

## **LANDSCAPING AND IRRIGATION SYSTEM**

**DOCUMENT NUMBER: 02000**

**APPLICATION: ELEMENTARY, MIDDLE AND HIGH SCHOOL**

**DATE OF ISSUE: 10-14-2022**

### **NOTES:**

The attached list of plants may be used on school sites. If alternate plant materials are proposed due to unusual site conditions, submit the alternate plants for Owner approval. Specify that plants are to be the best quality.

Mulch, if used, is to be locally available when possible. Pine bark or pine needles are preferred materials for use on relatively flat areas. Mulch is to be applied in a 2" to 4" thick blanket, leaving a few inches bare around tree trunks.

It is the intent of the School Board to plant only appropriate plant materials that will survive and flourish with comparatively little maintenance.

### **ATTACHMENTS:**

Landscape Design Guidelines  
List of Acceptable Plants for School Sites  
Irrigation System Design Guidelines

## ***LANDSCAPE DESIGN GUIDELINES***

November 26, 2002

### **I. GOALS**

- Provide useful exterior spaces for gathering and effective circulation.
- Reduce Life Cycle Cost, particularly equipment and personnel costs.
- Reduce the use of water, see <http://www.swfwmd.state.fl.us/>

### **II. METHODS**

- A. Preserve existing landscape where it is well established and self-sustaining (i.e. stands of palmettos, pines, oaks, etc.). Define the limits of construction staging areas in the documents, minimize the required staging area and enforce the boundaries during construction.
- B. Employ the principles of Xeriscape. Design with respect to existing microclimates. Group plants according to water needs to maximize irrigation efficiency. Plants that require frequent irrigation should be grouped together in an "oasis" zone. Drought-tolerant plants, needing infrequent watering should be grouped separately from plants that will survive on natural rainfall.

- C. Decentralize storm water systems. Provide shallow grading in lieu of fenced dry retention ponds or wet ponds. Promote the use of swales to convey storm water in lieu of structures and piping. Promote the dual use of shallow retention as playfields at elementary and middle schools or practice fields at high schools.
- D. Limit the area of irrigation to the public side(s) of the site. Courtyards may also be irrigated where provided.
- E. Avoid placing pavement immediately adjacent to the buildings on the south, east and west sides, to reduce heat gain.
- F. Centralize the intensity of circulation. The courtyard, streetscape, or open-air mall concepts are examples. Landscaping in these areas is to be in planters or other protected means.
- G. Minimize maintenance requirements. Design sites to minimize multiple small landscaped areas that are difficult to maintain. Provide low maintenance ground covers in parking lot islands (not sod). Provide a positive slope from buildings beginning at an elevation below the finish floor. Do not create three-sided courtyards where rainfall from roofs and canopies is permitted to stand. Consider rainfall conveyance from all canopies.

**LIST OF ACCEPTABLE PLANTS FOR SCHOOL SITES**  
10-27-03

Sod and seed is to be Bahia unless otherwise directed. Floratam sod may be provided where deemed appropriate by the Owner.

| CODE         | BOTANICAL NAME                | COMMON NAME            | SWFWMD<br>WATER<br>REQ | SPECIFICATION |
|--------------|-------------------------------|------------------------|------------------------|---------------|
| <b>TREES</b> |                               |                        |                        |               |
| AR           | ACER RUBRUM                   | RED MAPLE              | DT                     |               |
| CR           | CALLISTEMON RIGIDUS           | ERECT BOTTLEBRUSH      | DT                     |               |
| CV           | CALLISTEMON VIMINALIS         | WEeping BOTTLEBRUSH    | DT                     |               |
| IA           | ILEX ATTENUATA 'EAST PALATKA' | EAST PALATKA HOLLY     | -                      |               |
| IA           | ILEX ATTENUATA 'SAVANNAH'     | SAVANNAH HOLLY         | -                      |               |
| IV           | ILEX VOMITORIA "PENDULA"      | YAUPON HOLLY (WEeping) | N                      |               |
| IV           | ILEX VOMITORIA                | YAUPON HOLLY (UPRIGHT) | N                      |               |
| LI           | LAGERSTROEMIA INDICA          | GRAPE MYRTLE           | N                      |               |
| LS           | LIQUIDAMBAR STYRACIFLUA       | SWEETGUM               | N                      |               |

