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PART 1 - GENERAL

1.01 OVERVIEW

- A. The gardens and landscaping (green space) at MD Anderson Cancer Center benefit both Public Health (people) and Environmental Health (nature) by integrating a shared model of sustainability and evidence-based research into facilities design and construction that is leveraged across the institution to support diverse interests. Each green space shall be intentionally designed to maximize the health and environmental benefits to both people and nature by adhering to the evidence-based guidelines within this document.
- B. Public Health Benefits (People)
 - 1. The gardens and landscaping at MD Anderson are therapeutic spaces designed to improve the health and wellness of patients, visitors, and staff by providing positive distractions from the burdens of cancer care and treatment. The following guidelines provide Therapeutic Landscape Design Standards to support the public health benefits of green space at MD Anderson Cancer Center.
- C. Environmental Benefits (Nature)
 - 1. The gardens and landscaping at MD Anderson are ecological spaces that minimize the negative impact of conventional landscaping on the environment through a variety of sustainable landscaping strategies. The following guidelines provide Environmental Landscape Design Standards to support the environmental health benefits of green space at MD Anderson Cancer Center.
- D. All facilities projects with associated green space elements shall incorporate into new facility planning, design, construction, and renovations, outdoor garden spaces that conform to the Therapeutic Landscape Design Standards and Environmental Landscape Design Standards as outlined by this document.
- E. As part of the Schematic Design Phase deliverable for all new building construction, building additions, and major renovations when requested by the Owner, the Landscape Architect of record shall provide the Owner with a written report documenting the Therapeutic Landscape Design Standards and Environmental Landscape Design Standards used to develop the schematic designs.
- F. As part of the Schematic Design Phase deliverable for all new facilities construction, building additions, and major renovations when requested by the Owner, the Landscape Architect of record shall collaborate with MD Anderson garden and landscaping Subject Matter Experts on the planning, design, integration, and utilization of gardens and landscaping elements within the scope of work.
- G. For facilities constructed within the Texas Medical Center, all landscaping shall be in harmony with the Texas medical Center Landscape Development Plan and Guidelines as most recently adopted.

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PART 2 - THERAPEUTIC LANDSCAPE DESIGN STANDARDS

2.01 GENERAL

- A. By incorporating evidence-based therapeutic design standards adopted from the Center for Health Systems & Design, Texas A&M University, College Station, TX (Sachs, Marcus, Barns 2015), these guidelines shall govern the design outcome of gardens and landscaping to maximize the health and wellness benefits to garden users at MD Anderson Cancer Center.
- B. The Therapeutic Landscape Design Standards are divided into five categories. New gardens and renovations at patient care facilities shall incorporate a minimum of 50% of the design criteria from each Design Standard category to satisfy this requirement of this guideline

2.02 THERAPEUTIC GARDEN DESIGN STANDARD #1 - ACCESS & VISIBILITY

- A. Physical Access to the Garden
 - 1. Doors to the garden from at least one entry are automatic and easy to use.
 - 2. Any doors that are NOT automatic are easy to operate (are not too heavy, don't close too quickly).
 - 3. Doorway thresholds are flat and smooth (for a wheelchair or an IV pole to cross easily).
 - 4. The space just outside the main doorway is covered/roofed (provides protection from rain, sun, etc.).
 - 5. The space just outside the main doorway has seating for at least two people and at least one wheelchair.
 - 6. A "destination" feature (seating area, water feature, special tree or plantings, etc.) draws people out into the garden.
 - 7. A restroom in the facility is near a garden entry (preferably within 50 feet).
 - 8. Garden has an emergency phone that connects with the hospital front desk or security.
- B. Visual Access to the Garden (Visibility)
 - 1. Garden is visible from main public indoor areas (entry lobby, major hallway, etc.).
 - 2. Garden is visible from indoor areas that involve waiting (waiting rooms, labs, pharmacy, etc.).
 - 3. Doors to the garden are easy to find.
 - 4. Doors to the garden are glass or have a window in or next to them.
 - 5. Garden looks appealing/inviting from indoors.
 - 6. Garden is visible from floors above (from offices, patient rooms, etc. on upper floors).

