

**Landscape Master Plan
developed for
Sea Pines Condominiums**

**Brewster, Massachusetts
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INTRODUCTION

Developed nearly a half century ago, Sea Pines comprises a series of distinct neighborhoods nestled into the native forest overlooking the Cape Cod Bay shoreline. Its name evokes the central identifying landscape feature of the community — the surrounding pine-dominated forest of Cape Cod —which establishes a strong sense of place. Over the decades the Sea Pines landscape has matured, and it now reflects significant changes to both the natural forest and the installed plantings. In response to this evolution, the community has addressed landscape concerns and made improvements on an ad hoc and reactive basis rather than with a comprehensive, proactive approach. Sea Pines has lacked a larger vision to guide decision-making.

This Landscape Master Plan for Sea Pines has been prepared to provide a roadmap for future landscape change and improvement and to comprehensively address the landscape concerns identified in the Site Inventory (Appendix A) and Unit Owner Survey (Appendix B). The overriding goals of the plan are to 1) Improve the appearance, function and sustainability of the campus landscape, and 2) Reduce long term costs. These goals should be sought while maintaining and reinforcing the unique Cape Cod aesthetic widely valued by residents.

In addition to aesthetic, financial, and other environmental considerations, central to all decision-making must be the more effective use of a key Sea Pines resource — water. The water used for irrigation at Sea Pines is primarily sourced from five on-site wells. Curation of the plant palette toward native and drought resistant species and careful management of the campus landscape should work to reduce stress on the current irrigation system.

The Sea Pines Landscape Master Plan provides clear guidance for an attractive, resource-sparing, resilient, and sustainable landscape environment that will benefit current and future generations of Sea Pines residents.

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SEA PINES LANDSCAPE MASTER PLAN

RECOMMENDATIONS

The project or initiative recommendations are organized in three groups: 1) forested areas, 2) unique natural areas, and 3) developed or managed areas.

A. Forest Management

Over half of the Sea Pines property is covered with forest. The forested areas should be managed to ensure community safety and preserve their short- and long-term health. There are two areas to be considered: 1) The identification and removal of hazard trees and forest restoration/re-forestation, and 2) the identification and removal of invasive species followed by re-population with native species.

1. Hazard Trees

Sea Pines should identify and conspicuously tag and/or mark all mature trees exceeding 12-inch diameter at breast height (dbh) that are or may be considered hazards to nearby buildings and/or grounds (particularly to parking areas, driveways and/or roadways). Hazard trees may be initially located and tagged by a landscape architect or members of the Ground and Maintenance Committee (GMC), and/or the Sea Pines property manager. Following the initial hazard tree identification, a certified arborist should be engaged to confirm hazard tree conditions and recommend tree removal and/or pruning strategies. The arborist may mark and recommend additional trees for management or delete trees from the hazard list. Sea Pines should prepare and maintain a hazard tree inventory to document hazard tree locations, species, sizes and status including “standing-action pending,” “removed,” and “pruned/thinned.”

Tree management work should be followed up by reforestation/restoration planting (see forest restoration section below). The follow-up forest restoration work should be informed by the locations, sizes, and number of existing hazard trees that have been removed to date as recorded in the hazard tree inventory. **Priority should be given to removing hazard trees that are located within 15 feet of the nearest buildings and walks.**

Target Tree Species to be managed:

Pitch Pine (*Pinus resinosa*), White Pine (*Pinus strobus*), and Black Locust (*Robinia pseudoacacia*). Trees of other species may be considered hazards as well.

2. Forest Restoration

Strategy

Forest restoration work should closely follow hazard tree removal. Restoration work featuring replanting of target tree sapling and seedling species may run concurrently with hazard tree removal. Refer to the Sea Pines Site Plan for general reforestation locations which include Sea Pines' major forest-covered tracts.

Implementation Technique

A typical replacement standard for removal of a single hazard tree of minimum 12-inch dbh should be the planting of not less than five sapling trees of the same species, preferably as close as possible to the location of the removed tree. Sapling trees to be installed for forest restoration purposes should typically be container-grown stock of 3 to 4-foot height and spread. Typical container or pot sizes should range from 5 to 11-gallon pots. Some saplings may have root balls contained in ball and burlap (B&B) sacks, although potted sapling trees should be the preferred form.

Sapling tree location and spacing should be performed as directed by a landscape architect in a site-specific Reforestation Site Plan, and as directed in the field by the designer. Typical sapling installation spacing should be in the range of 8-10 feet on center or apart. **Sapling tree plantings should be offset a minimum of 15 feet away from the nearest buildings and paved surfaces.**

Target Reforestation Tree Species to be planted:

Pitch Pine (*Pinus resinosa*), White Pine (*Pinus strobus*), Atlantic White Cedar (*Chamaecyparis thyoides*), White Oak (*Quercus alba*), Scrub (Bear) Oak (*Quercus ilicifolia*), Black Tupelo (*Nyssa sylvatica*), Sassafras (*Sassafras albidum*), and Serviceberry (*Amelanchier spp.*). Other Cape Cod native tree species may be considered for restoration purposes, but the emphasis should be on restoring Pitch Pine, the signature tree of Sea Pines and Cape Cod.

3. Invasive Species Management: Removal

The pervasive presence of non-native invasive plant species, and particularly invasive shrubs and woody vines, has been identified as a major concern at Sea Pines. A significant portion of the Sea Pines forest-covered areas exhibit extensive infestation of the understory with non-native shrub and vine species. These species compromise aesthetic quality and wildlife habitat values by reducing native biodiversity and limiting seasonal interest. These invasives have also encroached on walkways, open spaces, patios and decks in many locations. Invasive species removal described in this section should be implemented in coordination with a replacement program described in the following section.

Strategies

Controlling large infestations of well-established invasive species requires thoughtfully strategized management. A favored management strategy is to focus on controlling the most highly visible and objectionable infestations first. Given the overall aesthetic goals of Sea Pines, prioritizing the most highly visible areas is recommended. A second strategy is to address the most densely infested areas first. A third strategy is to effectively “contain” the worst infestations by first managing the less densely infested areas and progressively moving into the worst areas. Protecting special resource areas described in Section B below should also be considered in the management planning.

Implementation Techniques

Selective cutting of invasive species should be the primary means of control. For further effectiveness, the “Cut and Dab” method of selective cutting and treating with direct-stem herbicide application should be considered. Herbicide may be dabbed/painted/rubbed onto, or injected into, cut stumps. Typical herbicides may contain glyphosate or triclopyr as the key active chemical ingredient. It is important to note that certain chemicals may be prohibited for use within sensitive wetland resources areas or buffer zones. Hand pulling smaller invasive plants can also be highly effective in more contained work areas. Cut and/or pulled materials should be entirely removed from the site to the extent possible and disposed of in a legal fashion. Cut and dab work may occur in various seasons but is typically most effective in late summer/early fall when plants are taking in and storing nutrients (food) for the Winter. In practical terms, this timing can also avoid work during the peak visitation period of mid-summer. Hand pulling can occur at any time of year as long as the ground is not frozen.

Sea Pines should conduct invasives management work over a number of years since controlling such well-established infestations typically requires a multi-year program. If the initial management work (e.g., year 1) is thorough and effective, generally the follow up work (e.g., year 2) will involve considerably less effort. Sea Pines should develop an Invasives Management Program to implement over a number of successive years with robust annual follow-up monitoring to direct efforts and resources to where they will be most cost-effective.

Target Invasive Species for Management:

Morrow's and Tartarian Honeysuckle (*Lonicera spp.*), Multi-flora Rose (*Rosa multi-flora*), and Oriental Bittersweet (*Polygonum orbiculatus*). Other non-native invasive species may also be considered for management.

Note: Poison Ivy (*Rhus radicans*) is a resilient native Cape Cod plant species contributing considerable wildlife habitat benefits. Poison Ivy should be considered for control only in locations where it is in close proximity to people and presents a direct nuisance. Poison Ivy may be most effectively controlled by physically removing the vines (pulling them up from the ground back to the root source and removing the roots). Dense stands and/or thick stems may be treated with herbicide at various times of year as either a foliar and/or direct stem application. Removed Poison Ivy plants should be securely bagged immediately following removal and removed from the site.

Note: English Ivy (*Hedera helix*) is an evergreen non-native woody groundcover and climbing vine that is common on Cape Cod and considered invasive by many for growing in dense monocultural stands and covering trees (and buildings). English Ivy is present at Sea Pines, observed in thick monocultural stands in a few locations and with a much less dense habit elsewhere. Heavy infestations of English Ivy will require control with chemical herbicides, specifically those containing glyphosate. Herbicide application is typically foliar and most effective when applied in spring as the plant puts out new leaves over the old darker foliage. Foliar application may be augmented by cut stem application in later summer or fall. Dead stems should be removed from the ground, trees, building walls and the site and disposed of as soon as possible after treatment. Follow up herbicide application may be necessary to fully control densely established stands of English Ivy. Smaller, less dense infestations may be hand pulled and or cut and covered for at least one full year with a solid membrane or fabric to smother the plant/stand. As with any invasive management effort, invasive removal should be followed up with replanting of natives. Similar densely growing native groundcovers, vines and shrubs may be the most effective and appropriate form of replanting for restoring treated areas.

Note: Lily-of-the-Valley (*Convallaria majalis*) is a common non-native but naturalized spring-flowering groundcover in the Northeast with notable patches observed at Sea Pines. This plant should NOT be confused with native Wild- or False Lily-of-the-Valley or Canada Mayflower (*Maianthemum canadense*), or with Mayflower or Trailing Arbutus (*Epigaea repens*), a low creeping shrub that is the State Flower of Massachusetts. Lily-of-the-Valley may be best and most sensitively controlled by hand-pulling or hand digging, preferably in the spring. Since it is a low-growing groundcover, solid stands of this plant may also be covered with a solid membrane or fabric for at least one full year to smother it in place. Chemical herbicides may be applied to particularly stubborn stands, but only as a last resort. As with any invasive management effort, invasive removal should be followed up with replanting of natives. Similar low and densely growing groundcovers may be the most effective and appropriate form of replanting to restore treated areas.

The management of overgrown vegetation within Sea Pines developed areas (e.g., adjacent to units) is discussed in the Managing Overgrown Vegetation section of this report.

4. Invasive Management: Area Restoration with Native Species

To begin the transition to more native vegetation cover, cutting and removal of invasive species from management areas should be immediately followed by adding new native plantings and possible seeding. New plantings should emphasize native shrubs to restore the shrub layer of the forest. Shrub species such as Inkberry (*Ilex glabra*), Bayberry (*Myrica pensylvanica*), Sweetfern (*Comptonia peregrina*), and Viburnums (*Viburnum spp.*) are very commonly found in Cape Cod's native forests and along forest edges. Virginia Rose (*Rosa virginiana*) and Carolina Rose (*Rosa caroliniana*) are recommended resilient fast-growing natives for sunnier forest edges. Fragrant Sumac (*Rhus aromatica*) is a low-growing spreading shrub for lightly shaded edges and forest openings. Shrub plantings should typically be spaced between 4-8 feet on center in natural groupings that best fit the site. Shrub installed sizes should typically be within the range of 2-4 feet in height and spread, or in container sizes ranging from 3 to 9-gallon pots.

Native groundcovers should also be included in restoration designs, such as grasses, ferns, wildflowers, and even extending moss cover from existing forest edges. Native groundcover plants common to the Cape include Pennsylvania Sedge (*Carex pensylvanica*), Little Bluestem (*Schizachyrium scoparium*), Bracken Fern (*Pteridium aquilinum*), Hay-scented Fern (*Dennstaedtia punctiloba*), White Wood Aster (*Eurybia divaricata*), and Goldenrod (*Solidago spp.*). Groundcover plantings should be installed within a tight spacing range of between 1-4 feet. Groundcovers may be installed in a number of forms and sizes including 5-inch plugs supplied in large quantity trays or flats, or as containerized stock supplied in larger sizes,

typically in the range of 1 to 5-gallon pots. Plugs are very cost effective for covering larger areas, while the use of larger container-grown plants might best be limited for use in the most visible (edge) areas.

For restoring areas that have been heavily infested with invasives, and/or sunny to light shade edges, seed application should be considered for developing rapid short-term annual cover and long-term native/naturalized cover. Typical seed mixes will emphasize shade tolerant grasses and wildflowers and include a cover crop or “nurse seed” component of fast-germinating annual grasses such as Annual Ryegrass (*Lolium multiflorum*). The annual grasses will provide short-term intensive competition with any remaining invasive rooted plants and seed bank but will fade after one growing season. The perennial shade mix will provide the long-term native/naturalized competitive cover, such as Fine Fescue grasses (*Festuca ‘Creeping Red’ or ‘Chewings’*). Seed mixes should be applied at 1.5 times the supplier’s recommended rates.

Custom “Planting Mix” soil amendment for planting holes and seeded areas should include a base of Coast of Maine® Raised Bed Mix, Pro-Gro® Organic Fertilizer (5-3-4) (a slow-release organic fertilizer) supplied by North Country Organics®, and Myke® Mycorrhizae, or equivalent products. In planting holes, the planting mix should fill approximately half of the hole volume and then be thoroughly and evenly mixed with native soil backfill excavated from the hole digging. For seeded areas, the planting mix should be lightly and evenly applied over the area to be seeded, and then the seed applied on the surface. Alternatively, the seed and the planting mix may be applied together as a single “slurry” to maximize seed-to-soil bonding. Seeded areas should be lightly tamped after the seed is applied to the planting mix on the surface.

Newly planted and seeded areas **MUST** be irrigated and receive supplemental water for AT LEAST two full growing seasons following installation. Irrigation may be reduced based upon performance, meaning the health and vigor of new planting and seeded area establishment. Ultimately, once fully established, the restored areas should not require any irrigation.

B. Unique Natural Features

Sea Pines has two unique natural areas: 1) The coastal bluff, and 2) the freshwater wetland resource area. These special areas should be managed carefully and would benefit from the continued professional support of coastal specialists that has guided the restoration of the bluffs to date.

1. Coastal Bluff

The Sea Pines coastal bluff is a linear area located between the units in the Sea Pines Drive/Waterfront and Duneward Lane neighborhoods and the beach. The units sit atop the bluff which slopes steeply down to the landward (south) edge of the beach. The bluff, which is primarily covered with native coastal grasses, wildflowers, and shrubs, provides an excellent example of an increasingly threatened coastal ecosystem type. The coastal bluff ecosystem performs the critically important function of stabilizing these very exposed bluffs from winds, waves, and storms coming off Cape Cod Bay, thereby protecting the most seaward section of Sea Pines.

