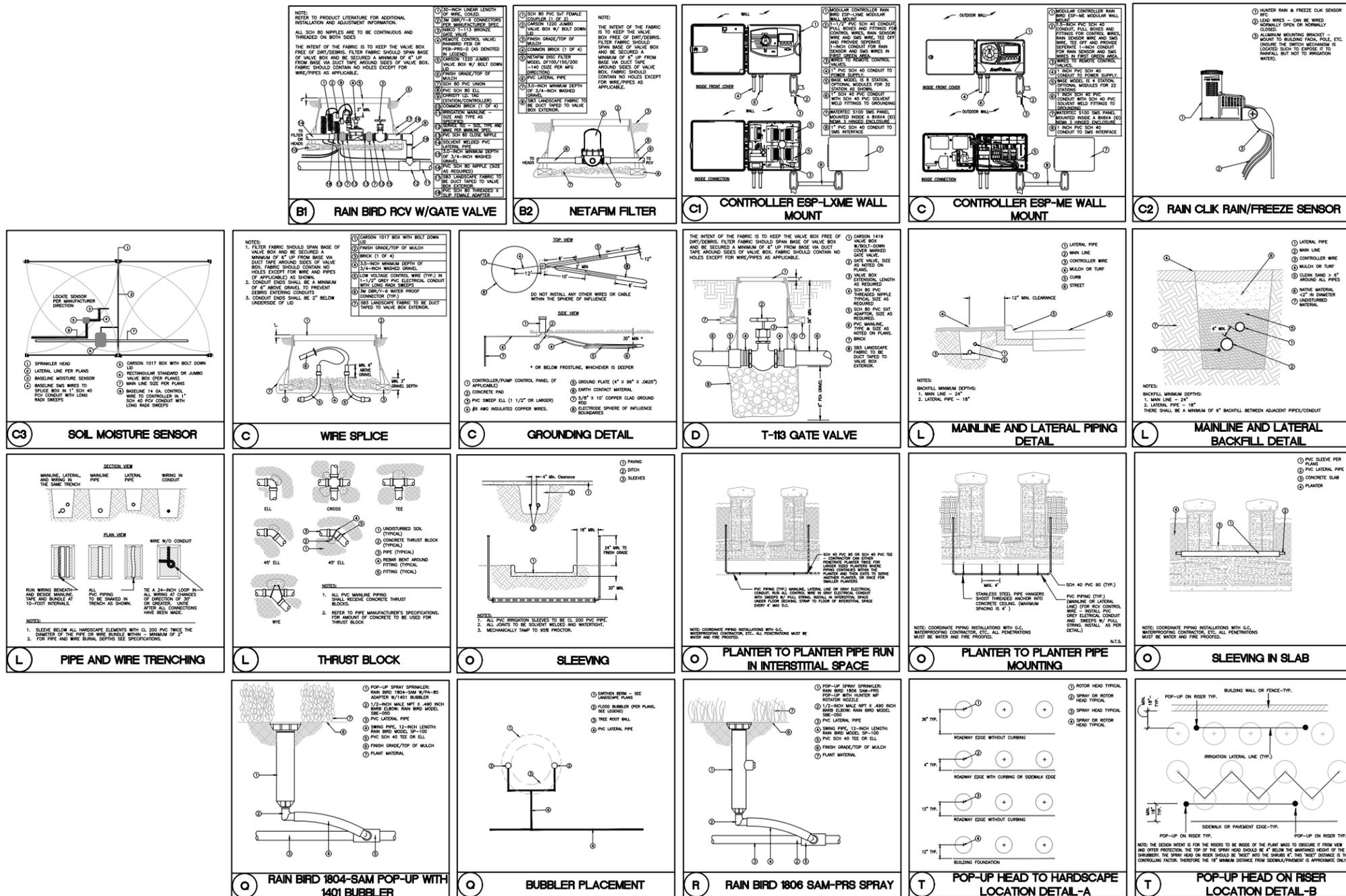
3.17 Disc filter – Install the disc filter, horizontally level, below grade and after the remote control valve (refer to the detail and note sheets). The position of the disc filter in the valve box shall be off-center to allow for removal of the disc element for periodic servicing. Include a minimum of 3" deep of 3/4" gravel in the bottom of the valve box. Support the valve box using a common red brick under each corner of the valve box.

3.18 Flushing – Prior to back filling and before connection of the line flushing valves, flush the entire system to remove any dirt or sediment that may have entered the system during installation.