| CODE         | BOTANICAL NAME           | COMMON NAME              | SWFWMD WATER REQ | SPECIFICATION                 |
|--------------|--------------------------|--------------------------|------------------|-------------------------------|
| LL           | LIGUSTRUM LUCIDUM        | LIGUSTRUM (TREE FORM)    | DT               |                               |
| LJ           | LIGUSTRUM JAPONICA       | LIGUSTRUM (TREE FORM)    | DT               |                               |
| MG           | MAGNOLIA GRANDIFLORA     | SOUTHERN MAGNOLIA        | DT               |                               |
| ML           | MAGNOLIA "LITTLE GEM"    | LITTLE GEM MAGNOLIA      | -                |                               |
| MV           | MAGNOLIA VIRGINIANA      | SWEETBAY MAGNOLIA        | N                |                               |
| MC           | MYRICA CERIFERA          | WAX MYRTLE (TREE FORM)   | N                |                               |
| PB           | PERSIA BORBONIA          | REDBAY                   | N                |                               |
| PE           | PINUS ELLIOTTII 'DENSE'  | SOUTH FLORIDA SLASH PINE | N                |                               |
| PA           | PRUNUS ANGUSTIFOLIA      | CHICKASAW PLUM           | N                |                               |
| QS           | QUERCUS SHUMARDII        | SHUMARD OAK              | N                |                               |
| QV           | QUERCUS VIRGINIANA       | LIVE OAK                 | N                |                               |
| TC           | TABEBUIA CARAIBA         | YELLOW TAB (GOLD TREE)   | -                |                               |
| TD           | TAXODIUM DISTICHUM       | BALD CYPRESS             | DT               |                               |
| UA           | ULMUS ALATA              | WINGED ELM               | N                |                               |
| UP           | ULMUS PARVIFOLIA 'DRAKE' | DRAKE ELM                | -                |                               |
| VO           | VIBURNUM OBOVATUM        | WALTERS VIBURNUM (TREE)  | -                |                               |
| <b>PALMS</b> |                          |                          |                  |                               |
| AW           | ACOELORRAPHE WRIGHTII    | PAUROTIS                 | N                |                               |
| CH           | CHAMAEROPS HUMILIS       | EUROPEAN FAN PALM        | N                |                               |
| LC           | LIVISTONA CHINENSIS      | CHINESE FAN PALM         | N                |                               |
| PR           | PHOENIX ROEBELENI        | PYGMY DATE PALM          | N                |                               |
| RE           | RHAPIS EXCELSA           | LADY PALM                | DT               |                               |
| SM           | SABAL MINOR              | DWARF PALMETTO           | -                |                               |
| SP           | SABAL PALMETTO           | CABBAGE PALM             | N                | SPECIFY CLEAR TRUNK & HT ETC. |
| SR           | SERENOA REPENS           | SAW PALMETTO             | N                |                               |