The bluff area includes a recently restored or enhanced drainage swale that also exhibits similar vegetation cover. A large Weeping Willow (*Salix spp.*) tree anchors the landward/upslope end of this swale feature and serves as a unique landmark within Sea Pines. The swale serves to demarcate the boundary between the Duneward Lane and Sea Pines Drive/Waterfront neighborhoods.

The primary management focus is to continue to preserve and maintain the stability of the bluff and to prevent erosion. Documented and projected sea level rise and increasingly frequent and intense storm events dictate the importance of maintaining the bluff's stability. The further landward the deeply-rooting, drought-tolerant coastal bluff ecosystem is allowed to extend, the greater the protection the bluff provides to the units in these shoreline neighborhoods. A secondary concern is to prevent invasive species from compromising the largely native ecosystem of the bluff. Currently, the bluff appears stable and invasive species, though present, are not yet a large concern. Nevertheless, continued annual or alternate year professional monitoring by a landscape architect or coastal specialist is recommended to address any issues before they become problems that threaten this fragile ecosystem. Also, periodic targeted view-pruning of shrubs located near the top of the bluff may be deemed desirable. Soil disturbance on these sensitive bluffs should be avoided at all costs.

2. Freshwater Wetland Resource Area.

The sole freshwater wetland resource area at Sea Pines is a deep basin feature located directly to the north of the Hollow Lane tennis courts and to the south of the Duneward Lane neighborhood. The overall basin, including steep embankments up to Sea Pines Drive and the two surrounding neighborhoods, covers over one-half acre. The wet basin bottom covers about half of the total basin area and is characterized by native obligate wetland shrub vegetation, including Arrowwood (*Viburnum dentatum*) and Winterberry (*Ilex verticillata*), and groundcovers including many native fern and sedge species. The basin's slopes are largely covered with dense thickets of invasive shrub species. Anecdotally, many wildlife sightings and the sounds of birds and frogs are appreciated by residents in this special section of Sea Pines.

Preserving the basin bottom's integrity should be the top priority for the wetland resource area. Managing invasives on the basin's embankments, restoring native vegetation, and improving habitat values should be priorities.

Prior to commencing any work in and around this wetland, the Town of Brewster Conservation Commission should be contacted. It is likely that this area will require: 1) a formal wetland delineation by a landscape architect or professional wetland scientist, and 2) wetland permitting prior to making any improvements within this area and the associated regulatory buffer (typically 100 feet out from the wetland resource area boundary). Permit requirements should be addressed prior to conducting site work here or in any potential redesign of the adjacent lower tennis court area (which likely falls within the 100-foot wetland resource area buffer zone).

Sea Pines should capitalize on this wonderful and unique wetland resource area by considering habitat improvements and providing controlled public access to the wetland edge that features views into the wetland below. Wetland area enhancement may best be considered as part of a larger lower tennis court area redesign effort.

C. Developed Areas

Background

Nearly half of the Sea Pines campus is considered developed area. It includes all buildings, paved areas, tennis courts, basketball court, playground, swimming pool, and regularly maintained landscape areas such as lawns and plantings. The developed area includes eight distinct neighborhoods. Six of the neighborhoods are largely nestled into the surrounding forest including the Landing Lane, Grove Lane, Friendship Lane, Knoll Lane, Overlook Lane and Hollow Lane enclaves. Two additional neighborhoods, the Duneward Lane and Sea Pines Drive/Waterfront neighborhoods, have a more open and less wooded feeling owing to their location directly overlooking Cape Cod Bay.

Where does the maintained landscape end and the “natural” (forested) landscape begin? A working standard for forest-bordered areas is that the maintained landscape extends at minimum 15 feet away from the nearest building or paved surface edges. The point at which forest cover dominates *at ground level* should inform “the line in the sand” between more maintained areas and less maintained natural areas.

1. Managing Overgrown Plantings

A major concern of the Sea Pines community is the prevalence of overgrown vegetation, and particularly shrubs at eye level. Many of the community’s abundant original shrub plantings along foundations, walkways and flanking unit entries have long since outgrown their allotted spaces and beds. Many shrubs in particular, but also certain trees, are now a nuisance blocking access to units, hemming in patios and decks, and scraping building surfaces. Many planted shrub species were poor choices for their locations and planted too close to buildings and walks. For example, Rhododendrons (*Rhododendron spp.*) are among the most common large spreading shrubs planted at Sea Pines. Many Rhododendrons are now 15 feet high by 15 feet wide but planted as little as 3 feet off of building foundations or in 5-foot-wide beds along walkways. Other common large growing shrubs, like Burning Bush (*Euonymus alatus*), are now considered invasive species in addition to having overgrown their spaces.

Unfortunately, to address the problem of overgrowing shrubs directly, many existing large shrubs should be removed entirely. Continually pruning large growing shrubs into very small ones will look unsightly and will eventually kill most of the shrubs in question. Full removal in many cases will require the use of equipment, as many of the shrubs have rooted in deeply in the decades since their original installation. The utmost care should be taken when removing shrub

roots along building foundations to prevent damage to the buildings.

Smaller shrubs that are overgrowing their space may best be pruned hard. A common smaller growing shrub is Spirea (*Spirea spp.*), the largest variety of which typically reaches a maximum 6-foot height and spread. Many younger Inkberries (*Ilex glabra*) are also common at Sea Pines. Both of these species can be cut back by approximately half to address overgrowth. Pruning may be best conducted in the dormant season of late fall through early spring. Pruning of smaller shrubs may be scheduled on 3- to 5-year cycles to prevent future overgrowth.

Replacement plants for removed overgrown shrubs should be selected from the **Sea Pines Recommended Plant List** provided in the Appendix to this document.

A number of smaller understory trees, such as Black Cherry (*Prunus serotina*), are also overgrowing their spaces and becoming a nuisance. These trees may also be pruned back by as much as one third during the dormant season.

2. Yew Removal.

Evergreen Yew shrubs (*Taxus spp.*) are also common and often very prominently visible at Sea Pines. In addition to overgrowing their allotted spaces, many Yew bushes are heavily sheared into contrived shapes on a regular basis. In addition to being costly, the resulting shear-shaped Yews contribute to a “dated” feeling at Sea Pines and seem at odds with the more natural appearance of the community as a whole. It is recommended that all Yews located in visually prominent locations be removed and that heavy shearing of the remaining Yews cease. Pruning Yews should be conducted only for the purpose of preventing overgrowth or removing dead limbs, as described above for other shrubs. Replacement plants for removed Yews should be selected from the **Sea Pines Recommended Plant List** provided as an Appendix to this document.

3. Lawn Areas.

Background

Sea Pines has nearly 4 acres, or about 10 percent of the property, in lawn cover. Lawns vary widely in condition from very good to poor. A number of large contiguous lawn areas are in very good condition and provide a sense of entry into the developed neighborhoods, most notably at the Clubhouse and Landing Lane. A large lawn in the Duneward Lane neighborhood serves as a bluff overlook area from which to enjoy views of Cape Cod Bay. A large lawn was

also recently installed at the new tennis courts along Sea Pines Drive opposite the Friendship Lane neighborhood. The larger lawns, particularly at the Clubhouse and Landing Lane, provide functional spaces that can be enjoyed for many purposes including recreation.

However, many other lawn-covered areas at Sea Pines are fragmented into less usable spaces and are generally in fair to poor condition. Many of the lawn fragments are located in shaded areas, such as along Sea Pines Drive, where conditions are not conducive to supporting lawn cover. But regardless of condition, all lawn areas have been maintained in the same manner with constant and regular mowing throughout the growing season (April-November). Constant mowing equates to constant noise, dust and pollution from mowing activities and substantial cost to Sea Pines year after year.

Evaluation of Lawn Areas

Sea Pines should evaluate lawns to determine which lawns should stay and which should be removed. Sea Pines should consider improving lawns that are to remain and removing lawn areas that are not providing any real value to the community, transitioning those eliminated lawn areas to more sustainable, attractive and cost-effective forms of vegetative cover.

Should lawn be improved or removed? The following questions should be asked in deciding whether or not to continue investing in maintaining existing lawn cover at Sea Pines:

- What benefit is Sea Pines getting from maintaining this section of lawn? What are the costs to maintain it in lawn cover? If the cost outweighs the benefit, then that lawn area should be removed and replaced with a more sustainable type of cover.
- Are lawn-dependent uses occurring on this section of lawn? Lawn-dependent uses might include passive and active recreation such as playing ball or picnicking. Other lawn-dependent uses might include large outdoor gatherings like musical events, weddings and family reunions. If lawn-dependent uses are commonly occurring then the lawn area in question should remain and potentially be enhanced.
- What is the current condition of the lawn? If, after decades of regular maintenance, the answer is “fair” or “poor” then that lawn area should be removed and replaced with a more sustainable type of cover.

Enhancing Lawns to Remain

Maintaining conventional lawn cover in Cape Cod’s naturally sandy, droughty, nutrient-deficient soils is challenging and costly. Conventional turfgrass mixes typically feature non-native cool season grass species, such as Kentucky Bluegrass (*Poa pratensis*), that are neither deep-rooting nor generally drought tolerant. Sea Pines appears to have conventional lawn mixes located throughout the property. To maintain a high-quality conventional lawn on Cape Cod (and elsewhere) requires substantial inputs of nutrients, often in the form of quick release synthetic chemical fertilizers, and of water. Cool season grasses in their native habitats thrive in the cool, moist spring and fall seasons, but typically turn brown and go dormant during the hot, dry summer months. On the Cape, the population swells during the summer, so vast resources are dedicated to forcing conventional lawns to look their best for the crowds. Very little attention is paid to building soils under lawns that will best support the fragile cool-season turfgrass species on the surface in the Cape’s inhospitable environment.

At Sea Pines, lawn areas to remain should be considered for organic lawn care and soil building regimes. Building the soil provides long-term nutrients and conserves moisture that supports the lawn cover above. Soil building also supports biological life beneath the surface. Organic lawn care methods may include spreading a thin layer of compost over lawn surfaces in the spring and/or fall, and/or applying amendments such as compost tea and/or mycorrhizal fungi inoculant. Further, organic lawn care methods typically favor “mowing high” and less frequently during the hot summer months when lawns usually grow much more slowly. Mowing to a minimum height of 4 inches during the summer helps the lawn shade itself as the blades shade and cool the fragile root system which is right near the surface. Lower mowing heights such as 2 inches may be practices reserved for spring and fall. Existing lawns may also be enhanced by diversifying the existing turf mix through de-thatching and then over-seeding with more drought tolerant turfgrass and other low growing species. A useful resource for learning about organic lawn care practices is the Ecological Landscape Alliance (ELA):

<https://www.ecolandscaping.org/webinar-replays/organic-lawn-care-healthier-lawns-for-people-pets-and-pollinators/>

Replacing Lawn Fragments with Sustainable Alternatives

The Cape is a challenging place to be a plant. The native groundcover of Cape Cod’s sandy soil has evolved over a long period of time to survive in extremely drought-prone, acidic and nutrient-deficient soil conditions. These plants also tolerate incessant drying winds, drenching rains, warm and cold salt-laden mists and fogs at any time of year, the occasional deep freeze of the Cape’s infrequently cold winters, and rapid temperature fluctuations such as freeze-thaw

cycles during the colder months.

Typical lower strata groundcovers include a mix of native grasses, ferns, wildflowers, low-growing or creeping shrubs, and water-retentive mosses. Sea Pines has examples of native Cape groundcovers in many locations including along Sea Pines Drive, in dense and more open forest sections, and on the coastal bluff. These low growing plants, combined with other native/naturalized plants and varieties that share their resilient characteristics and drought tolerance in particular, should be considered for replacing failing and removed lawn areas.

Please refer to the **Sea Pines Recommended Plant List** located in the Appendix to this Master Plan for plant species to consider as lawn alternatives. Some low growing natives common to the Cape include Butterflyweed (*Asclepias tuberosa*), Pennsylvania Sedge (*Carex pensylvanica*), and Bearberry (*Arctostaphylos uva-ursi*). Some very drought tolerant native/naturalized cultivars include Stonecrop (*Sedum spp.*), Heath Aster (*Aster ericoides*), and Catmint (*Nepeta spp.*).

Lawn removal and replacement may be most directly accomplished by mechanically stripping out the lawn area in question, possibly adding a sandy loam topsoil layer, and direct planting of herbaceous plugs and/or small container-grown plants in large quantities to achieve rapid cover. Alternatively, in very poor or sparsely covered lawn areas, new plantings may be directly installed into the soil and will typically outcompete the failing lawn species within a few years' time. Following plant installation, planted areas should be mulched. For primarily herbaceous plantings, salt marsh hay placed to a 3-inch depth is recommended as it builds the soil much more rapidly and effectively than standard shredded bark mulch. For more woody installations of low and creeping shrubs, shredded bark mulch may be used; alternatively, pine needles and fallen leaves may be ground up from on-site to provide a very effective and sustainable mulch covering, again applied to a 3-inch depth.

Some areas where lawn is removed may be appropriate for more intensive restoration including shrub and tree plantings. For the most visible areas, reforestation by restoring the shrub layer, tree understory and canopy may focus on native or naturalized flowering species, plants with colorful fall foliage and/or berries, and interesting winter form and/or color. Shrubs and small trees such as Nannyberry (*Viburnum lentago*), Flameleaf/Shining Sumac (*Rhus copallina*), Highbush Blueberry and cultivars (*Vaccinium spp.*), and smaller trees like Pagoda/Alternate-leaf Dogwood (*Cornus alternifolia*) and Quaking Aspen (*Populus tremuloides*), are resilient native species that provide considerable aesthetic and habitat values throughout the seasons.

4. Mulchscapes

Background

The term “mulchscapes” refers to landscape areas where the primary form of surface cover is shredded bark mulch and/or wood chips. Mulchscapes are the conventional landscape industry’s admission that they do not know what to do with an area, or have not been directed to do anything more naturally appropriate or beneficial. Mulchscapes are barren, unattractive ecological wastelands where money is wasted through an endless cycle of annual re-application of mulch when it is not needed. The annual layering on of mulch often results in mulch beds that are a foot or more in depth. This deep unnatural mulching is damaging in that it may become either hydrophobic, shedding water and resulting in an extremely dry condition, or the opposite condition of trapping water and becoming waterlogged for extensive periods. Shredded bark mulch and wood chips are carbon based and can pull nitrogen out of the soil, robbing this critical nutrient from nearby vegetation. This is even more of a problem with Cape Cod’s naturally nutrient-deficient soils where naturally occurring nitrogen is typically in short supply.

Strategy and Implementation

At Sea Pines the most notable mulchscapes are located along Sea Pines Drive near Friendship, Hollow and Knoll lanes. This is a highly visible section of Sea Pines. It is recommended to completely remove all the existing mulch in these barren areas, add sandy loam topsoil, and replant in ways consistent with lawn removal areas as described in the “Lawn” section of this plan.