3.19 Testing – Prior to back filling, open the remote control valve and operate each zone. Check for leakage around barbed and threaded fittings. Make the necessary repairs to stop all leaks. After repairs, re-test to insure all leaks have been repaired. Continue this process until no more leaks are observed.

3.20 Back fill – After placement of tubing, connection to rigid PVC supply header, and initial system flushing, and testing, back filling can begin. Fill remainder of trenches, or where over-excavation and grade level installation was used, place shovel fulls of dirt on piping to keep them in place and maintain row spacing intervals as required. Bring soil up to finished grade and remove any rocks larger than 1" during final grading and contouring. Compact back fill by hand to a minimum of 90% relative compaction. Maintain adequate soil levels as needed to achieve the required compaction requirement.





#### IRRIGATION NOTES & SPECIFICATIONS

Irrigation design based on the Cadence Landscape Plan dated 02/25/2020. Contractor shall refer to these plans to coordinate sprinkler and pipe locations.

The system has been designed to conform with the requirements of all applicable codes, laws, ordinances, rules, regulations and conventions. Should any conflict exist, the requirements of the codes shall prevail. It is the responsibility of the owner/installation contractor to ensure the entire system is installed as designed. Irrigation contractor responsible for obtaining all required permits according to federal, state and local laws.

The scope of work is shown on the plans, notes and details. The Irrigation Contractor shall be certified as a CERTIFIED IRRIGATION CONTRACTOR by the Irrigation Association. The certification shall be current and in good standing.

#### THE WORK

The work specified in this section consists of furnishing all components necessary for the installation, testing, and delivery of a complete, fully functional automatic landscape irrigation system that complies with the irrigation plans, specifications, notes, and details. This work shall include, but not be limited to, the providing of all required material if applicable (pump(s), backflows, pipes, valves, fittings, controllers, wire, primer, glue, etc.), layout, protection to the public, excavation, assembly, installation, back filling, compacting, repair of road surfaces, controller and low voltage feeds to valves, cleanup, maintenance, guarantee and as-built plans.

All irrigated areas shall provide 100% head-to-head coverage from a fully automatic irrigation system with a rain/freeze shut off device. The shut off device shall be installed to prevent activation by adjacent heads and in a visually un-obtrusive location approved by owner. Zones are prioritized first by public safety and then by hydraulic concerns. This sequencing will be a mandatory punch list item.

These plans have been designed to satisfy/exceed the Florida Building Code (FBC) Appendix F and the Florida Irrigation Society Standards and Specifications for Turf and Landscape Irrigation Systems, fourth edition. All products should be installed per manufacturer's recommendation. Contractor shall verify all underground utilities 72 hours prior to commencement of work.

It is the responsibility of the irrigation contractor to familiarize themselves with all grade differences, location of walls, retaining walls, structures and utilities. Do not willfully install the sprinkler system as shown on the drawings when it is obvious in the field that unknown obstruction, grade differences or differences in the area dimensions exist that might not have been considered in the engineering. Such obstructions, or differences, should be brought to the attention of the owner's authorized representative. In the event this notification is not performed, the irrigation contractor shall assume full responsibility for any revisions necessary.

Irrigation contractor shall repair or replace all items damaged by their work. Irrigation contractor shall coordinate their work with other contractors for the location and installation of pipe sleeves and laterals through walls, under roadways and paving, etc.

The contractor shall take immediate steps to repair, replace, or restore all services to any utilities which are disrupted due to their operations. All costs involved in disruption of service and repairs due to negligence on the part of the contractor shall be their responsibility.

#### POINT OF CONNECTION (P.O.C.)

There are five (5) P.O.C.s on this project. The ground level P.O.C. is a pressurized mainline supplied by a rain water harvesting source and pump (by others, see Civil plan). The P.O.C. must be capable of delivering a minimum of 25 GPM at 50 PSI downstream of the connection.

All four (4) upper level P.O.C.s are backflow protected stubouts (size per plan) from the building supply (by others, refer to MEP Plan). Each stubout must be capable of delivering a minimum of 20 GPM at 45 PSI downstream of each stubout.

Contractor to verify these minimum conditions can be met prior to ordering of materials and the beginning of installation. If the conditions can not be met, the contractor must notify the designer prior to proceeding with the work. If the contractor does not do so, the contractor proceeds at their own risk and becomes responsible for any future work required to make the system perform as required.