|                      |                                      |                          |    |                               |
|----------------------|--------------------------------------|--------------------------|----|-------------------------------|
| WR                   | WASHINGTONIA ROBUSTA                 | WASHINGTON PALM          | N  | SPECIFY CLEAR TRUNK & HT ETC. |
| <b>SHRUBS</b>        |                                      |                          |    |                               |
| CAS                  | CRINUM ASIATICUM                     | CRINUM LILY              | -  |                               |
| EP                   | ELAEAGNUS PUNGENS                    | SILVERTHORN              | N  |                               |
| GG                   | GALPHEMIA GRACILIS                   | THRYALLIS                | DT |                               |
| HP                   | HAMELIA PATENS                       | FIRE BUSH                | N  |                               |
| HRS                  | HIBISCUS ROSA SINENSIS               | HIBISCUS SINGLE RED      | DT |                               |
| IF                   | ILLICIUM FLORIDANUM                  | RED ANISE                | DT |                               |
| IP                   | ILLICIUM PARVIFLORA                  | YELLOW ANISE             | -  |                               |
| IC                   | ILEX CORNUTA 'BURFORDII'             | BURFORD HOLLY            | -  |                               |
| IV                   | ILEX VOMITORIA 'SCHELLINGS DWARF'    | SCHELLINGS DWARF HOLLY   | N  |                               |
| JM                   | JASMINE MULTIFLORUM                  | DOWNY JASMINE            | DT |                               |
| LS                   | LIGUSTRUM SINENSE 'VARIEGATUM'       | VARIGATED CHINESE PRIVET | DT |                               |
| MF                   | MYRICANTHES FRAGRANS                 | SIMPSON'S STOPPER        | -  |                               |
| ND                   | NANDINA DOMESTICA                    | HEAVENLY BAMBOO          | N  |                               |
| PZ                   | PHILODENDRON ZANADUE                 | ZANADUE PHILODENDRON     | -  |                               |
| PS                   | PHILODENDRON SELLOUM                 | PHILODENDRON             | DT |                               |
| PA                   | PLUMBAGO AURICULATA                  | PLUMBAGO (LEADWORT)      | N  |                               |
| PM                   | PODOCARPUS MACROPHYLLA               | PODOCARPUS               | -  |                               |
| PN                   | PSYCHOTRIA NERVOSA                   | WILD COFFEE              | -  |                               |
| RI                   | RAPHIOLEPIS INDICA 'ALBA'            | WHITE INDIAN HAWTHORN    | N  |                               |
| RE                   | RUSSELIA EQUISETIFORMIS              | FIRECRACKER PLANT        | N  | SPECIAL PROTECTED AREAS       |
| VOD                  | VIBURNUM ODORATISSIMUM               | SWEET VIBURNUM           | DT |                               |
| VOB                  | VIBURNUM OBOVATUM (SHRUB FORM)       | WALTER'S VIBURNUM        | -  |                               |
| VS                   | VIBURNUM SUSPENSUM                   | SANDANKWA VIBURNUM       | DT |                               |
| ZP                   | ZAMIA PUMILA                         | COONTIE                  | N  |                               |
| ZF                   | ZAMIA FURFURACEA                     | CARDBOARD PLANT          | -  |                               |
| <b>GROUND-COVERS</b> |                                      |                          |    |                               |
| AE                   | ASPIDISTA ELATIOR                    | CAST IRON PLANT          | N  | SHADE GROWN                   |
| HSP                  | HEMEROCALIS SPP.                     | DAY LILY                 | DT | EVERGREEN - VARIOUS COLORS    |
| LC                   | LANTANA CAMARA 'GOLD MOUND'          | GOLD MOUND LANTANA       | -  |                               |
| LMWW                 | LIRIOPE MUSCARI 'WEBSTER'S WIDELEAF' | WEBSTER WIDELEAF LIRIOPE | DT |                               |
| LMBB                 | LIRIOPE MUSCARI 'BIG BLUE'           | BIG BLUE LIRIOPE         | DT |                               |
| LMEG                 | LIRIOPE MUSCARI 'EVERGREEN GIANT'    | EVERGREEN GIANT LIRIOPE  | DT |                               |
| LMVG                 | LIRIOPE MUSCARI 'VARIGATED GIANT'    | AZTEC GRASS              | DT |                               |
| MI                   | MOREA IRIDIES                        | WHITE AFRICAN IRIS       | -  |                               |
| OJ                   | OPHIPOGON JAPONICUS                  | MONDO GRASS              | DT |                               |

|  |                                     |                         |    |  |
|--|-------------------------------------|-------------------------|----|--|
| OJN  | OPHIOPOGON JAPONICUS 'NANA'         | DWARF MONDO GRASS       | DT |  |
| OJV  | OPHIOPOGON JAPONICUS 'VARIGATA'     | VARIGATED MONDO GRASS   | DT |  |
| RS   | RHOEO SPATHACEA "DWARF"             | DWARF OYSTER PLANT      | N  |  |
| SP   | SETCREASEA PURPUREA                 | PURPLE QUEEN            | N  |  |
| TA   | TRACHELOSPERMUM ASIATICUM ' MINIMA' | LITTLE LEAF JASMINE     | DT |  |
| WT   | WEDELIA TRILOBATA                   | WEDELIA                 | N  |  |
| <b>VINES</b>   |                                     |                         |    |  |
| AC   | ASTER CAROLINIANA                   | CLIMBING ASTER          | -  |  |
| FP   | FICUS PUMILA                        | CREEPING FIG            | DT |  |
| LS   | LONICERA SEMPERVIRENS               | CORAL HONEYSUCKLE       | DT |  |
| TJ   | TRACHELOSPERMUM JASMINOIDES         | CONFEDERATE JASMINE     | DT |  |
| <b>FERNS</b>   |                                     |                         |    |  |
| CF   | CRYPTOMIUM FALCATUM                 | HOLLY FERN              | DT |  |
| NE   | NEPHROLEPIS EXALTATA                | BOSTON FERN             | DT |  |
| OC   | OSMUNDA CINNAMOMEA                  | CINNAMON FERN           | -  |  |
| <b>ORNAMENTAL GRASSES</b>                                |                                     |                         |    |  |
| MC   | MUHLENBERGIA CAPILLARIS             | MUHLY GRASS             | -  |  |
| PSC  | PENNISETUM SETACEUM 'CUPREUM'       | RED FOUNTAIN GRASS      | -  |  |
| PS   | PENNISETUM SETACEUM                 | GREEN FOUNTAIN GRASS    | -  |  |
| TD   | TRIPSACUM DACTYLOIDES               | FAKAHATCHEE GRASS       | -  |  |
| TF   | TRIPSACUM FLORIDANA                 | DWARF FAKAHATCHEE GRASS | -  |  |
| SB   | SPARTINA BAKERI                     | CORDGRASS               | -  |  |
| <b>AQUATICS (FOR POND PLANTINGS, WETLAND AREAS, ETC)</b> |                                     |                         |    |  |
| DS   | DISTICHLIS SPICATA                  | SALTGRASS               |    |  |
| SP   | SPARTINA                            | MARSH GRASS / CORDGRASS |    |  |
| SP   | SPARTINA PATENS                     | SALT MEADOW CORDGRASS   |    |  |
| SL   | SAGITTARIA LANCIFOLIA               | ARROWHEAD               |    |  |
| CO   | CEPHALANTHUS OCCIDENTALIS           | BUTTON BUSH             |    |  |
| SL   | SAGITTARIA LATIFOLIA                | DUCK POTATO             |    |  |
| PC   | PONTEDERIA CORDATA                  | PICKEREL WEED           |    |  |
| IVL  | IRIS VIRGINICA LINNAEUS             | SOUTHERN BLUE FLAG IRIS |    |  |
| RP   | ROSA PALUSTRIS                      | SWAMP ROSE              |    |  |
| CF   | CANNA FLACCIDA (AQUATIC VARIETY)    | YELLOW CANA             |    |  |
| TD   | TAXODIUM DISTRICHUM                 | BALD CYPRESS            |    |  |
| TA   | TAXODIUM ASCENDENS                  | POND CYPRESS            |    |  |
| BN   | BETULA NIGRA                        | RIVER BIRCH             |    |  |
| QN   | QUERCUS NIGRA                       | WATER OAK               |    |  |