Mulch application following planting, whether it is salt marsh hay (recommended), ground up pine needles and leaves from on-site (recommended), or shredded bark mulch, should be to a 3-inch depth. Only natural blend locally-sourced bark mulch should be used. Unnaturally-colored or dyed mulch should be avoided entirely.

Follow-up mulching should NOT be regularly scheduled on an annual basis, but rather carefully assessed with additional mulch applied *only* on an as-needed basis. The goal should always be to achieve a complete and self-sustaining vegetated groundcover that ultimately requires no additional mulch covering to thrive.

Natural blend shredded bark mulch, salt marsh hay mulch and pine needle mulch shown below (left to right):



5. Main Entrance.

Background

Located in the shadows of large canopy trees along a fairly high-speed section of Route 6A, the Sea Pines main vehicular entrance is easy to miss. Other observations and community concerns are that the main entrance is aesthetically uninteresting and dated looking. Two existing ground-mounted place name entry signs incorrectly identify Sea Pines as “Seapines” and use a cursive-style font that looks outdated and is hard to read at driving speeds. Their dull coloration also blends into the darker background making them inconspicuous and less legible. The landscaping at the entrance also contributes to a dated feeling, highlighted by heavily sheared Yews (*Taxus spp.*), other exotic and very suburban appearing plantings like Hostas (*Hosta spp.*), and tightly mown lawn strips. A very narrow lawn strip runs between the inbound and outbound driveway lanes and is punctuated by an outdated looking guardhouse that is largely unmanned. This lawn strip between paved lanes is lined with faux nautical posts and rope. The main entrance zone extends approximately 300 feet into the property from Route 6A and averages approximately 50 feet wide.

Recommendations

The removal of all lawn from the entrance zone is recommended. This includes the three strips, two on either side of the driveway and one separating the two driveway lanes. It is also recommended to redesign the guardhouse or at minimum re-shingle it with material used in the other Sea Pines buildings.

Removed entrance zone lawn turf and planting areas can be redesigned similarly to other lawn removal areas discussed in this plan, but with particular emphasis on vibrant colors, textures and extended seasonal interest. The entrance might well have the “showiest” of Sea Pines landscape

treatments. The entrance zone has a good mix of sunny, part- and full-shade areas that can allow for a rich diversity of native and naturalized plantings. Invasive shrubs and vines that line the fringes of the entrance's side lawns should be prioritized for management and restoration per the Invasive Species Management section of this plan.

To extend the Sea Pines namesake closer to the site's actual entrance, adding small clusters of Pitch Pine saplings within the entrance zone is also recommended. These young Pine clusters can help frame the entrance experience, reinforce the sense of entry, and provide an evergreen background for colorful flowers and flowering and fall color plantings. If strategically placed, vertical Pine clusters may also visually reinforce traffic calming measures under consideration for Sea Pines Drive, such as the addition of speed tables (see Roadway and Pedestrian Safety section of this report).

The existing signs are recommended for removal and replacement with updated signage. However, the replacement signage should be part of a total campus-wide site signage evaluation and redesign process as other signage at Sea Pines is also recommended for updating (see "Signage" section below). All redesigned signage at Sea Pines should maintain a consistent style and preferably reinforce Cape Cod's unique sense of place.

6. Roadway and Pedestrian Safety

Background

Sea Pines access and circulation is organized around and focused on the central spine of Sea Pines Drive. All neighborhood drives, as well as some walkways and parking access drives, intersect with Sea Pines Drive. Many pedestrians walk along Sea Pines Drive for exercise, dog-walking, visiting neighbors, and accessing important activity nodes including the Clubhouse, beach, tennis courts and playground. Sea Pines Drive lacks sidewalks. Five speed bumps along the length of Sea Pines Drive are observed to be ineffective at slowing traffic speeds. A number of intersections along Sea Pines Drive are observed to lack safe sight lines for traffic turning onto the main drive. Concerns about pedestrian and driver safety were raised by unit owners in the Landscape Survey.

Recommendations

The Sea Pines community should consider more effective traffic calming measures along the length of Sea Pines Drive, with particular attention to locations with the highest observed pedestrian use. Raised speed tables are larger, longer and more substantial versions of speed

bumps or humps and are much more effective at slowing traffic. Speed tables may also be located to provide safe pedestrian crossings where walkways intersect with Sea Pines Drive. The traffic calming function of speed tables may be accentuated with vertical elements including plantings to visually reinforce their presence.

Intersections lacking safe sight lines should be closely evaluated by a landscape architect and/or a traffic engineer. In some cases, landscape improvements such as removing visual obstructions (e.g., pruning vegetation) may provide the needed visibility improvements. At certain locations, fish-eye mirrors may be affixed to trees or streetlamps to improve side visibility for vehicles turning onto Sea Pines Drive from side streets. More substantial roadway and sight line improvements may need to be assessed by a traffic engineer.

7. Parking, Garages, and Outbuildings

Background

Over 20% of the Sea Pines property is covered with impervious pavement for parking areas, parking garages and outbuildings. There are competing concerns regarding providing enough parking, particularly when occupancy and visitation peaks in summer, while also avoiding adding excessive parking and pavement that detracts from the site's natural amenity value and adds to the impermeable hardscape.

Most of the Sea Pines parking areas also include garage buildings. Many of the garage structures are sizable, extending for as much as 75 feet on a side. In certain areas such as the Waterfront neighborhood, garages have overgrowing foundation plantings of primarily large-growing shrubs that are similar to unit foundation plantings. In other neighborhoods, such as Landing Lane and Grove Lane, garage structures are often surrounded by unusable lawn fragments in the form of narrow strips. Lengthy blank garage walls are exposed and highly visible.

Recommendations

Overgrowing shrubs along garages and outbuildings should be addressed in the same fashion as elsewhere on the property as described in the "Managing Overgrown Vegetation" section above. Similarly, lawn fragments should be transitioned to sustainable groundcover as described in the "Lawn" section above.

8. Streetlights/Outdoor Lighting

Background

Outdoor lighting at Sea Pines is primarily provided by three styles of streetlamp and landscape fixtures. The most prevalent streetlamp styles include a “Cobra” style lamp mounted on a wood pole, and a “Bubble” type lamp affixed to a wood pole. Slightly less prevalent are “Cap” style lamps mounted on wood posts. Stylistic tastes vary throughout the community, but there are concerns regarding the dated appearance of the Bubble and Cap style lights. Safety concerns are also raised around a perceived lack of adequate outdoor lighting, particularly by multi-season and year-round residents who reside at Sea Pines during the darker months of the year. Specific concerns relate to lighting along walks that connect parking areas to unit entries.

Recommendations

Sea Pines might conduct further study of lighting needs and options before considering removing existing fixtures and adding new ones. Consistency of lighting style should be an overriding goal such that the entire development has a unified feel. The balance between providing enough light to the intended surfaces for safe passage, while not losing enjoyment of night-time darkness and night sky viewing to glare or overly-lighted spaces, also warrants serious consideration. Cobra fixtures appear to be the most acceptable type of lighting within Sea Pines and might be considered to replace Bubble fixtures. More modern styles may replace the lower “Colonial Revival” Cap style fixtures, which are stylistically dated and typically undersized. Also, much lower height bollard lighting may be considered for installation along walks and parking areas, with priority given to neighborhoods with the greatest multi-season and year-round occupancy. For particularly dark areas or sections where bollard installation may be difficult, additional sconce type lighting that is directly building-mounted may be considered. Sconce or other outdoor lighting may also be motion activated to reduce energy consumption.

9. Signage.

Background

As discussed in the Main Entrance section above, concerns are raised that signage throughout Sea Pines is inadequate, illegible and/or outdated looking, starting with the main entrance signs. Specific concerns are that unit number signs are inconspicuous and unhelpful, making way-finding difficult for visitors. This concern is particularly acute for the multi-unit neighborhoods such as Landing Lane.

Signage redesign requires careful study. The overriding goals should be legibility and consistency. Stylistically, signage should be upgraded to durable materials that also reinforce the Cape's sense of place. Signage should have simple and clear messages presented with up-to-date font choices at legible sizes. Sign colors need to be both conspicuous enough to be seen and read from a distance, but also to fit in with the surroundings. Unit number signs for multi-unit areas and possibly elsewhere might be large enough to include a small diagram of the neighborhood or enclave depicted. It is recommended that Sea Pines conduct a detailed comprehensive signage redesign process prior to making signage improvements. Main entrance redesign may help inform signage choices and prioritize addressing signage throughout Sea Pines.

10. Decks, Patios, Walks and Courtyards

Background

Almost every unit at Sea Pines has either a wood deck or a masonry at-grade patio, with decks the more prevalent type of private outdoor space. Decks are largely in good repair. Concerns are raised over certain patios that are in need of maintenance. The Sea Pines multi-unit enclaves of Landing Lane and Grove Lane also have masonry courtyards. Landing Lane courtyards are largely red brick surfaced, while Grove Lane's courtyards are largely gray concrete block pavers. Concerns are raised that some courtyards may need upgrades or larger redesign and/or replanting efforts. Concerns are also raised that asphalt walks from parking areas to entries may need repair and/or upgrade in terms of surface materials.

Recommendations

To be most cost-effective, patios, walks and courtyards should be reviewed comprehensively such that masonry repairs at multiple units or in multiple locations can proceed under one program at the same time. Sea Pines should consider conducting masonry-oriented work as a singular project as most advantageous and cost effective due to economies of scale and contractor mobilization costs.

The light gray concrete block pavers used at Grove Lane are observed to be successful, sufficiently visible for visually impaired individuals, and match the typical gray coloration of buildings. Weathered gray building shingles are emblematic of Cape Cod. If existing paved courtyard, patio or walk surfaces are to be replaced, it is recommended to consistently add the same Techno-bloc "Blu 60 Slate" or similar gray block pavers as installed at Grove Lane. Here is a link to the Blu 60 Slate product: <https://www.techo-bloc.com/shop/slabs/blu-60-slate/>



Techno-bloc Blu 60 Slate

11. Fencing.

Background

Sea Pines has three primary types of fencing. Shadow-box fencing is by far the most prevalent and is commonly used as unit, patio and deck privacy fencing. Much of the shadow-box fencing is in good repair and little action is recommended at this time. Additional site boundary privacy is provided by taller wood slat fencing, particularly along the site's eastern and southern boundaries. Much of the wood slat fencing is in good condition and little action is recommended at this time. Much less prevalent is split-rail fencing used in a few limited areas including along the bordering cemetery boundary and in the Duneward Lane neighborhood along the upper embankment edge of the adjacent wetland resource area.

Recommendations

The split-rail fencing is rotting and should be removed and replaced with alternate fencing or possibly no fencing, as the effectiveness of the existing split-rail fencing is unclear. Above all, replacement or new fencing should be aesthetically consistent with the majority of existing intact fencing types used at Sea Pines.

RECOMMENDED PROJECT PRIORITIZATION

Short Term

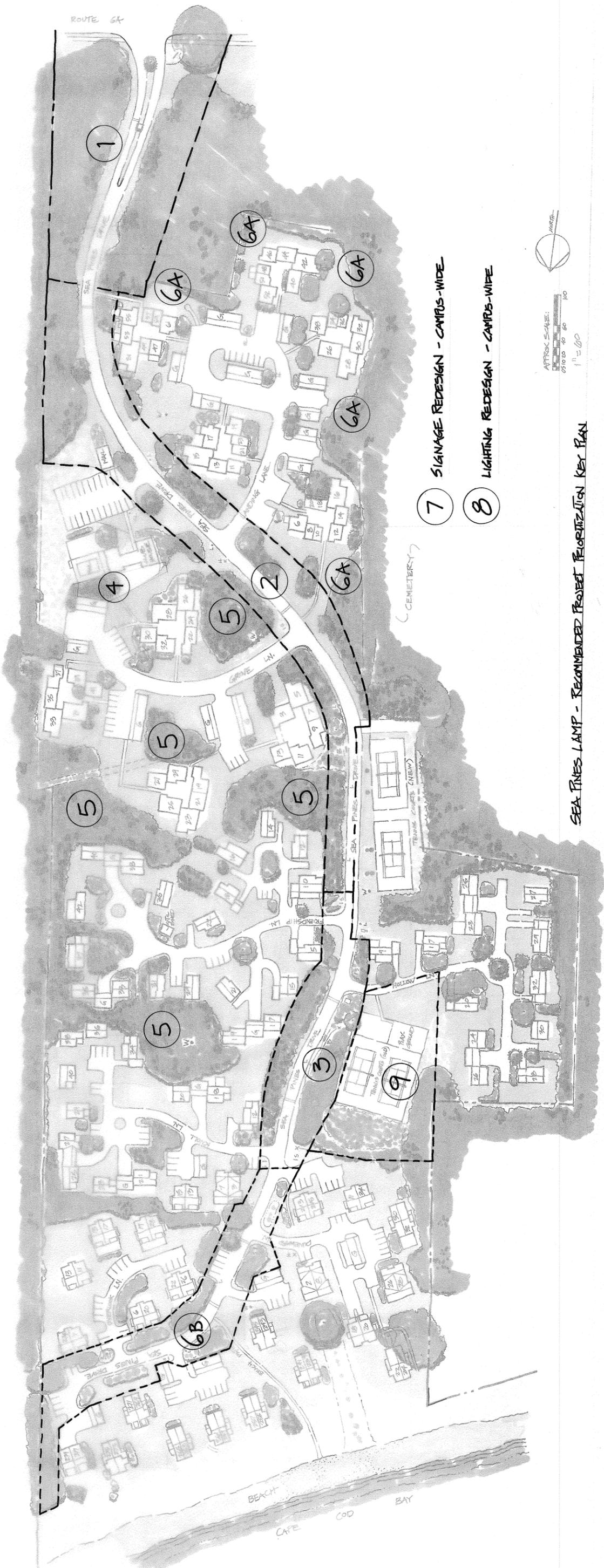
1. Sea Pines Entrance Zone Redesign (may include signage redesign)
2. Sea Pines Drive Landscape Improvements
3. Vegetation Management & Lawn Transition Phase 1: Friendship, Knoll and Hollow Lanes
4. Clubhouse Rear Landscape Improvements
5. Reforestation and Restoration Phase 1: Grove Lane to Knoll Lane

Medium Term

6. Vegetation Management & Lawn Transition Phase 2:
(A) Landing Lane;
(B) Overlook Lane, Duneward Lane and Waterfront
7. Signage Redesign: Campus-wide
8. Lighting Redesign: Campus-wide

Longer Term

9. Lower Tennis Court Redesign: Hollow Lane



SEA PINES LAMP - RECOMMENDED PROJECT PRIORITIZATION KEY PLAN

NOTE: Unit-owner Funded Projects

All of the Sea Pines campus with the exception of unit interiors is considered common area under the responsibility and control of the condominium Facilities Management Board. However, unit owners have implemented various self-funded landscape projects, generally in proximity to their units after first having received approval from the Building and Grounds Committee through a variance request. Nothing in this plan changes that process, nor does anything in the acceptance of this Landscape Master Plan by the Sea Pines Facilities Management Board mandate the removal or alteration of any landscaping changes made in those previously-approved projects.