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- 7. There is signage TO the garden from indoors (in lobby, waiting areas, elevator, etc.).
- 8. There is signage for the garden ON OR NEXT TO garden doors.
- 9. Information about the garden is available (pamphlets, signage, etc.).

2.03 THERAPEUTIC GARDEN DESIGN STANDARD #2 - SENSE OF "BEING AWAY"

- A. Sense of Being Away
 - 1. Some parts of the garden have a desirable sense of enclosure.
 - 2. People can find privacy in at least one part of the garden.
 - 3. While people are in the garden, they cannot look into adjacent private indoor areas (patient rooms, treatment/consultation rooms).
 - 4. Garden has at least one fully covered area, easily accessible in bad weather (porch, gazebo, etc.).
 - 5. At least one seating area is protected from climatic/weather extremes (with wind shields, patio heaters, overhead fans, etc.).
- B. Aesthetics and Maintenance
 - 1. Some features in the garden provide a rich, multi-sensory experience (things to do, look at, touch, smell, hear, etc.).
 - 2. Garden is free from unpleasant sounds (air conditioners, traffic, loading docks).
 - 3. Garden is free from bad odors (trash, vehicle exhaust, cooking smells).
 - 4. Plants or plantings hide or soften unsightly views (of fences, walls, equipment, etc.).
 - 5. Garden has litter receptacles.

2.04 THERAPEUTIC GARDEN DESIGN STANDARD #3 - NATURE ENGAGEMENT

- A. Plantings
 - 1. More than half of the garden surface area is planted (not paved).
 - 2. Garden has a rich variety of plants (combination of trees, shrubs, perennials; variety of species; etc.).
 - 3. Garden has plants that stimulate the senses (sight, smell, touch, sound, taste).
 - 4. Garden has plants at multiple heights (on the ground, raised beds, hedges, vines, trees, etc.).
 - 5. Some plants are intriguing, provide "fascination" (intricate flowers, unusual growth pattern, movement, etc.).

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- 6. Planting provides year-round interest (there is always something to see, such as flowers, leaves, berries, bark, evergreens, etc.).
- 7. Some plants provide bright colors in at least one time/season of the year (flowers, leaves, berries, bark, etc.).
- B. Healthy Plants
 - 1. Planting beds shall appear full and well planned, free of large bare spots.
 - 2. Plants shall appear healthy and vibrant upon installation (see Planting Specifications Document).
 - 3. Plants are sturdy enough to tolerate extreme weather, people picking flowers and leaves, etc.
- C. Other Natural Features
 - 1. Plants provide food and/or habitat for birds, butterflies and other desirable wildlife.
 - 2. Garden has at least one water feature. If NO, omit the next five items.
 - 3. Sound from water feature is pleasant and soothing.
 - 4. Water feature design and location minimizes slipping hazards.
 - 5. Water feature has minimal spray (spray can carry harmful bacteria).
 - 6. Water feature looks clean and well-maintained.
 - 7. Some seating is available near the water feature.

2.05 THERAPEUTIC GARDEN DESIGN STANDARD #4 - WALKING & ACTIVITIES

- A. Primary Walkway or Thoroughfare
 - 1. Primary walkway is relatively flat (not too steep).
 - 2. Primary walkway does not have steps or steep ramps.
 - 3. Primary walkway is smooth but non-skid, even when wet.
 - 4. Primary walkway has seating approximately every 30 feet.
 - 5. Primary walkway has a curb or raised edges (to keep wheelchairs, strollers, walkers, canes, etc. on walkway).
 - 6. Primary walkway is at least six feet wide (or, if narrower, has frequent passing areas).
- B. All Paved Areas (Walkways and Patios)
 - 1. Gaps or cracks in paving (walkways and patios) are narrow enough for a wheelchair, stroller, or IV pole to cross smoothly.