|    |                  |                |  |  |
|----|------------------|----------------|--|--|
| SB | SALIX BABYLONICA | WEeping WILLOW |  |  |
|----|------------------|----------------|--|--|

SWFWMD water requirements are as follows: Oasis (O) requires frequent irrigation, Drought Tolerant (DT) needs occasional irrigation, and Natural (N) can survive on natural rainfall.

***IRRIGATION SYSTEM DESIGN GUIDELINE***

November 26, 2002

MATERIAL REQUIREMENTS

All spray heads, valves, and controllers shall be manufactured by Rainbird or approved equal and all rotor heads shall be manufactured by Hunter or Rainbird.

SPRINKLER HEADS AND CONTROLLERS

Heads located in sod areas shall be 6" pop-ups. Heads located in ground cover areas shall be 12" pop-ups. Heads located next to shrubs shall be installed on schedule 40 risers, 28" in height or 4" above adjacent shrubs.

Sprinkler heads and nozzles shall be selected to minimize over spray onto pavement. Triangular spacing of heads shall be used if possible. Heads shall be spaced no further apart than 60% of the spray diameter.

Spray heads shall be installed on flex pipe, with minimum 24" slack. Rotor heads shall be installed on flex pipe. Spray heads and rotor heads shall never be located on the same zone.

Irrigation control wire shall be UF minimum 16 AWG, provided with waterproof and weatherproof connections. Wire splices shall be installed in a valve box.

Controller shall be Rainbird with ESP, with battery back-up. After initial plant establishment period, set each zone operation time to achieve 1" of water per week. A rain sensor shall be installed that will interrupt the irrigation controller from operating, when rainfall exceeds a pre-selected amount. Provide a separate controller for athletic fields (football, baseball, softball) where applicable.

PIPES AND VALVES

Pipe shall be sized so that flow rates never exceed a velocity of 5 feet per second. Main line size shall be determined by the largest zone gallons per minute. Minimize the length of main line pipe where possible. Looped mains are desirable for large systems.

Main line, sleeves and lateral lines shall be schedule 40 PVC. All pipe that will be installed under pavement or walks shall be installed inside a sleeve, sized two sizes larger than the pipe size. Main line depth shall be 18", lateral line depth shall be 12" below finish grade.

Valves shall be installed in a valve box, arranged for easy adjustment and removal. set valve in 3" of pea gravel, inside of valve box. Adjust valve flow rate to match optimum operating pressure for irrigation head type. Valve boxes shall be thermoplastic 12" x 15" x 18" rectangular with lid.

Test main line piping and valves before backfilling trenches, to a hydrostatic pressure of not less than 100 PSI, for a period of two hours. Perform operational testing after sprinkler heads have been adjusted to final position, and sod, mulch, and plant materials have been installed.