However, unit owners requesting a variance for any new such projects or changes to existing projects must specify in the variance request and implement only the plant material included on the Sea Pines Recommended Plant List provided in the appendix to this document and found online at:

http://www.seapinesbrewster.com/Documents/LMP_2021_06_18_interim_recommended_plant_list

Appendix A

LANDSCAPE INVENTORY (completed by Wellnesscapes)

Overall Impression:

Sea Pines is an aesthetically attractive community in terms of architecture and site character, but there is opportunity to enhance the appearance of the landscape, reduce maintenance effort and costs, and create a stronger Cape Cod sense of place.

Observations

Natural Areas

- The Coastal Bluff area exhibits a strong Cape Cod dune type ecosystem characterized by native grasses like American Beachgrass (*Ammophila breviligulata*), perennial flowers like Seaside Goldenrod (*Solidago sempervirens*), groundcovers like Bearberry (*Arctostaphylos uva-ursi*) and shrubs like Beach Plum (*Prunus maritima*), and recently added Virginia Rose (*Rosa virginiana*), particularly within the “Swale” area. The Bluff can serve as a model for other sections of the Sea Pines property.
- The larger tracts of “undeveloped” land (parcels/tracts) between and around developed neighborhoods provide a stronger feeling of the Cape, particularly through the dominance of mature Pitch Pine (*Pinus rigida*), the “Sea Pine” of Sea Pines and an absolute signature tree of the Cape Cod coastal ecosystem. White Oak (*Quercus alba*) and Red Oak (*Quercus rubra*) are also prevalent in the Sea Pines “forest,” reinforcing Cape Cod’s climax Oak-Pine forest ecosystem. Significant understory stands of Cape Cod native Black Tupelo (*Nyssa sylvatica*) trees are present in the forested sections to the west of Landing Lane and to the east of Grove Lane and the Clubhouse. However, many of the pines are in compromised health, are fall hazards to nearby structures, and have been previously tagged for removal or significant pruning.
- The “Wetland” basin/depression area adjacent to the Hollow Lane tennis courts is a truly unique “gem” and outstanding natural feature within Sea Pines. This wetland is the sole example at Sea Pines of a native obligate and facultative freshwater wetland vegetation ecosystem, with very little invasive species cover observed.
- Sea Pines also has many other species of young and mature trees within the developed and undeveloped sections. Invasive Norway Maple (*Acer platanoides*) is among the most prevalent. Black Locust (*Robinia pseudoacacia*) is considered by many sources to be an invasive species in New England and is prevalent nearest the coastal neighborhoods of Duneward Lane, Overlook Lane and Sea Pines Drive, providing a unique open canopy

aesthetic closer to the beach. Other notable New England native trees observed include Atlantic White Cedar (*Chamaecyparis thyoides*), American Holly (*Ilex opaca*) and Red Spruce (*Picea rubra*).

- Despite the mature Cape Cod-centric forest canopy, the shrub layer throughout Sea Pines is dominated by invasive species that strongly compromise the aesthetic quality, character and forest health, and have overgrown walks and pathways. The most dominant invasive shrub species include Honeysuckle (*Lonicera spp.*) and Multi-flora Rose (*Rosa multiflora*). The highly damaging invasive Oriental Bittersweet (*Celastrus orbiculatus*), a twining vine, is also prevalent throughout Sea Pines forests and edges.
- Native shrubs and/cultivars observed, particularly within the neighborhoods, include Inkberry (*Ilex glabra*), Bayberry (*Myrica/Morella pensylvanica*), and Rosebay Rhododendron (*Rhododendron maximum*). Other common shrubs observed include Japanese Spirea (*Spirea japonica*), Azalea (*Rhododendron spp.*), English and Chinese Holly (*Ilex spp.*), Hydrangea (*Hydrangea spp.*), Boxwood (*Buxus spp.*) and Yew (*Taxus spp.*).
- The most notable Cape Cod-specific features are the coastal bluff/dune overlooking the beach and along Cape Cod Bay. The bluff offers spectacular views of the Bay. Recently improved Beach access through the bluff offers a strong feeling of the Cape with place-appropriate path materials and plantings.

Developed Landscape Areas

- Sea Pines has significant areas of maintained lawn cover. During the entire two days of landscape inventory observations, lawn mowing activity was occurring somewhere on the property and continuously audible throughout most of the property. Certain lawn areas are highly visible, welcoming, expansive and attractive. These “Great Lawn” areas include the Clubhouse lawn and large lawn across Sea Pines Drive from the Clubhouse within the Landing Lane neighborhood. However, many other (smaller) lawn areas are unattractive, underutilized, and/or appear to be unnecessarily and impractically maintained in lawn cover. This includes lawn strips flanking and in the median of the entry drive.
- There are a number of larger areas with an unattractive covering of light, powdery, shredded bark mulch.
- The Sea Pines developed neighborhood landscapes, and unit entry areas in particular, have been widely “privatized” or “customized” by past and current residents in an ad hoc manner. The result is a highly diverse mix of surface treatments and plantings that lack unity, cohesiveness, and largely include non-native plantings. Redesigning the private entry spaces throughout Sea Pines to conform to a more native planting approach may not be practical or cost effective in the short-term. But future “private” area site improvements can be guided through a recommended plant list to be included in the LAMP.

- Across the neighborhoods, “public” walks and courtyards vary in terms of surface materials. However, *within* neighborhoods material use was observed to be fairly uniform. Courtyard planting approaches vary widely in the Landing Lane and Grove Lane neighborhoods. If Sea Pines seeks more consistency in Courtyard design, this may be best achieved by working comprehensively at the neighborhood scale.
- Many of the shrubs nearest unit entries have been tightly sheared to enhance access along or walks or for aesthetic reasons. Heavily sheared shrubs contribute to the dated feeling of Sea Pines. In general, unit foundation shrub plantings have overgrown their bed spaces and are inappropriately scaled for their foundation locations. Certain areas also exhibit shrubs and smaller trees overgrowing into entry walk spaces, most notably around the Knoll Lane and Friendship Lane circles.
- Sea Pines Drive provides the most continuously “public” feel of any road in the development. This main thoroughfare is lined with a diverse mix of wooded and more open areas. Housing units are typically set far back from Sea Pines Drive. The least public feeling stretch of Sea Pines Drive is that closest to the shoreline/beach, in the Sea Pines Drive neighborhood.

Site Amenities

Entry and Roadways

- Sea Pines entry experience is lackluster, dated, and does not project an image consistent with the character of the property.
- The guardhouse is sheathed in barn-board which is inconsistent with the shingle siding of the other community buildings which adds to the dated feel.
- Entry signage structure appears old and worn, creating an image of an undermaintained property.
- Entry is not highly visible from Route 6A and easy to miss for infrequent visitors.
- The Sea Pines logo is also dated, and the name of the property is incorrectly written as one word... SeaPines.
- The entry section of Sea Pines Drive has a marked speed limit of 15 mph. Few drivers were observed maintaining this speed limit, with many traveling an estimated 30 mph. The existing six (6) speed humps are entirely ineffective in reducing driver speeds along Sea Pines Drive due to the low height of the speed humps.

Parking, Garages and Outbuildings

- A significant area of Sea Pines is given over to open surface parking and large multi-space garages that also require large paved driveways for adequate access.
- The most visible multi-space garages are located in the Landing Lane, Grove Lane and Sea Pines Drive neighborhoods. Garage walls vary from fairly well screened by plantings to highly visible and exposed.
- A number of small outbuildings for mailboxes, utilities and trash collection, and the entry guardhouse, are scattered through Sea Pines. Generally, these buildings do not aesthetically detract from the development, though the guardhouse is oddly designed and appears outdated.

Streetlights

- Three types or styles of streetlamps are prevalent at Sea Pines: a) Cobra-head; b) Bubble lights; and c) Cap lights. Two other individual streetlamps were also observed on Grove Lane and Knoll Lane.
- Cobra-head streetlamps are fairly standard regionwide along major thoroughfares. At Sea Pines, the Cobra-head streetlamps are on wooden posts. There were 16 Cobra-head lights counted, all of which are located along Sea Pines Drive.
- Bubble streetlamps also total 16, of which 2 are located on Landing Lane, 6 on Friendship Lane, 4 on Hollow Lane, 3 on Duneward Lane and 1 on Overlook Lane. Bubble style lamps are emblematic of the 1970s and appear to be particularly out-of-place in the coastal setting of Sea Pines.
- Cap lights, which are also emblematic of the 1970s, total 29. Of these, 3 are at the Clubhouse, 6 on Landing Lane, 7 on Grove Lane, 2 on Duneward Lane, 5 on Knoll Lane, 4 on Sea Pines Drive (near beach), and 2 on Overlook Lane. Cap lights contribute to a dated feeling at Sea Pines.

Signage

- The most prominent signage at Sea Pines are the two matching entry signs at the Route 6A entrance, and street signs located at each neighborhood entry and of similar style to the two entry signs. Street signs include Landing Lane, Grove Lane, Friendship Lane, Knoll Lane, Hollow Lane, Duneward Lane and Overlook Lane. A Sea Pines Drive sign was not observed.
- Entry and street signage is not highly legible and also appears stylistically dated.
- Other signage includes speed limit and “no parking” signs along Sea Pines Drive and elsewhere, unit number signs in various neighborhoods (e.g., Landing Lane). Certain

units appear to lack a clear unit number sign, particularly at Landing Lane. A very small “irrigation well water” sign is located on the entry drive guardhouse.

Fencing

- At Sea Pines, fencing is primarily used to enclose unit specific patio and deck areas. By far, the most common fence type is “shadowbox fencing” which include a double-hung still of fence panels. Shadowbox fencing is almost exclusively used for patio/deck enclosure.
- Though shadowbox fencing may appear dated, it is generally not that visible from Sea Pines Drive and neighborhood streets due to its use often on side or rear areas of units away from the street. Also, fencing is largely obscured by planted vegetation, much of which has overgrown its space along units and fence lines.
- Other fencing includes: a) Tall opaque wood fencing for visual screening along property boundaries, most notably at the Landing Lane neighborhood and along the property’s eastern boundary; b) Wood picket fencing as alternative to shadowbox fencing near unit entries and patio/deck areas; and c) Split-rail fencing in limited locations, much of which is rotting.
- With the exception of the rotting split-rail fencing, much of Sea Pines fencing is in decent shape and should not need significant maintenance or replacement for a number of years.
- A nautically styled rope and wood post “fence” or border feature is located along the entry drive’s median lawn strip. This nautical rope fence feature appears dated.

Walks and Courtyards

- Throughout the Sea Pines development walkways provide access from streets and driveways to unit entry points, decks and patios.
- Walkway surfaces are varied and include asphalt (bituminous concrete), poured concrete, concrete block pavers of many styles, traditional red brick, and retained gravel/granular surfacing.
- Courtyards are present in the higher density unit clusters located in the Landing Lane and Grove Lane neighborhoods. Landing Lane courtyards are uniformly surfaced with red brick. Grove Lane courtyards are uniformly surfaced with gray concrete block pavers.
- A number of walkway areas include steps and retaining walls of various styles with no particular consistency in terms of design.
- Certain walkways and courtyards are in need of repair or maintenance, particularly at Landing Lane.

Patios and Decks

- Almost every Sea Pines unit has either an at-grade patio or a raised deck for “private” outdoor space. Some units have second story decks (e.g., Landing Lane).
- Decks are more prevalent than patios and are almost uniformly wood decking painted gray to match housing units and fences.
- At-grade patio surfacing varies but most typically includes either concrete block pavers or traditional red brick. Certain patios appear to be in need of repair or maintenance.

Benches and Picnic Tables

- Park-type/picnic-type benches and picnic tables are few and far between at Sea Pines. Several benches and one picnic table were observed, all located along Sea Pines Drive.

Wells and Irrigation

- Sea Pines has an extensive irrigation system. A large network of irrigation lines and emitters covers much of the developed neighborhoods and extends into some of the less developed natural areas and all the way to the coastal bluff and beach. It is understood that the development’s irrigation system has been constantly maintained over the years and is largely functional. A major hub for the irrigation system is located along Knoll Lane.
- Water for the Sea Pines irrigation system is entirely sourced from five on-site wellheads. Wells are located as follows: Adjacent to the Beach Path nearest Duneward Lane unit 245; in a low point within the natural open space area between Knoll Lane and Friendship Lane; along Grove Lane’s wooded area nearest to unit 22; between the new tennis courts and Sea Pines Drive; and near the center of Landing Lane’s expansive lawn area along Sea Pines Drive.

Soils, Percolation and Drainage

- Soil and percolation tests were conducted at five widely scattered locations within Sea Pines.
- Coastal soils are largely sandy, acidic and nutrient deficient.
- Percolation tests show very rapid percolation rates. Slowest rate was still moderate to rapid in cleared bed on north side of Clubhouse. This slower rate is likely due to soil compaction during clearing activities.
- Extensive hard (gray) drainage infrastructure is present throughout the development. A number of areas have pronounced paved drainage channels directing flow to catch basins (e.g., north side slope off Friendship Lane).

- A soil berm feature runs east-west in the natural open forested space located north of Grove Lane units 31 and 33 and extending westward to the south of units 27 and 29.

Notes:

- Landscape inventory site visit conducted Weds. - Thurs., May 12-13, 2021.
Weather: Clear, calm, 70s, with a stray shower Weds. evening.
- Tree layer partially to mostly leafed out, shrub layer mostly leafed out, and groundcover layer significantly though not entirely emerged.
- A flock of mature turkeys was observed in various locations throughout Sea Pines.