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- 2. Paving does not create glare (is tinted concrete, colored stone, brick, etc.).
- 3. Trees/plants along walkways and other paved areas do not drop a lot of leaves, twigs, seeds or fruits.
- 4. Brick pavers in patient care areas do not have beveled edges to trip I.V. poles.
- C. Lighting, Wayfinding and Amenities
 - 1. The garden has landmarks and/or signage to help people navigate.
 - 2. A drinking fountain is in or near the garden.
 - 3. Garden has lighting for night usage.
 - 4. Walkways are evenly lit if garden has lighting.
 - 5. If garden has lighting: Lighting does not shine into patient rooms.
 - 6. Garden has more than one walkway, with a variety of routes, lengths, and destinations.
 - 7. At least one secondary walkway offers increasing levels of difficulty (with paving material, steepness, steps, etc.).
 - 8. Garden has spaces/features for therapists (PT, OT, HT) to work with patients (handrails, variety of walking surfaces, steps, etc.).
 - 9. Garden is safe for children (e.g., is physically enclosed; easily viewed from nearby seating areas; plantings and other features are not harmful.

2.06 THERAPEUTIC GARDEN DESIGN STANDARD #5 - PLACES TO REST

- A. Seating Availability and Type
 - 1. The garden offers many places to sit.
 - 2. People can choose a variety of types of seating (benches, chairs, etc.).
 - 3. Movable seating is available (light enough to move but sturdy enough to prevent tipping).
 - 4. At least 50% of the seating in the garden has backs and arms (so that people can easily get up and down).
 - 5. There is a place where someone could lie down for a rest (chaise longue, bench, lawn).
- B. Private or Social Interaction
 - 1. Garden has separate areas for activities and socializing, compared with contemplation/quiet conversation.
 - 2. Garden provides a place where 3 or more people can sit together.
 - 3. Some seating areas allow people to interact with passers-by.

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- 4. Garden provides semi-private seating for one or two people.
- 5. Some seating makes it possible to watch others from a distance.
- C. Aesthetics and Exposure
 - 1. There is a choice of seating in sun or shade throughout most of the day.
 - 2. Seating does not produce glare (is not metal, white, etc.).
 - 3. Seating material does not get too hot or too cold.
 - 4. Some seating has attractive or interesting views.
 - 5. Garden has tables. If NO, omit the next four items.
 - 6. Some seats have tables next to them.
 - 7. There is at least one table large enough for four or more people.
 - 8. There is at least one table that can accommodate people in wheelchairs or scooters.
 - 9. Tables do not tip (for example, when used as leverage when people sit down and get up).

PART 3 - ENVIRONMENTAL LANDSCAPE DESIGN STANDARDS

3.01 GENERAL

- A. This section includes Environmental Landscape Design Standards to be provided within the scope of work for ALL facilities planning, design, construction, and renovations that include landscaping elements.
- B. Applicable campus planting and irrigation specifications will be provided to the A/E by Owner at commencement of the schematic design phase.

3.02 GENERAL SITE CONDITIONS

- A. Protect selected existing trees from damage during construction. Direction will be provided by the Owner regarding the process of protecting selected trees from construction damage.
- B. All disturbed earthen areas of the site will be finish graded. Additional portions of the site will be finish graded, as required, to provide positive drainage away from buildings into approved stormwater catchment systems (i.e. catch basins or other approved structures).

3.03 LANDSCAPING

A. Landscape vegetation must consist of 75% or greater native, adaptive, or xeric (low water use) plantings and cover as much area as possible using the "right plant, right place" model to eliminate the need for chemicals, conserve water, and support biodiversity of urban wildlife such as insect pollinators and birds. An approved plant palette shall be provided by the Owner.