#### THE PIPE

Pipe locations shown on the plan are schematic and shall be adjusted in the field. When laying out mainlines place a minimum of 18" away from either the back of curb, front of walk, back of walk, or other hardscape to allow for ease in locating and protection from physical damage. Install all lateral pipe near edges of pavement or against buildings whenever possible to allow space for plant root balls. Always install piping inside project's property boundary.

All pipes are to be placed in planting beds. If it is necessary to have piping under hardscapes, such as roads, walks, and patios, the pipes must be sleeved using Class 200 PVC with the sleeve diameter being twice the size of the pipe it is carrying with a minimum sleeve size of 2". No sleeve shall have turns or fittings that prevent a pipe from being manually pushed/pulled through after it is installed.

Pipe sizes shall conform to those shown on the drawings. No substitutions of smaller pipe sizes shall be permitted, but substitutions of larger sizes may be approved. All damaged and rejected pipe shall be removed from the site at the time of said rejection.

Mainline shall be Sch 40 solvent-weld PVC with Sch 40 PVC solvent-weld fittings (size per plans).

Contractor to ensure all mainline piping is properly restrained using mechanical joint fittings, restraining collars, threaded rods, thrust blocks, etc., as and where required. Contractor shall refer to pipe manufacturers recommended installation practices for further direction.

PVC pipe joint compound and primer: The PVC cement shall be Weld-On 711 ECO (gray, ultra-low VOC, medium setting, maximum strength) and the primer shall be Weld-On ECO Primer (purple tinted, ultra-low VOC, fast acting) or approved equals.

#### ELECTRICAL POWER SUPPLY

Electrical supply for irrigation pumps (if applicable), controllers, sensors to be provided by irrigation contractor. Contractor to coordinate with local utilities for the installation of, and connection to, site available power supplies for required electrical components as set forth in the Irrigation plans.

All electrical work is to comply with the National Electrical Code and any, and all, other applicable electrical codes, laws and regulations. A licensed electrician shall perform all electrical hook-ups. Power for each controller shall be a dedicated 120 volt, 20 amp circuit unless otherwise specified in the plans. Power for each pump (if applicable) to be according to pump specifications indicated in these plans.

#### WIRING

Irrigation control wire shall be thermoplastic solid copper, single conductor, low voltage irrigation controller wire; suitable for direct burial and continuous operation at rated voltages.

Tape and bundle control wires every 10' and run alongside the mainline. At all turns in direction make a 2" coil of wire. At all valve boxes coil wire around a 1" piece of PVC pipe to make a coil using 30 linear inches of wire. Make electrical connections with 3M DBR/Y-6 connectors.

Number all wires, using an electrical book of numbers, according to the plans. Number wires in all valve boxes, junction boxes and at the controller.

#### Wire sized, numbered and colored as follows:

- #14 white for common
- #14 spare black common
- #14 individual color coded hot wire
- #14 spare yellow hot wire

#### SPARE WIRES

Leaving each controller, run three spare wires in both directions as applicable (six spare wires total), install as 1 common spare (2 total) and 2 hot wires (4 total). Loop these wires into each RCV along their path and terminate in the last valve box controlled by the wires respective controller. The loop into each valve box shall extend up into the valve box a minimum of 8" and be readily accessible by opening the valve box lid. These wires must be all numbered and color coded as required in these plans.

#### CONTROLLER AND PUMP STATION CONTROL PANEL GROUNDING

Contractor to utilize 4"x96"x0.0625" copper grounding plates, 5/8"x10" copper clad grounding rods, "One Strike" CAD welds at all connection points, #6 insulated copper wire, and earth contact material, install these and other required components as outlined in the detail. Contractor to verify that the earth to ground resistance does not exceed 10 ohms. Contractor shall provide a written certification, on a licensed electrical contractor's letter head, showing the date of the test, controller/pump location, and test results. Each controller/pump shall be so grounded and tested. Each component must have its own separate grounding grid, unless they are sitting side by side, in which case up to two controllers can share a common grounding grid.

#### SOIL MOISTURE SENSOR

Place all soil moisture sensor wiring in 1" SCH 40 PVC conduit. Soil moisture sensor should be placed in the middle of a spray or drip area as per manufacturer's recommendations. Controller shall be set to the Florida Automated Weather Network's urban scheduler settings using the SMS as a moisture cut off device (like a rain switch) per manufacturer directions.

#### LAYOUT

Lay out irrigation system mainlines and lateral lines. Make the necessary adjustments as required to take into account all site obstructions and limitations prior to excavating trenches.