Appendix B

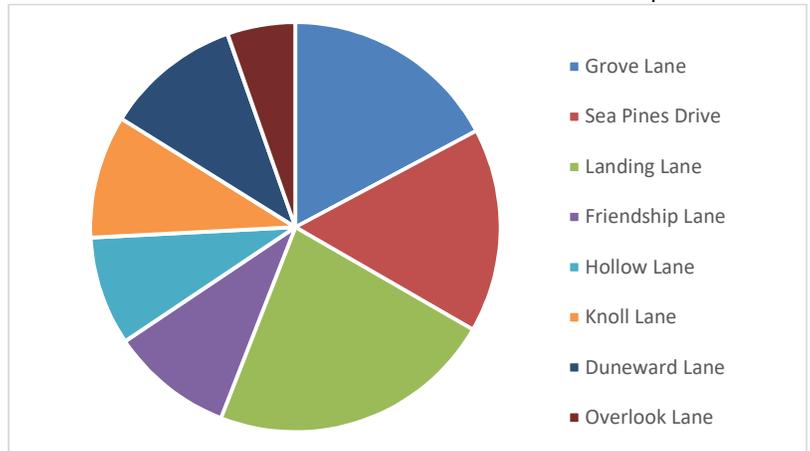
SEA PINES UNIT OWNER SURVEY RESULTS

Sea Pines LAMP Survey Summary

91 Responses

Location

		% Response
23%	Landing Lane	57%
18%	Grove Lane	67%
16%	Sea Pines Drive	79%
11%	Duneward Lane	83%
10%	Knoll Lane	56%
10%	Friendship Lane	45%
9%	Hollow Lane	67%
5%	Overlook Lane	45%
	Total	60%



Use

Which of the following best describes your use of Sea Pines?

44%	Summer plus some off-season
24%	Throughout the year, but not my primary residence
22%	Year-round residence
5%	Summer only

Tenure

11%	Less than 3
7%	3-5
21%	6-10
10%	11-15
14%	16-20
16%	21-30
21%	More than 30
17	Average years
16	Median years

Landscape Rating

On a scale of 1 to 10, with 1 being the worst and 10 being the best, rate the attractiveness of the landscape at Sea Pines.

7	Average
7	Median

Aesthetic Preference

Please rate your aesthetic preference, from natural [1], to highly manicured [10]

4	Average
5	Median

Improvement Priorities

How would you prioritize improvements to the following areas?

Highest /High	Not an issue		Highest /High	Not an issue	
66%	5%	Overgrown vegetation	40%	9%	Roadways
64%	3%	Invasives management	32%	17%	Courtyards
49%	11%	Entrance	28%	25%	Traffic calming
43%	11%	Lighting	24%	17%	Signage
43%	4%	Hardscapes (stairs, walkways, walls)	11%	20%	Fencing

Sea Pines LAMP Survey Summary

91 Responses

Location

54 Separate

37 Cluster

Separate	Cluster	
	23%	Landing Lane
	18%	Grove Lane
16%		Sea Pines Drive
11%		Duneward Lane
10%		Friendship Lane
10%		Knoll Lane
9%		Hollow Lane
5%		Overlook Lane

Use

Tenure

Which of the following best describes your use of Sea Pines?

Separate	Cluster	
56%	27%	Summer plus some off-season
22%	27%	Throughout the year, but not my primary residence
11%	38%	Year-round residence
6%	5%	Summer only

Separate	Cluster	
9%	14%	Less than 3
4%	11%	3-5
19%	24%	6-10
11%	8%	11-15
19%	8%	16-20
11%	24%	21-30
28%	11%	More than 30
19	14	Average years
18	11	Median years

Landscape Rating

On a scale of 1 to 10, with 1 being the worst and 10 being the best, rate the attractiveness of the landscape at Sea Pines.

Separate	Cluster	
7	7	Average
7	8	Median

Aesthetic Preference

Please rate your aesthetic preference, from natural [1], to highly manicured [10]

Separate	Cluster	
5	4	Average
5	5	Median

Improvement Priorities

How would you prioritize improvements to the following areas?

Highest /High			Highest /High		
Separate	Cluster		Separate	Cluster	
69%	62%	Overgrown vegetation	45%	32%	Roadways
63%	65%	Invasives management	14%	57%	Courtyards
56%	41%	Entrance	29%	27%	Traffic calming
36%	54%	Lighting	29%	16%	Signage
41%	46%	Hardscapes (stairs, walkways, walls)	10%	14%	Fencing

Sea Pines LAMP Survey Summary

91 Responses

Location

49 Summer

42 Full-year

Summer	Full-year	
8%	15%	Landing Lane
7%	11%	Grove Lane
13%	3%	Sea Pines Drive
8%	3%	Duneward Lane
4%	5%	Friendship Lane
7%	3%	Knoll Lane
5%	3%	Hollow Lane
3%	2%	Overlook Lane

Use

Tenure

Which of the following best describes your use of Sea Pines?

Summer	Full-year	
56%	27%	Summer plus some off-season
22%	27%	Throughout the year, but not my primary residence
11%	38%	Year-round residence
6%	5%	Summer only

Summer	Full-year	
9%	14%	Less than 3
4%	11%	3-5
19%	24%	6-10
11%	8%	11-15
19%	8%	16-20
11%	24%	21-30
28%	11%	More than 30
19	14	Average years
18	11	Median years

Landscape Rating

On a scale of 1 to 10, with 1 being the worst and 10 being the best, rate the attractiveness of the landscape at Sea Pines.

Summer	Full-year	
		Average
		Median

Aesthetic Preference

Please rate your aesthetic preference, from natural [1], to highly manicured [10]

Summer	Full-year	
		Average
		Median

Improvement Priorities

How would you prioritize improvements to the following areas?

Highest /High			Highest /High		
Summer	Full-year		Summer	Full-year	
69%	62%	Overgrown vegetation	45%	32%	Roadways
63%	65%	Invasives management	14%	57%	Courtyards
56%	41%	Entrance	29%	27%	Traffic calming
36%	54%	Lighting	29%	16%	Signage
41%	46%	Hardscapes (stairs, walkways, walls)	10%	14%	Fencing

Sea Pines LAMP Survey Summary

91 Responses

Location

44 <16 Years

47 16+ Years

<16 Years	16+ Years	
12%	11%	Landing Lane
11%	7%	Grove Lane
5%	11%	Sea Pines Drive
4%	7%	Duneward Lane
5%	4%	Friendship Lane
7%	3%	Knoll Lane
2%	7%	Hollow Lane
2%	3%	Overlook Lane

Use

Tenure

Which of the following best describes your use of Sea Pines?

<16 Years	16+ Years	
43%	45%	Summer plus some off-season
20%	28%	Throughout the year, but not my primary residence
30%	15%	Year-round residence
0%	11%	Summer only

<16 Years	16+ Years	
23%	0%	Less than 3
14%	0%	3-5
43%	0%	6-10
20%	0%	11-15
0%	28%	16-20
0%	32%	21-30
0%	40%	More than 30
4	23	Average years
7	28	Median years

Landscape Rating

On a scale of 1 to 10, with 1 being the worst and 10 being the best, rate the attractiveness of the landscape at Sea Pines.

<16 Years	16+ Years	
		Average
		Median

Aesthetic Preference

Please rate your aesthetic preference, from natural [1], to highly manicured [10]

<16 Years	16+ Years	
		Average
		Median

Improvement Priorities

How would you prioritize improvements to the following areas?

Highest /High			Highest /High		
<16 Years	16+ Years		<16 Years	16+ Years	
75%	57%	Overgrown vegetation	51%	30%	Roadways
64%	64%	Invasives management	45%	20%	Courtyards
55%	45%	Entrance	30%	27%	Traffic calming
41%	46%	Lighting	28%	20%	Signage
39%	47%	Hardscapes (stairs, walkways, walls)	7%	15%	Fencing

Appendix C
RECOMMENDED PLANT LIST

Landscape Master Plan Master Plant List

SEA PINES
6/18/2021

Prepared by: Thomas S. Benjamin, RLA, LEED-AP BD+C
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Type	Symbol	Botanical Name	Common Name	Size/Form	Spacing	Use	Exposure	Soils
Low Grasses (to 36" Height):								
	CAL	<i>Carex amphiholoba</i>	Creek Sedge	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Part Shade	Average-Moist
	CAA	<i>Carex appalachica</i>	Appalachian Sedge	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Part Shade	Average
	CEB	<i>Carex eburnea</i>	Bristle-leaf Sedge	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Part Shade	Average-Dry
	CEM	<i>Carex emoryi</i>	Emory's Sedge	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Part Shade	Average-Moist
	CPA	<i>Carex pensylvanica</i>	Pennsylvania Sedge	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Part Shade	Average
	ES	<i>Eragrostis spectabilis</i>	Weeping Lovegrass	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Sun	Dry
	FOG	<i>Festuca ovina glauca</i> 'Elijah Blue'	Elijah Blue Fescue	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Sun	Dry
	JTS	<i>Juncus tenuis</i>	Path Rush	5" Plug or #1 Pot	12-24" o.c.	Lawn alternative and beds	Sun-Part Shade	Average-Dry
	MC	<i>Muhlenbergia capillaris</i>	Pink Muhly Grass	5" Plug or #1 Pot	2-3' o.c.	Lawn alternative and beds	Sun	Dry
	PAN	<i>Pennisetum alopecuroides</i> 'National'	National Arboratum Fountain Grass	5" Plug or #1 Pot	2-3' o.c.	Lawn alternative and beds	Sun-Part Shade	Average
	SH	<i>Sporobolus heterolepis</i>	Prairie Dropseed	5" Plug or #1 Pot	2-3' o.c.	Lawn alternative and beds	Sun	Dry
Medium Height Grasses (to 48" Height):								
	CL	<i>Chasmanium latifolium</i>	Northern Sea Oats	5" Plug or #1 Pot	3-4' o.c.	Lawn alternative and beds	Sun-Part Shade	Average
	EA	<i>Elymus arenarius</i> 'Blue Dune'	Blue Dune Grass	5" Plug or #1 Pot	3-4' o.c.	Lawn alternative and beds	Sun	Dry
	PVR	<i>Panicum virgatum</i> 'Rostrahlbusch'	Red Switchgrass	#3 Pot	3-4' o.c.	Beds, Borders and Edges	Sun	Dry
	SS	<i>Schizachyrium scoparium</i>	Little Bluestem	5" Plug or #1 Pot	3-4' o.c.	Lawn alternative and beds	Sun-Part Shade	Average
Tall Grasses (to 72" Height):								
	ACS	<i>Acorus calamus</i>	Sweet Flag	#3 Pot	3-4' o.c.	Detention basins	Sun-Part Shade	Moist
	KXF	<i>Calamagrostis x. acutiflora</i> 'Karl Foerster'	Feather Reedgrass	#3 Pot	12" o.c.	Beds, Borders and Edges	Sun	Average
	PVHM	<i>Panicum virgatum</i> 'Heavy Metal'	Heavy Metal Switchgrass	#3 Pot	3-4' o.c.	Beds, Borders and Edges	Sun	Dry
	SCS	<i>Scirpus cyperinus</i>	Woolgrass	#3 Pot	3-4' o.c.	Detention basins	Sun-Part Shade	Moist
Spring Flowering Bulbs:								
	All	<i>Allium</i> spp.	Mixed Allium	Bulbs	6-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	CHI	<i>Chionodoxa</i> spp.	Glory-of-the-Snow	Bulbs	6-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	CRO	<i>Crocus</i> spp.	Crocus	Bulbs	6-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	GAL	<i>Galanthus</i> spp.	Snowdrop	Bulbs	6-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	HYA	<i>Hyacinthus</i> spp.	Grape Hyacinth	Bulbs	6-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	MUS	<i>Muscari</i> spp.	Grape Hyacinth	Bulbs	6-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	NAR	<i>Narcissus</i> spp.	Daffodils (5-6 Varieties)	Bulbs	10-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	SCI	<i>Scilla</i> spp.	Star-of-Holland	Bulbs	6-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	TUL	<i>Tulipa</i> spp.	Tulip (5-6 Varieties)	Bulbs	10-12" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
Ferns (12-36" Height):								
	AP	<i>Adiantum pedatum</i>	Maidenhair Fern	5" Plugs or 1 Qt. Pots	18-30" o.c.	Woods and woodland edges	Part Shade	Average
	AFF	<i>Athyrium filix-femina</i>	Lady Fern	5" Plugs or 1 Qt. Pots	18-30" o.c.	Lawn alternative and edges	Part Shade	Average
	DP	<i>Dennstaedtia punctiloba</i>	Hayscented Fern	5" Plug or #1 Pot	18-30" o.c.	Lawn alternative and edges	Sun-Part Shade	Average
	DN	<i>Dryopteris noveboracensis</i>	New York Fern	5" Plugs or 1 Qt. Pots	18-30" o.c.	Lawn alternative and edges	Part Shade	Average
	MS	<i>Matteuccia struthiopteris</i>	Ostrich Fern	5" Plugs or 1 Qt. Pots	3-4' o.c.	Woods and woodland edges	Part Shade	Average-Moist
	OS	<i>Osmunda cinnamomea</i>	Cinnamon Fern	5" Plugs or 1 Qt. Pots	18-30" o.c.	Woods and woodland edges	Part Shade	Average-Moist
	OC	<i>Osmunda claytoniana</i>	Interrupted Fern	5" Plugs or 1 Qt. Pots	3-4' o.c.	Woods and woodland edges	Part Shade	Average-Moist
	PAS	<i>Polystichum acrostichoides</i>	Christmas Dagger Fern	5" Plug or #1 Pot	18-30" o.c.	Lawn alternative and edges	Part-Full Shade	Average-Moist
	PAM	<i>Pteridium aquilinum</i>	Bracken Fern	5" Plugs or 1 Qt. Pots	3-4' o.c.	Lawn alternative and edges	Sun-Part Shade	Average-Dry
	TPS	<i>Thelypteris palustris</i>	Marsh Fern	5" Plugs or 1 Qt. Pots	18-30" o.c.	Detention basins and Woods	Sun-Part Shade	Moist