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- B. Minimize turfgrass to the greatest extent possible in lieu for more sustainable alternatives such as increased planting bed area, sweeping groundcovers, and mulch/aggregate fills. Turfgrass is appropriate in play areas and pathways but not as the dominate greenery for a site.
- C. Vegetative features should connect both visitors and the facility with the historical, cultural, and ecological diversity of the site location. For example, a facility in west Houston may integrate pocket prairie restorations into the sustainable landscaping model, while a location north of Houston may demonstrate a forested ecological restoration.
- D. Native trees may be used liberally to provide contiguous shade along sidewalks, parking areas, and courtyards. An approved tree palette shall be provided by the Owner.
- E. Landscape planting in patient care areas shall demonstrate botanical garden quality and diversity of plant selections. Plantings shall favor verdant greenery and loose, natural forms over rigid and abstractly shaped hedge rows. Blooming plants are encouraged in patient care areas.
- F. Bulk materials such as soils, compost, and mulches shall be locally sourced from Ownerapproved vendors and be free of contaminants such as invasive plants, chemical residues, and debris.
- G. Landscape planting beds shall be constructed to Earth-Kind specifications, as defined by the Texas Agrilife Extension Service Earth-Kind Landscaping program.
- H. The use of annual color shall be minimized in favor for native perennials and plantings that support pollinators such as native bees and monarch butterflies.
- I. The intent is to provide a sustainable color palette year round in our landscaped areas.

3.04 IRRIGATION

- A. Automatic irrigation must be a low volume, water efficient systems operating from evapotranspiration based (ET) smart controllers. Irrigation controllers shall be Rainmaster DX Evolution central control series or as designated by the Grounds and Landscaping Manager.
- B. Automatic irrigation systems shall be designed by a Texas Licensed Irrigator and provide for coverage of all vegetated planting and turf areas. Sleeves under pavement will be provided for irrigation piping. Potable water protection shall be as per local code requirements.
- C. Primary water supply should be from condensate recovery or stormwater retention systems. Municipal potable water supplies shall be considered as a last resort.
- D. Owner supplied irrigation specifications shall govern irrigation hardware selections and installation processes.

3.05 STORMWATER AND LOW IMPACT DEVELOPMENT (LID)

A. Low Impact Development (LID) is a design principle that seeks to decrease the negative ecological impact of development. LID covers a wide variety of practices that directly impact runoff water quality. The governing principle behind LID is to provide as many opportunities

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as possible for water to percolate into the ground, and to provide that opportunity as near to the source as possible instead of constructing large detention basins.

- B. MD Anderson Cancer Center actively manages stormwater runoff into the Brays Bayou watershed with a variety of strategies to minimize runoff and improve the quality of stormwater runoff from impervious and pervious surfaces.
- C. Stormwater runoff from parking lots, rooftops, and hardscapes should be managed through Low Impact Development techniques including but not limited to raingardens, bioswales, ephemeral stream beds, green roof filtration, rain catchment tanks, detention pond wetlands, and vegetated buffers.
- D. Direct stormwater conveyance into storm sewers should be avoided unless existing conditions preclude the integration of LID techniques.
- E. Stormwater detention ponds shall be thoughtfully integrated into the site design as destinations for visitors with seating and viewing areas.
- F. Surface detention ponds associated with surface parking lots and other structures shall be constructed as stormwater wetlands as defined by the Texas Coastal Watershed Program.
- G. Low Impact Development vegetated bioswales shall be incorporated into new surface parking lots to offset detention requirements, improve stormwater quality, and provide a secondary water source to bioswale vegetation.

3.06 CONSERVATION

- A. Pursuant to the operational model of sustainability, conservation of natural resources is an integral component to grounds and landscaping at MD Anderson Cancer Center.
- B. The primary conservation activity relates to acreage property and open spaces not designed as therapeutic landscapes. Typically these areas are properties adjacent to buildings and/or land holdings awaiting future development.
- C. These properties shall be restored as native prairies and maintained as such for the duration of ownership until the space is assigned for project development.
- D. Native prairie restoration shall be preceded with a consultation from the Katy Prairie Conservancy to provide specifications and oversight of the establishment and maintenance process.
- E. Specific habitat plantings shall be incorporated into each prairie restoration site to support native bees and pollinator insects.

PART 4 - PRODUCTS

4.01 GENERAL

A. Refer to Master Construction Specifications.

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PART 5 - DOCUMENT REVISION HISTORY

Date	Revision Description	Reviser
20190301	Original Issuance	
	Date 20190301	Date Revision Description 20190301 Original Issuance

END OF ELEMENT G2050