Stake all sprinkler head locations. Adjust location and make the necessary modifications to nozzle types, etc. required to ensure 100% head to head coverage. Refer to the Edge of Pavement Detail on the Irrigation Detail Sheet.

Spray heads shall be installed 4" from sidewalks or curbed roadways and 12" from uncurbed roadways and building foundations. Rotors shall be installed 4" from sidewalks or curbed roadways, 12" from building foundations, and 36" from uncurbed roadways.

Shrub heads shall be installed on 3/4" Sch 40 PVC risers. The risers shall be set at a minimum of 18" off sidewalks, roadway curbing, building foundations, and/or any other hardscaped areas. Shrub heads shall be installed to a standard height of 4" below maintained height of plants and shall be installed a minimum of 6" within planted masses to be less visible and offer protection. Paint all shrub risers with flat black or forest green paint, unless irrigation system will utilize reuse water; in this case the risers shall be purple PVC and shall not be painted.

Locate valves prior to excavation. Ensure that their location provides for easy access and that there is no interference with physical structures, plants, trees, poles, etc. Valve boxes must be placed a minimum of 12" and a maximum of 18" from the edge of pavement, curbs, etc. and the top of the box must be 2" above finish grade. No valve boxes shall be installed in turf areas without approval by the irrigation designer – only in shrub beds. Never install in sport field areas.

#### VALVES

Sequence all valves so that the farthest valve from the P.O.C. operates first and the closest to the P.O.C. operates last. The closest valve to the P.O.C. should be the last valve in the programmed sequence.

Adjust the flow control on each RCV to ensure shut off in 10 seconds after deactivation by the irrigation controller.

Using an electric branding iron, brand the valve I.D. letter/number on the lid of each valve box. This brand must be 2"-3" tall and easily legible.

#### EQUIPMENT

All pop-up heads and shrub risers shall be pressure compensating. All pop-up heads shall be mounted on flex-type swing joints. All rotors shall be installed with PVC triple swing joints unless otherwise detailed.

All sprinkler equipment, not otherwise detailed or specified on these plans, shall be installed as per manufacturer's recommendations and specifications, and according to local and state laws.

#### TRENCHING

Excavate straight and vertical trenches with smooth, flat or sloping bottoms. Trench width and depth should be sufficient to allow for the proper vertical and horizontal separation between piping as shown in the pipe installation detail on the detail sheet.

Protect existing landscaped areas. Remove and replant any damaged plant material upon job completion. The replacement material shall be of the same genus and species, and of the same size as the material it is replacing. The final determination as to what needs to be replaced and the acceptability of the replacement material shall be solely up to the owner or owner's representative.

#### INSTALLATION

**Solvent Weld Pipe:** Cut all pipe square and deburr. Clean pipe and fittings of foreign material; then apply a small amount of primer while ensuring that any excess is wiped off immediately. Primer should not puddle or drip from pipe or fittings. Next apply a thin coat of PVC cement; first apply a thin layer to the pipe, next a thin layer inside the fitting, and finally another very thin layer on the pipe. Insert the pipe into the fitting. Insure that the pipe is inserted to the bottom of the fitting. Then turn the pipe a 1/4 turn and hold for 10 seconds. Make sure that the pipe doesn't recede from the fitting. If the pipe isn't at the bottom of the fitting upon completion, the glue joint is unacceptable and must be discarded.

Pipes must cure a minimum of 30 minutes prior to handling and placing into trenches. A longer curing time may be required; refer to the manufacturer's specifications. The pipe must cure a minimum of 24 hours prior to filling with water.

#### BACK FILL

The Back fill 6" below, 6" above, and around all piping shall be of clean sand and anything beyond that in the trench can be of native material but nothing larger than 2" in diameter. In all planting beds backfill all trenches to 85% Proctor and all trenches under hardscapes to be backfilled and compacted to 95% Proctor.

Main line pipe depth measured to the top of pipe shall be:

- 24" minimum for 3/4"-2 1/2" PVC with a 30" minimum at vehicular crossings;

Lateral line depths measured to top of pipe shall be:

- 18" minimum for 3/4"-3" PVC with a 30" minimum at vehicular crossings.

Contractor shall backfill all piping, both mainline and laterals, prior to performing any pressure tests. The pipe shall be backfilled with the exception of 2" on each side of every joint (bell fittings, 90's, tees, 45's, etc.). These joints shall not be backfilled until all piping has satisfactorily passed its appropriate pressure test as outlined below.

#### FLUSHING

Prior to the placement of valves, flush all mainlines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

Prior to the placement of heads, flush all lateral lines for a minimum of 10 minutes or until lines are completely clean of debris, whichever is longer.

Use screens in heads and adjust heads for proper coverage avoiding excess water on walls, walks and paving.

#### TESTING

**Soil:** At a minimum of 2 locations on the site, soil tests for infiltration and texture shall be performed according to the USDA Soil Quality Test Kit Guide. The tests shall be documented in a USDA Soil Worksheet.

All of the above is available at:

[https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/health/assessment/?cid=nrcs142p2\\_053873](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/health/assessment/?cid=nrcs142p2_053873)

The completed worksheet shall be submitted to the owners representative for review/approval. Do not proceed without written direction from the owner/owner's representative.

Schedule testing with Owner's Representative a minimum of three (3) days in advance of testing.

Contractor to utilize soil test data to inform the irrigation scheduling at the project, using BMP's issued by the Irrigation Association which can be download on line at: <https://irrigation.org/IA/Advocacy/Standards-Best-Practices/Landscape-Irrigation-BMPs/IA/Advocacy/Landscape-Irrigation-BMPs.aspx?key=93b546ad-c87a-41b8-b770-8c4fd2cf931> (link at bottom of the webpage).

Read pages 47-52 in Appendix C for how to create irrigation schedules.

**Maining:** Remove all remote control valves and cap using a threaded cap on SCH 80 nipple. Hose bibs and gate valves shall not be tested against during a pressure or test unless authorized by written permission from the owner. Fill mainline with water and pressurize the system to 125 PSI using a hydrostatic pump. Monitor the system pressure at two gauge locations; the gauge locations must be at opposite ends of the mainline. With the same respective pressures, monitor the gauges for two hours. There can be no loss in pressure at either gauge for solvent-welded pipe.

If these parameters are exceeded, locate the problem; repair it; wait 24 hours and retry the test. This procedure must be followed until the mainline passes the test.

**Lateral Lines:** The lateral lines must be fully filled to operational pressure and visually checked for leaks. Any leaks detected must be repaired.

**Operational Testing** –Once the mainline and lateral lines have passed their respective tests, and the system is completely operational, a coverage test and demonstration of the system is required. The irrigation contractor must demonstrate to the owner, or his/her representative, that proper coverage is obtained and the system works automatically from the controller. This demonstration requires each zone to be turned on, in the proper sequence as shown on the plans, from the controller. Each zone will be inspected for proper coverage and function. The determination of proper coverage and function is at the sole discretion of the owner or owner's representative.

Upon completion of the operational test, run each zone until water begins to puddle or run off. This will allow you to determine the number of irrigation start times necessary to meet the weekly evapotranspiration requirements of the planting material in each zone. In fine sandy soils, it is possible no puddling will occur. If this is experienced, then theoretical calculations for run times will be required for controller programming.

#### SUBMITTALS

**Pre-Construction:** Deliver five (5) copies of submittals to Owner's Representative within ten (10) working days from date of Notice to Proceed. Furnish information in 3-ring binder with table of contents and index sheet. Index sections for different components and label with specification section number and name of component. Furnish submittals for components on material list. Indicate which items are being supplied on catalog cut sheets when multiple items are shown on one sheet. Incomplete submittals will be returned without review. In lieu of hardcopies, an electronic package in PDF format can be submitted.

#### After project completion:

As a condition of final acceptance, the irrigation contractor shall provide the owner with:

1. Irrigations As-builts – shall be provided utilizing a sub-foot Global Navigation Satellite System (GNSS) to accurately locate all mainlines, sleeves, remote control valves, gate valves, independent wire runs, wire splice boxes, controllers, high voltage supply sources/conduit path, control mechanisms, sensors, wells and water source connections in

Florida East State Plane, NAD 83, and CORS 96 format. The data collected shall be in POINT format and include an ID for each data point with Manufacturer, Type, Size, and Depth. All mainline and independent runs of wire shall be located every 30' for straight runs and at every change of direction. Sleeves will be located at end points and every 20' of length. All underground items shall include depth in inch format. These POINTS once collected shall be imported into an AutoCAD DWG geo-referenced base file to be labeled accordingly. The completed AS-Built shall be a Geo-Referenced DWG file and delivered to the owner on a compact disk (CD).

2. Controller charts – Upon completion of "as-built" prepare controller charts; one per controller. Indicate on each chart the area controlled by a remote control valve (using a different color for each zone). This chart shall be reduced to a size that will fit inside of the controller door. The reduction shall be hermetically sealed inside two 2mil pieces of clear plastic.

3. Grounding Certification – Provide ground certification results for each controller and pump panel grounding grid installed. This must be on a licensed electrician letter head indicating location tested (using IR plan symbols), date, time, test method, and testing results.

INSPECTIONS AND COORDINATION MEETINGS REQUIRED – Contractor is required to schedule, perform, and attend the following, and demonstrate to the owner and/or owners representative to their satisfaction, as follows:

1. Pre-construction meeting – Designer and contractor to review entire install process and schedule with owner/general contractor.
2. Mainline installation inspection(s) – all mainline must be inspected for proper pipe, fittings, depth of coverage, backfill, and installation method.
3. Mainline pressure test – All mainline shall be pressure tested according to this design's requirements.
4. Backflow Device Testing (if applicable) – all newly installed back flow devices must be tested and the test results provided (in writing) to the owner/owners representative verifying that State of Florida requirements have been met.
5. USDA Soil Quality Tests for infiltration/texture
6. Coverage and operational test
7. Final inspection
8. Punch list inspection

#### FINAL ACCEPTANCE

Final acceptance of the irrigation system will be given after the following documents and conditions have been completed and approved. Final payment will not be released until these conditions are satisfied.

1. All above inspections are completed, documented, and approved by owner.
2. Completion and acceptance of "as-built" drawings.
3. Acceptance of required controller charts and placement inside of controllers.
4. All other submittals have been made to the satisfaction of the owner.

#### GUARANTEE

The irrigation system shall be guaranteed for a minimum of one calendar year from the time of final acceptance.

#### MINIMUM RECOMMENDED IRRIGATION MAINTENANCE PROCEDURES

1. Every irrigation zone should be checked monthly and written reports generated describing the date(s) each zone was inspected, problems identified, date problems repaired, and a list of materials used in the repair. At minimum, these inspections should include the following tasks:
  - 1.A. Turn on each zone from the controller to verify automatic operation.
  - 1.B. Check schedules to ensure they are appropriate for the season, plant and soil type, and irrigation method. Consult on I.A. certified auditor for methods used in determining proper irrigation scheduling requirements.
  - 1.C. Check remote control valve to ensure proper operation.
  - 1.D. Check setting on pressure regulator to verify proper setting, if present.
  - 1.E. Check flow control and adjust as needed; ensure valve closure within 10-15 seconds after deactivation by controller.
  - 1.F. Check for leaks – mainline, lateral lines, valves, heads, etc.
  - 1.G. Check all heads as follows:
    - 1.G.a. Proper set height (top of sprinkler is 1" below mow height)
    - 1.G.b. Verify head pop-up height – 6" in turf, 12" in ground cover, and pop-up on riser in shrub beds.
    - 1.G.c. Check wiper seal for leaks – if leaking, clean head and re-inspect.
    - 1.G.d. If still leaking, replace head with the appropriate head with pressure regulator and built-in check valve.
    - 1.G.e. All nozzles checked for proper pattern, clogging, leaks, correct make and model, etc. – replace as needed.
    - 1.G.f. Check for proper alignment – perfectly vertical; coverage area is correct; minimize over spray onto hardscapes.
    - 1.G.g. Riser height raised/lowered to accommodate plant growth patterns and ensure proper coverage.
  - 1.H. Verify the pop-up riser retracts after operation. If not, repair/replace as needed
2. Check controller/C.C.U. grounds for resistance (10 ohms or less) once per year. Submit written reports.
3. Check rain shut-off device monthly to ensure it functions properly.
4. inspect all filters monthly and clean/repair/replace as needed.
5. inspect backflow devices by utilizing a properly licensed backflow inspector. This should be done annually, at minimum.
6. inspect all valve boxes to ensure they are in good condition, lids are in place and locked.
7. Check pump stations for proper operation, pressures, filtration, settings, etc. – refer to pump station operations manual.
8. Check and clean intake screens on all suction lines quarterly, at minimum. Clean and/or repair, as needed.
9. Winterize, if applicable, as weather in your area dictates. Follow manufacturer recommendations and blow out all lines and equipment using compressed air. Perform seasonal startup of system as per manufacturer recommendations.
10. Conduct additional inspections, maintenance tasks, etc. that are particular for your site.