Type	Symbol	Botanical Name	Common Name	Size/Form	Spacing	Use	Exposure	Soils
Flowering Groundcover/Ephemerals (6-24" Height, Full Sun-Part Shade) :								
	AMS	<i>Achillea Moonshine</i>	Moonshire Yarrow	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Dry
	AOR	<i>Achillea Oertel's Rose</i>	Oertel's Rose Yarrow	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Dry
	AP	<i>Achillea x Paprika</i>	Paprika Yarrow	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Dry
	AR	<i>Actaea rubra</i>	Red Baneberry	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	ACM	<i>Allium cernuum</i>	Nodding Onion	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun-Part Shade	Average
	ASM	<i>Allium schoenoprasum</i>	Chives	5" Plug or #1 Pot	12-18" o.c.	Sunny beds and edges	Sun	Average
	ATM	<i>Allium tricoccum</i>	Wild Leek	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	ABI	<i>Amsonia 'Blue Ice'</i>	Blue Ice Bluestar	5" Plug or #1 Pot	12-24" o.c.	Beds and Rocky Edges	Sun-Part Shade	Average-Dry
	ANM	<i>Anemone nemorosa</i>	Wood Anemone	5" Plug or #1 Pot	8-12" o.c.	Woods and woodland edges	Part Shade	Average
	AQC	<i>Aquilegia canadensis or alpina</i>	Columbine	5" Plug or #1 Pot	8-12" o.c.	Woods and woodland edges	Part Shade	Average
	AU	<i>Arctostaphylos uva-ursi</i>	Bearberry	#1 Pot	8-12" o.c.	Beds and Rocky Edges	Sun-Part Shade	Average-Dry
	AT	<i>Asclepias tuberosa</i>	Butterfly Weed	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Dry
	AE	<i>Aster ericoides 'Snow Flurry'</i>	Snow Flurry Heath Aster	5" Plug or #1 Pot	18-30" o.c.	Beds and Rocky Edges	Sun-Part Shade	Average-Dry
	APD	<i>Aster novae-angliae 'Purple Dome'</i>	Purple Dome New England Aster	5" Plug or #1 Pot	18-30" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	AVD	<i>Aster novae-angliae 'Vibrant Dome'</i>	Vibrant Dome New England Aster	5" Plug or #1 Pot	18-30" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	AFL	<i>Astilbe 'Fanal'</i>	Fanal Astilbe	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	CPS	<i>Galtha palustris</i>	Marsh Marigold	5" Plug or #1 Pot	12-18" o.c.	Detention basins and Woods	Sun-Full Shade	Moist
	CTM	<i>Cerastium tomentosum</i>	Snow-in-Summer Chickweed	5" Plug or #1 Pot	12-18" o.c.	Beds and Rocky Edges	Sun	Average-Dry
	CV	<i>Chysogonum virginianum</i>	Goldenstar	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	CM	<i>Convallaria majalis</i>	Lily-of-the-Valley	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	CAN	<i>Coreopsis auriculata 'Nana'</i>	Dwarf Mouse-ear Tickseed	5" Plug or #1 Pot	12-18" o.c.	Sunny beds and edges	Sun	Average
	CLA	<i>Coreopsis lanceolata</i>	Lanceleaf Tickseed	5" Plug or #1 Pot	2-3" o.c.	Sunny beds and edges	Sun	Dry
	CZ	<i>Coreopsis 'Zagreb'</i>	Zagreb Tickseed	5" Plug or #1 Pot	12-18" o.c.	Sunny beds and edges	Sun	Average
	DE	<i>Dicentra eximia</i>	Dutchman's Breeches	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	ER	<i>Epimedium rubrum</i>	Red Barrenwort	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	FL	<i>Fragaria lipstick'</i>	Lipstick Strawberry	5" Plug or #1 Pot	12-18" o.c.	Lawn alternative and edges	Sun-Part Shade	Average
	FSS	<i>Fragaria vesca</i>	Alpine Strawberry	5" Plug or #1 Pot	8-12" o.c.	Woods and woodland edges	Sun-Part Shade	Average
	GO	<i>Gallium odoratum</i>	Sweet Woodruff	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	GM	<i>Geranium maculatum</i>	Wild Geranium	5" Plug or #1 Pot	12-18" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	GIB	<i>Geranium maculatum 'Johnson's Blue'</i>	Johnson's Blue Geranium	5" Plug or #1 Pot	12-18" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	HA	<i>Hepatica acutiloba</i>	Hepatica	#1 Pot	8-12" o.c.	Woods and woodland edges	Part Shade	Average
	HER	<i>Heucarella X 'Rosalie'</i>	Rosalie Heucarella	5" Plug or #1 Pot	12-18" o.c.	Beds and shady edges	Sun-Part Shade	Average
	MDB	<i>Monarda didyma 'Blue Stocking'</i>	Blue Stocking Bee Balm	5" Plug or #1 Pot	2-3" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	NMJ	<i>Nepeta mussini 'Joanne Reed'</i>	Joanne Reed Catmint	5" Plug or #1 Pot	12-18" o.c.	Sunny beds	Sun	Average-Dry
	NM	<i>Nepeta mussini 'Walker's Low'</i>	Walker's Low Catmint	5" Plug or #1 Pot	18-30" o.c.	Sunny beds	Sun	Average-Dry
	PAU	<i>Packera aurea</i>	Golden Ground-sel	5" Plug or #1 Pot	18-30" o.c.	Woods and woodland edges	Part Shade	Average-Dry
	PD	<i>Phlox divaricata 'Blue Moon'</i>	Blue Moon Wood Phlox	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	PSR	<i>Phlox stolonifera 'Blue Ridge'</i>	Blue Ridge Phlox	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	PST	<i>Phlox stolonifera 'Sherwood Purple'</i>	Sherwood Purple Phlox	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average-Moist
	PSS	<i>Phlox subulata 'Moss Blue'</i>	Moss Blue Creeping Phlox	5" Plug or #1 Pot	12-18" o.c.	Beds and Rocky Edges	Sun-Part Shade	Average
	PSP	<i>Phlox subulata 'Moss Pink'</i>	Moss Pink Creeping Phlox	5" Plug or #1 Pot	12-18" o.c.	Beds and Rocky Edges	Sun-Part Shade	Average
	PB	<i>Polygonum biflorum</i>	Solomon's Seal	5" Plug or #1 Pot	18-30" o.c.	Lawn alternative and edges	Part-Full Shade	Average
	PMIM	<i>Pycnanthemum muticum</i>	Short-toothed Mt. Mint	5" Plug or #1 Pot	2-3" o.c.	Woods and woodland edges	Sun-Full Shade	Average-Dry
	SCW	<i>Silene caroliniana var. wherryi 'Short & Sweet'</i>	Wild Pinks	5" Plug or #1 Pot	12-18" o.c.	Sunny beds	Sun	Average-Dry
	SAW	<i>Sisyrinchium angustifolium</i>	Blue-eyed Grass	5" Plug or #1 Pot	18-30" o.c.	Sunny beds	Sun	Average-Dry
	SRA	<i>Smielacina racemosa</i>	False Solomon's Seal	5" Plug or #1 Pot	18-30" o.c.	Lawn alternative and edges	Part-Full Shade	Average
	TSS	<i>Thymus spp.</i>	Creeping Thyme (3-4 varieties)	5" Plug or #1 Pot	8-12" o.c.	Beds and Rocky Edges	Sun	Average
	TCA	<i>Tiarella cordata</i>	Foamflower	5" Plug or #1 Pot	12-18" o.c.	Woods and woodland edges	Part Shade	Average
	VA	<i>Vaccinium angustifolium</i>	Lowbush Blueberry (3 varieties)	#1 Pot/Sod	12-18" o.c.	Lawn alternative and edges	Sun	Average-Moist
	VCLB	<i>Veronica 'Crater Lake Blue'</i>	Crater Lake Blue Speedwell	5" Plug or #1 Pot	18-30" o.c.	Sunny beds	Sun	Average
	VIA	<i>Viola labradorica</i>	Dog-toothed Violet	5" Plug or #1 Pot	12-18" o.c.	Lawn alternative and edges	Sun-Part Shade	Average
	VPA	<i>Viola papilionacea</i>	Common Violet	5" Plug or #1 Pot	12-18" o.c.	Lawn alternative and edges	Sun-Part Shade	Average
	VPE	<i>Viola pedata</i>	Birdfoot Violet	5" Plugs or 1 Qt. Pots	12-18" o.c.	Lawn alternative and edges	Sun-Part Shade	Average
	VPS	<i>Viola 'Purple Showers'</i>	Purple Showers Violet	5" Plug or #1 Pot	12-18" o.c.	Lawn alternative and edges	Sun-Part Shade	Average

Type	Symbol	Botanical Name	Common Name	Size/Form	Spacing	Use	Exposure	Soils
Flowering Perennials (24-72" Height, Full Sun-Part Shade Beds):								
	AMM	<i>Achillea millefolium</i>	Yarrow	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Dry
	AFM	<i>Agastache foeniculum</i>	Lavender Hyssop	5" Plug or #1 Pot	2-3' o.c.	Sunny beds and edges	Sun	Dry
	ACS	<i>Anemone canadensis</i>	Canada Anemone	5" Plug or #1 Pot	2-3' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	AI	<i>Asclepias incarnata</i>	Swamp Milkweed	5" Plug or #1 Pot	18-30" o.c.	Detention basins	Sun-Part Shade	Moist
	AC	<i>Aster cordifolius</i>	Blue Wood Aster	5" Plug or #1 Pot	2-3' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	ANA	<i>Aster novae-angliae</i>	New England Aster	5" Plug or #1 Pot	2-3' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	ANB	<i>Aster novi-belgii</i>	New York Aster	5" Plug or #1 Pot	2-3' o.c.	Sunny beds to woodland edge	Part Shade	Average
	AWB	<i>Aster 'Wood's Blue'</i>	Wood's Blue Aster	5" Plug or #1 Pot	18-30" o.c.	Woods and woodland edges	Part Shade	Average
	AWP	<i>Aster 'Wood's Pink'</i>	Wood's Pink Aster	5" Plug or #1 Pot	18-30" o.c.	Woods and woodland edges	Part Shade	Average
	BA	<i>Baptisia australis</i>	Blue False Indigo	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Average
	BDK	<i>Caryopteris 'Dark Knight'</i>	Blue Mist (Blue Bear)	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Average
	EBS	<i>Echinacea Big Sky</i>	After Midnight*	5" Plug or #1 Pot	18-30" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	EPM	<i>Eupatorium perfoliatum</i>	Boneset	5" Plug or #1 Pot	18-30" o.c.	Detention basins	Sun-Part Shade	Moist
	EM	<i>Eutrochium maculatum purpureum</i>	Joe Pyeweed	5" Plug or #1 Pot	18-30" o.c.	Detention basins	Sun-Part Shade	Moist
	EUC	<i>Euphorbia 'Chameleon'</i>	Chameleon Spurge	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Average
	GAB	<i>Gallardia aristata</i>	Burgundy*	5" Plug or #1 Pot	12-18" o.c.	Sunny beds and edges	Sun	Dry
	HM	<i>Helianthus 'Maximilian'</i>	Maximilian Sunflower	5" Plug or #1 Pot	2-3' o.c.	Sunny beds and edges	Sun	Average
	HHS	<i>Heliopsis helianthoides</i>	Summer Sun*	5" Plug or #1 Pot	2-3' o.c.	Sunny beds and edges	Sun	Average
	LA	<i>Lavandula angustifolia</i>	Lavender	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Dry
	LSB	<i>Leucanthemum x. superbum</i>	'Becky'	5" Plug or #1 Pot	2-3' o.c.	Sunny beds and edges	Sun	Average-Dry
	LP	<i>Lupinus perennis</i>	Wild Lupine	5" Plug or #1 Pot	18-30" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	MDJ	<i>Monarda didyma</i>	'Jacob Kline'	5" Plug or #1 Pot	2-3' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	MF	<i>Monarda fistulosa</i>	Wild Bergamot	5" Plug or #1 Pot	2-3' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	MO	<i>Myrrhis odorata</i>	Cicely	5" Plug or #1 Pot	12-18" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	OH	<i>Opuntia humifosa</i>	Eastern Prickly Pear Cactus	Bare Root or 1 Gal. Pots	1-2' o.c.	Sunny beds and edges	Sun	Dry
	PDB	<i>Penstemon 'Delft Blue Riding Hood'</i>	Blue Beardtongue	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Average
	PRR	<i>Penstemon 'Red Riding Hood'</i>	Red Riding Hood Beardtongue	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Average
	PAA	<i>Perovskia atriplicifolia</i>	Russian Sage	5" Plug or #1 Pot	3-4' o.c.	Sunny beds and edges	Sun	Dry
	PCG	<i>Phlox carolina</i>	'Gypsy Love'	5" Plug or #1 Pot	18-30" o.c.	Sunny beds and edges	Sun	Average-Dry
	PPD	<i>Phlox paniculata 'David'</i>	David Tall White Phlox	5" Plug or #1 Pot	3-4' o.c.	Sunny beds and edges	Sun	Average
	PPRP	<i>Phlox paniculata 'Robert Poore'</i>	Robert Poore Tall Pink Phlox	5" Plug or #1 Pot	3-4' o.c.	Sunny beds and edges	Sun	Average
	PBP	<i>Phlox paniculata 'Blue Paradise'</i>	Blue Paradise Tall Purple Phlox	5" Plug or #1 Pot	3-4' o.c.	Sunny beds and edges	Sun	Average
	PVA	<i>Physostegia virginiana</i>	Obedient Plant	5" Plug or #1 Pot	2-3' o.c.	Sunny beds and edges	Sun	Average-Dry
	SN	<i>Salvia nemorosa 'Blue Hill'</i>	Blue Hill Sage	5" Plug or #1 Pot	12-18" o.c.	Sunny beds and edges	Sun	Average-Dry
	SAI	<i>Sedum 'Autumn Joy'</i>	Autumn Joy Stonecrop	5" Plug or #1 Pot	12-18" o.c.	Sunny beds and edges	Sun-Part Shade	Average-Dry
	SFS	<i>Solidago flexicaulis</i>	Zig-Zag Goldenrod	5" Plugs or 1 Qt. Pots	12-24" o.c.	Sunny beds and edges	Sun	Average-Dry
	SOS	<i>Solidago Ohioensis</i>	Ohio Goldenrod	5" Plugs or 1 Qt. Pots	12-24" o.c.	Sunny beds and edges	Sun	Average-Dry
	SRA	<i>Solidago rigida</i>	Stiff Goldenrod	5" Plugs or 1 Qt. Pots	12-24" o.c.	Sunny beds and edges	Sun	Average-Dry
	SRF	<i>Solidago rugosa 'Fireworks'</i>	Fireworks Goldenrod	5" Plugs or 1 Qt. Pots	12-24" o.c.	Sunny beds and edges	Sun	Average-Dry
	SSS	<i>Solidago sempervirens</i>	Seaside Goldenrod	5" Plugs or 1 Qt. Pots	12-24" o.c.	Sunny beds and edges	Sun	Average-Dry
	SSA	<i>Solidago speciosa</i>	Showy Goldenrod	5" Plugs or 1 Qt. Pots	12-24" o.c.	Sunny beds and edges	Sun	Average-Dry
	TOS	<i>Tradescantia ohioensis</i>	Ohio Spiderwort	5" Plugs or 1 Qt. Pots	12-24" o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	V5	<i>Verbena stricta</i>	Hoary Vervain	5" Plugs or 1 Qt. Pots	12-24" o.c.	Detention basins	Sun-Part Shade	Moist
	VN	<i>Veronica novaboracensis</i>	New York Ironweed	5" Plug or #1 Pot	2-3' o.c.	Detention basins	Sun-Part Shade	Moist
	YR	<i>Yucca recurvifolia</i>	Soft Leaf Yucca	1 Gal. Pots	2-3' o.c.	Sunny beds and edges	Sun	Dry

Type	Symbol	Botanical Name	Common Name	Size/Form	Spacing	Use	Exposure	Soils
Low Shrubs:								
	CAA	<i>Callicarpa americana</i>	Beautyberry	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Part Shade	Average
	CP	<i>Comptonia peregrina</i>	Sweetfern	#3 Pot, 1-2' Ht.	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	GB	<i>Gaylussacia baccata</i>	Black Huckleberry	#1 Pot/Sod	12-18" o.c.	Lawn alternative and edges	Sun-Part Shade	Average-Dry
	HH	<i>Hypericum 'Hidcote'</i>	Hidcote Shrubby St. Johnswort	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Part-shade beds and edges	Part Shade	Average
	IGC	<i>Ilex glabra compacta</i>	Dwarf Inkberry	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	IRS	<i>Ilex 'Red Sprite'</i>	Red Sprite Winterberry	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	IVH	<i>Itea virginica 'Henry's Garnet'</i>	Virginia Sweetpire	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	KA	<i>Kalmia angustifolia</i>	Sheep Laurel	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average-Moist
	LAS	<i>Leucothoe axillaris</i>	Coast Leucothoe	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	LF	<i>Leucothoe fontanesiana</i>	Drooping Dog Hobble	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average-Moist
	PGF	<i>Potentilla fruticosa 'Goldfinger'</i>	Goldfinger Bush Cinquefoil	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Full Shade	Average-Moist
	RA	<i>Rhus aromatica 'Gro-Low'</i>	Grow Low Fragrant Sumac	#3 Pot	3-4' o.c.	Lawn alternative and edges	Sun-Part Shade	Average-Dry
	VA	<i>Viburnum acerifolium</i>	Maple-leaf Viburnum	#3 Pot, 1-2' Ht./Spread	3-4' o.c.	Woods and woodland edges	Part-Full Shade	Average-Dry
Tall Shrubs:								
	CR	<i>Cornus racemosa</i>	Gray Dogwood	#7 Pot, 2-3' Ht./Spread	5-6' o.c.	Detention basins to woods	Sun-Part Shade	Average-Moist
	CS	<i>Cornus sericea</i>	Red-osier Dogwood	#7 Pot, 2-3' Ht./Spread	5-6' o.c.	Detention basins to woods	Sun-Part Shade	Average-Moist
	FG	<i>Fothergilla gardenii</i>	Dwarf Witch Alder	#7 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	HQ	<i>Hydrangea quercifolia</i>	Oak-leaf Hydrangea	#3 Pot, 1-2' Ht./Spread	2.5-3.5' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average-Dry
	HS	<i>Hydrangea spp.</i>	Hydrangea	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	IG	<i>Ilex glabra</i>	Inkberry	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	IV	<i>Ilex verticillata</i>	Winterberry	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Detention basins to woods	Sun-Part Shade	Average-Moist
	KL	<i>Kalmia latifolia</i>	Mt. Laurel	#7 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	LB	<i>Lindera benzoin</i>	Spicebush	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Detention basins to woods	Sun-Part Shade	Average-Moist
	MP	<i>Myrica pensylvanica</i>	Northern Bayberry	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average-Dry
	RPJM	<i>Rhododendron 'PJM'</i>	PJM Rhododendron	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	RP	<i>Rhododendron prinophyllum</i>	Early Azalea	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Woods and woodland edges	Part Shade	Average
	RCA	<i>Rhus copallina</i>	Flame Sumac	#7 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	RC	<i>Rosa carolina</i>	Pasture Rose	#5 Pot, 2-3' Ht./Spread	2-3' o.c.	Sunny beds to woodland edge	Sun	Average-Dry
	RV	<i>Rosa virginiana</i>	Virginia Rose	#5 Pot, 2-3' Ht./Spread	3-4' o.c.	Sunny beds to woodland edge	Sun	Average-Dry
	VC	<i>Vaccinium corymbosum</i>	Highbush Blueberry (3 varieties)	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Detention basins to woods	Sun-Part Shade	Average-Moist
	VD	<i>Viburnum dentatum</i>	Arrowwood	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average-Moist
	VLO	<i>Viburnum lentago</i>	Nannyberry	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	VN	<i>Viburnum nudum var. cassinoides</i>	Wild Raisin	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average
	VT	<i>Viburnum trilobum</i>	Highbush Cranberry	#5 Pot, 2-3' Ht./Spread	5-6' o.c.	Sunny beds to woodland edge	Sun-Part Shade	Average-Moist

Trees:													
AR	<i>Acer rubrum</i> 'October Glory'	October Glory Red Maple	B&B, 6-8' Ht.	As Shown	Parking lot islands	Sun-Part Shade	Average						
AC	<i>Amelanchier canadensis</i>	Serviceberry	#7 Pot, 3-4' Ht./Spread	As Shown	Parking lot islands	Sun-Part Shade	Average						
AT	<i>Asimina triloba</i>	Paw-paw	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average						
BN	<i>Betula nigra</i> 'Heritage'	Heritage River Birch	#7 Pot, 3-4' Ht./Spread	As Shown	Parking lot islands	Sun-Part Shade	Average-Moist						
CCA	<i>Carpinus caroliniana</i>	Muscledwood	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average-Moist						
CC	<i>Cercis canadensis</i>	Eastern Redbud	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average						
CT	<i>Chamaecyparis thyoides</i>	Atlantic White Cedar	B&B, 6-8' Ht.	As Shown	Sunny edges, open areas	Sun-Part Shade	Average-Dry						
CK	<i>Cladostyrus kentuckia</i>	Yellowwood	B&B, 6-8' Ht.	As Shown	Parking lot islands	Sun-Part Shade	Average						
CF	<i>Cornus florida</i>	Flowering Dogwood	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average						
DV	<i>Diospyros virginiana</i>	American Persimmon	B&B, 6-8' Ht.	As Shown	Large islands	Sun	Average						
IA	<i>Ilex opaca</i>	American Holly	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Part Shade	Average-Moist						
IMBP	<i>Ilex meserveae</i> 'Blue Prince/Princess'	Blue Princess Holly	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average						
MS	<i>Magnolia stellata</i>	Star Magnolia	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average						
NS	<i>Nyssa sylvatica</i>	Black Tupelo	B&B, 6-8' Ht.	As Shown	Detention basins to woods	Sun-Part Shade	Average-Moist						
OA	<i>Oxydendron arboreum</i>	Sourwood	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average						
PR	<i>Pinus rigida</i>	Pitch Pine	B&B, 6-8' Ht.	As Shown	Woodland edges	Sun-Part Shade	Average-Dry						
PS	<i>Pinus strobus</i>	White Pine	B&B, 6-8' Ht.	As Shown	Woodland interiors	Sun-Part Shade	Moist-Dry						
PT	<i>Populus tremuloides</i>	Quaking Aspen	#7 Pot, 3-4' Ht./Spread	As Shown	Sunny edges, open areas	Sun-Part Shade	Dry-Moist						
PA	<i>Prunus americana</i>	American Plum	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun-Part Shade	Average						
QA	<i>Quercus alba</i>	White Oak	B&B, 6-8' Ht.	As Shown	Woodland edges, Open Areas	Sun	Average-Dry						
QC	<i>Quercus coccinea</i>	Scarlet Oak	B&B, 6-8' Ht.	As Shown	Woodland edges, Open Areas	Sun	Average-Dry						
QP	<i>Quercus palustris</i>	Pin Oak	B&B, 6-8' Ht.	As Shown	Parking lot islands	Sun-Part Shade	Average-Moist						
SA	<i>Sassafras albidum</i>	Sassafras	#7 Pot, 3-4' Ht./Spread	As Shown	Woodland edge, large islands	Sun	Average-Dry						
UVF	<i>Ulmus</i> 'Valley Forge'	Valley Forge Elm	B&B, 6-8' Ht.	As Shown	Parking lot islands	Sun-Part Shade	Average						

Appendix D
PROJECT COST ESTIMATES

Sea Pines Landscape Master Plan (LAMP)

Recommended Project Prioritization

Priority Level	Short-Term:	Approx. Area (s.f.)	Approx. Area (ac.)	Approx. Quantity	Budget Range (\$)*
1	Sea Pines Entrance Zone Redesign (may include signage redesign)	80,000	2		125-175k
2	Sea Pines Drive Landscape Improvements	50,000	1.25		80-120k
3	Vegetation Management & Lawn Transition Phase 1: Friendship, Knoll and Hollow Lanes	40,000	1		75-100k
4	Clubhouse Rear Landscape Improvements	4,000	0.1		10-15k
5	Reforestation and Restoration Phase 1: Grove Lane to Knoll Lane	60,000	1.5		50-75k
Medium Term:					
6A	Vegetation Management & Lawn Transition Phase 2: Landing Lane	40,000	1		40-50k
6B	Vegetation Management & Lawn Transition Phase 2: Overlook, Duneward and Waterfront Lanes	50,000	1.25		50-75k
7	Signage Redesign: Campus-wide			15	25-35k
8	Lighting Redesign: Campus-wide			25	40-50k
Longer Term:					
9	Lower Tennis Court Redesign: Hollow Lane	40,000	1		100-200k

* Budget Range shown for Redesign Projects includes cost opinion for Survey, Design, and Implementation phases.
 Budget Range shown for Vegetation Management Projects includes cost opinion for Field Delineation, Design, and Implementation phases.
 Budget Range shown for Signage & Lighting Projects includes cost opinion for Specialized Design services, and Implementation phases with estimated unit (fixture) quantities shown. Sea Pines Entrance cost opinion includes new entrance sign design and installation.
 Budget Range shown for Lower Tennis Court includes cost opinion for Survey, Design, Wetland Permitting and Implementation phases.

Appendix E
SELECTED PROJECT DESIGN VIGNETTES

ROUTE 6A

SIDEWALK

KEY PROPOSED LANDSCAPE ELEMENTS:

- REDESIGN ENTRY SIGNAGE & ADD SIGN ON MEDIAN
- LIMB UP CANOPY TREES FOR IMPROVED LIGHT & VISIBILITY
- ADD BOLD PLANTINGS AROUND ENTRY SIGNS
- REPLACE LAWN STRIPS WITH PLANTINGS
 - BOLD SINGLE SPECIES GRASSES & PERENNIAL FLOWERS ARRANGED IN LONG SWATHS
- ADD PINE & TALL-FLOWERING SHRUB CLUSTERS ALONG EAST SIDE AND TALL-FLOWERING, SHRUB CLUSTERS ALONG WEST SIDE
- PERAKE EX. SPEED HUMP W/ SPEED TABLE
- MANAGE INVASIVES ALONG BOTH EDGES/SIDES & RESTORE WITH PRIMARILY NATIVE SHRUBS

INVASIVES MANAGEMENT & RESTORATION IN FOREST

SEA PINES DRIVE

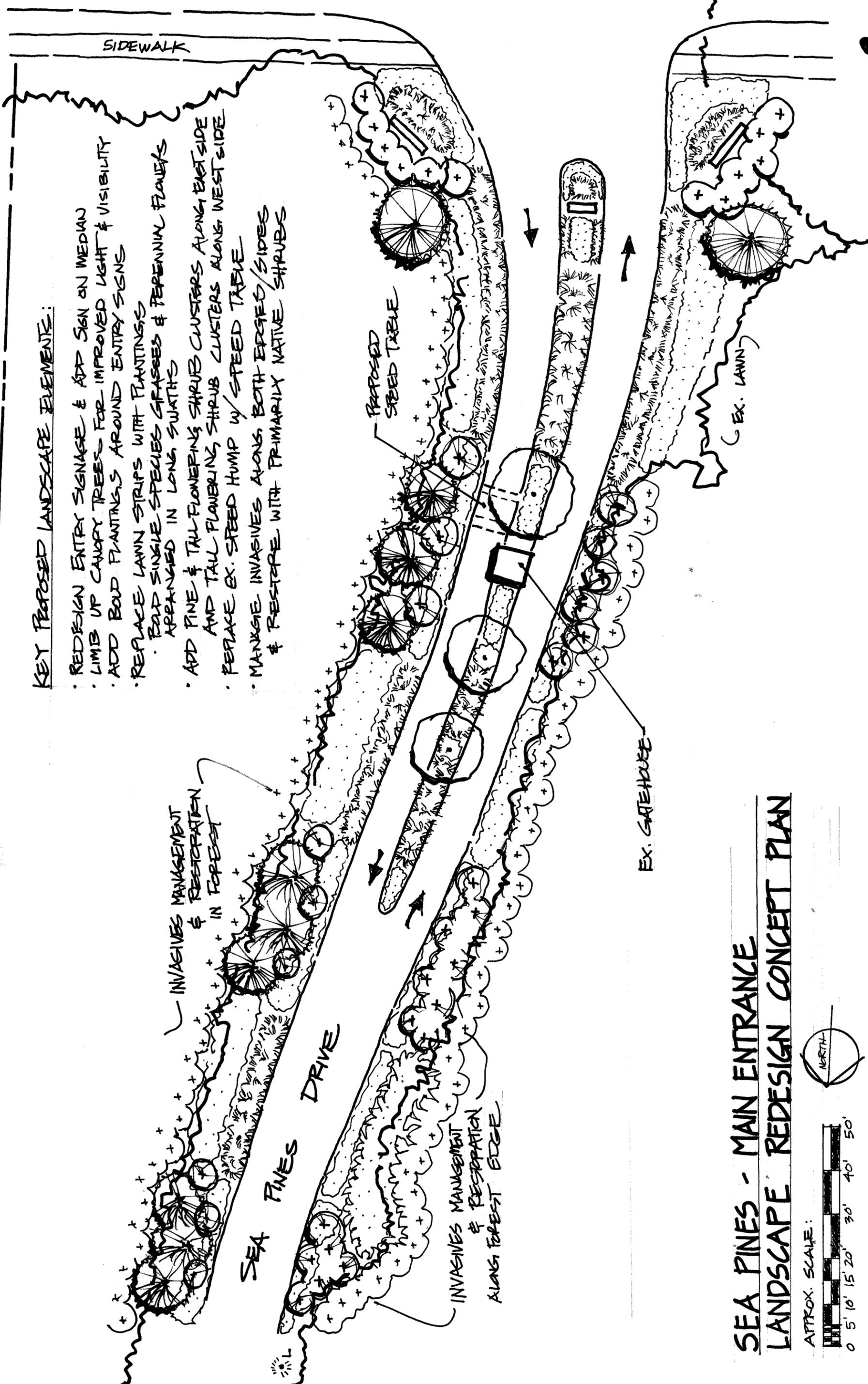
INVASIVES MANAGEMENT & RESTORATION ALONG FOREST EDGE

PROPOSED SPEED TABLE

EX. GATEHOUSE

SEA PINES - MAIN ENTRANCE
LANDSCAPE REDESIGN CONCEPT PLAN

APPROX. SCALE:



KEY PROPOSED LANDSCAPE ELEMENTS:

- REPLACE MULCHSCAPE w/ NATIVE PLANTINGS IN LARGE SINGLE SPECIES SWATHS & GROUPS
- ADD PINES & FLOWERING SHRUBS IN OPEN SPACES
- ENHANCE INTERSECTIONS w/ LOW PERENNIAL FLOWERS
- MANAGE INVASIVES & RESTORE WEST SIDE SLOPE

HAZARD TREE MANAGEMENT & REFORESTATION

REPLACE MULCHSCAPE w/ NATIVE GRASSLAND & LOW SHRUBS (BOTH SIDES)

REPLACE SPEED BUMP w/ SPEED TABLE

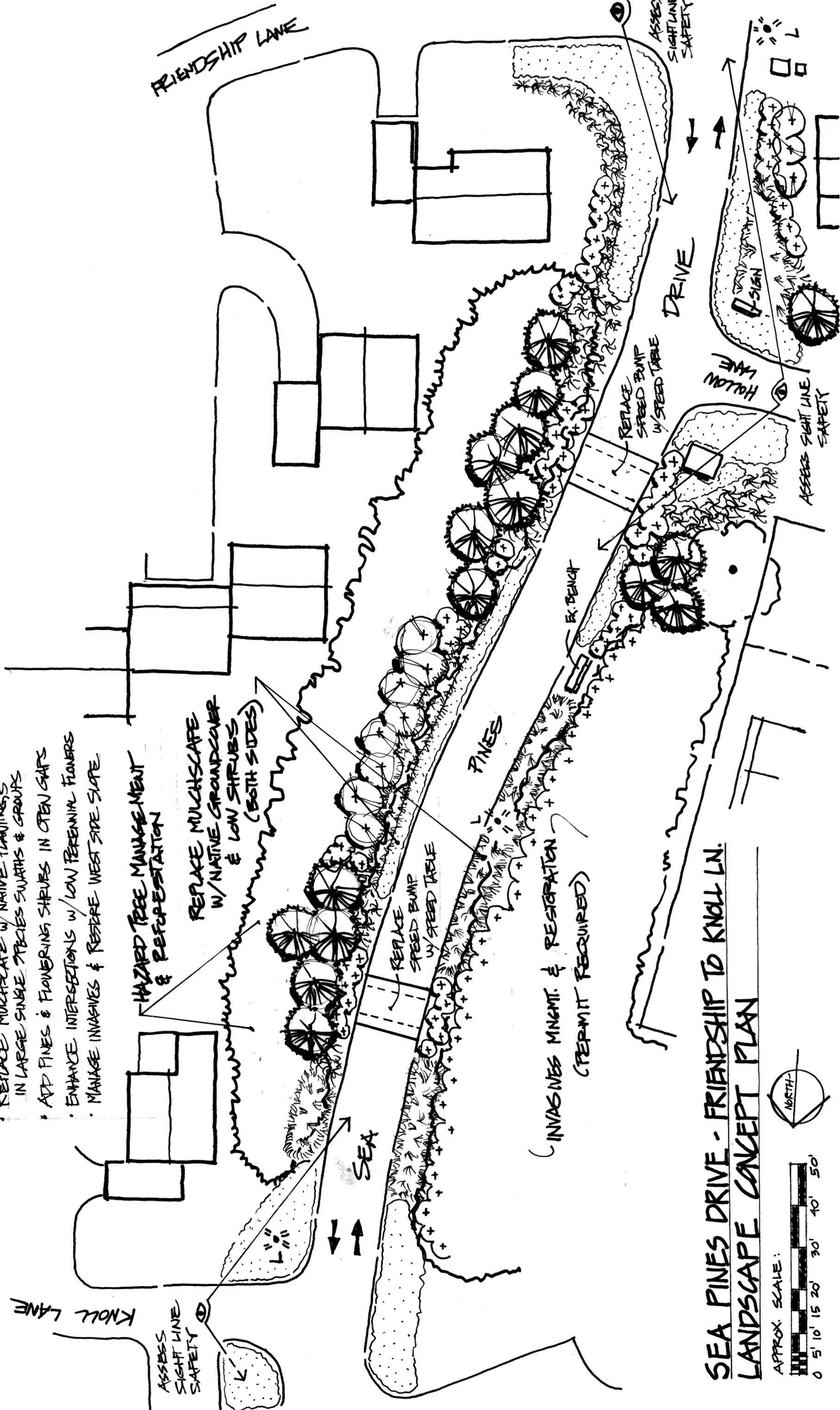
PINES

(INVASIVES MNGMT. & RESTORATION - PERMIT REQUIRED)

REPLACE SPEED BUMP w/ SPEED TABLE

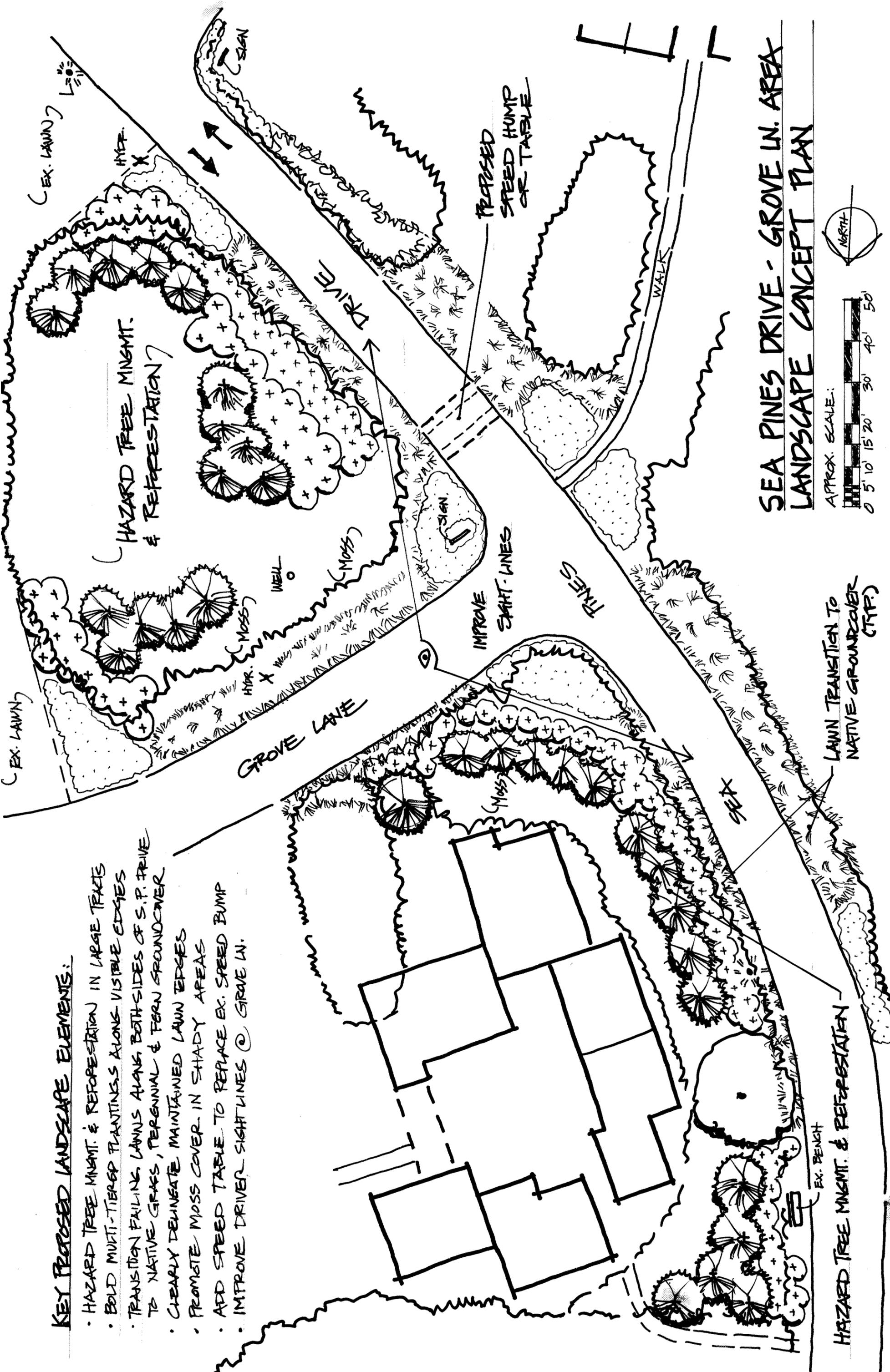
**SEA PINES DRIVE - FRIENDSHIP TO KNOLL LN.
LANDSCAPE CONCEPT PLAN**

APPROX. SCALE:

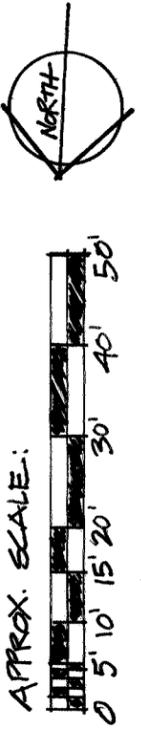


KEY PROPOSED LANDSCAPE ELEMENTS:

- HAZARD TREE MGMT. & REFORESTATION IN LARGE TRACTS
- BOLD MULTI-TIERED PLANTINGS ALONG VISIBLE EDGES
- TRANSITION FAILING LAWNS ALONG BOTH SIDES OF S.P. DRIVE TO NATIVE GRASS, PERENNIAL & FERN GROUNDCOVER
- CLEARLY Delineate MAINTAINED LAWN EDGES
- PROMOTE MOSS COVER IN SHADY AREAS
- ADD SPEED TABLE TO REPLACE EX. SPEED BUMP
- IMPROVE DRIVER SIGHT LINES @ GROVE LN.

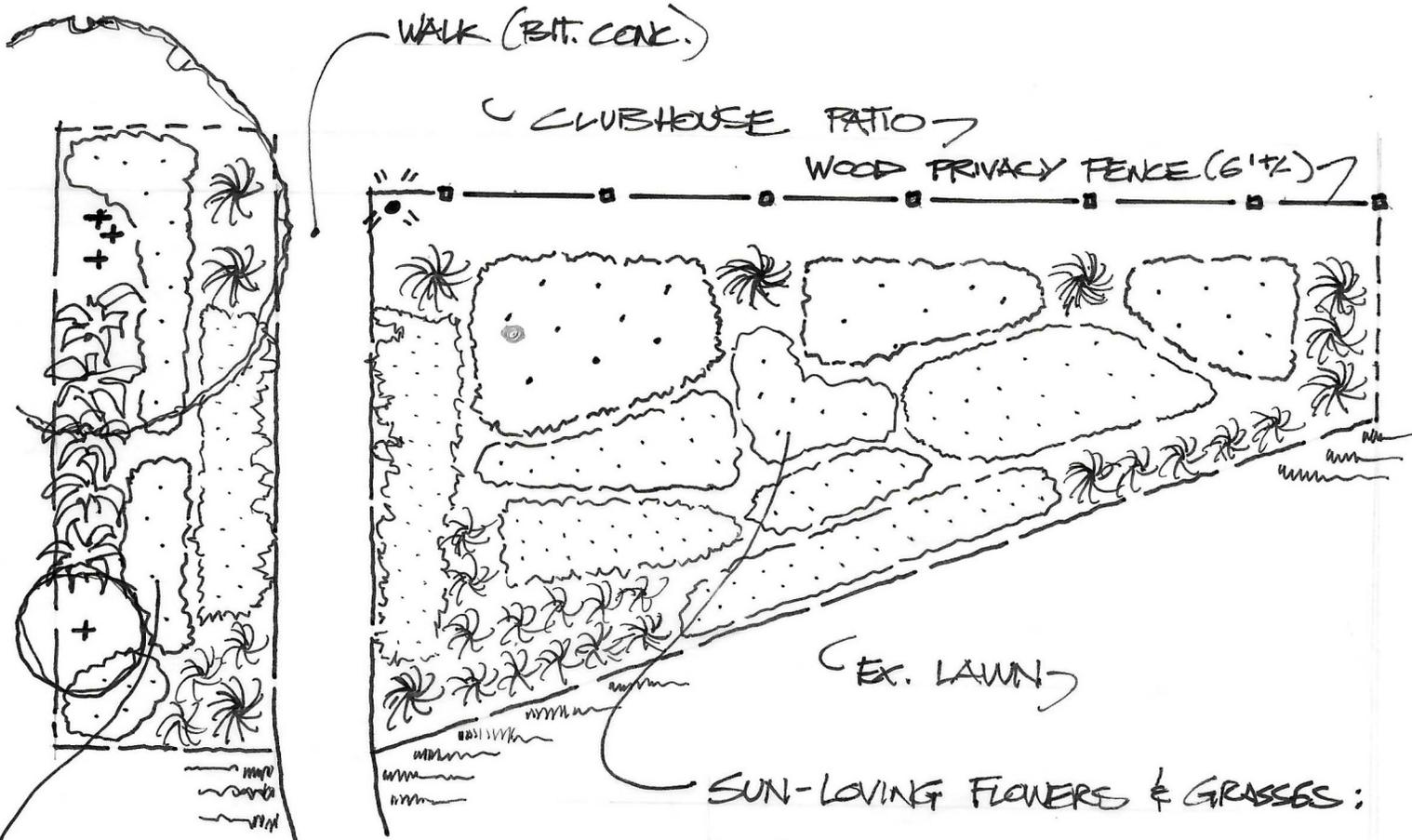


**SEA PINES DRIVE - GROVE LN. AREA
LANDSCAPE CONCEPT PLAN**



LAWN TRANSITION TO
NATIVE GROUNDCOVER
(TRF)

HAZARD TREE MGMT. & REFORESTATION



SHADE TOLERANT PLANTS:

LOW FLOWERS -

- WILD GERANIUM, CREEPING PHLOX

MID-HEIGHT FLOWERS -

- MT. MINT, BEE BALM, WOOD ASTER

FERNS -

- INTERRUPTED FERN, CHRISTMAS FERN

SHRUB(S) -

- FOTHERGILLA, ST. JOHNSWORT

FLOWERING TREE(S) -

- SERVICE BERRY

SUN-LOVING FLOWERS & GRASSES:

LOW FLOWERS -

- BEARDTONGUE, CREEPING THYME, BUTTERFLYWEED, BLUE HILL SAXIF, CATMINT, HEATH ASTER

LOW GRASSES -

- PRAIRIE DROPSEED, BLUE FESCUE

MID-HEIGHT FLOWERS -

- BLACK-EYED SUSAN, BLUE MIST SHRUB, PURPLE CONEFLOWER CULTIVARS, NEW ENGLAND ASTER CULTIVARS

TALL FLOWERS -

- PERENNIAL SUNFLOWER, CUT-LEAF CONEFLOWER

TALL GRASSES -

- K.F. FEATHER REEDGRASS, H.M. SWITCHGRASS

SEA PINES - CLUBHOUSE GARDEN CONCEPT PLAN

APPROX. SCALE:

