

# FIRE IN THE SAVANNA

Fire, a natural, recurring element, is a necessary part of savanna's life cycle.

Historically fires, often ignited by lightning, occurred on a 1 to 3 year frequency.

Fire-rejuvenated grasslands supported large populations of wildlife and native food plants which sustained early native Americans.

Species native to savanna ecosystem need regular occurrence of fire to reproduce, grow & survive.

Many only flower & produce seed after fire.

Longleaf Pine dominated fire-maintained savannas & was essentially the only tree present in these open grasslands.



Blazing Star, *Liatris spicata*, & Dwarf Sundew, *Drosera brevifolia* respond to fire by flowering.



Little Bluestem, *Schizachyrium scoparium*, responds to fire with more prolific flowers & seeds.



Slash Pine, a common savanna tree, & most hardwoods are found in wetter zones, stream bottoms & bayhead swamps that do not burn as frequently or as hot as the broader savannas.

A few upland fire-resistant hardwoods, such as Post Oak & Blackjack Oak, are found on gentle rises in the flatwoods.



Use of Prescribed Burns is beneficial to the savanna ecosystem. It should only be done by trained personnel, under certain conditions & with proper notifications



# **PRESCRIBED FIRE**

## **SAVANNA RESTORATION MANAGEMENT TOOL**



### **BENEFITS OF PRESCRIBED BURNING**

Maintains health of savanna ecosystem

Restricts dense tree and shrub growth

Removes vegetation duff & exposes soil & seeds to sunlight

Triggers hard-shelled seeds to germinate

Allows diverse ground cover of grasses & wildflowers to flourish

Helps suppress growth of invasive plants such as

Chinese Privet, Chinese Tallow, Camphor Tree & Loblolly Pine

Helps avoid costly damaging wildfires by reducing fuel in the landscape

# LONGLEAF PINE SAVANNA ECOSYSTEM

Longleaf pine savanna is an open landscape with scattered trees whose canopies do not close overhead.

Diverse communities of native grasses, perennials and wildflowers provide seasonal beauty, fragrance & color.

Grassland plants with deep root systems filter water for aquifers.

Longleaf pine savannas provide food and habitat for butterflies & other pollinating insects, songbirds & many wildlife species.

Longleaf pine woodlands and savannas once dominated over 60% of the landscape from the Virginia to Eastern Texas.

Longleaf Pine was the dominant tree on about 90 million acres of the Southeast when the Spanish arrived in the early 1500's.

## CHANGES TO THE ECOSYSTEM

Longleaf pine savanna that once covered most of St. Tammany Parish but has been drastically reduced over the past 150 years by farming, replacement by artificial forest types & rural & urban development.

Years of no-burn policies allowed the proliferation of native & non-native fire-intolerant shrubs & trees to change/shade out the savanna ecosystem.

Native species of plants and wildlife have been displaced and in some cases threatened with extinction due to habitat loss.

Dangerous wildfires have occurred due to long-term fire suppression.

## PINE SAVANNA RESTORATION PROJECT

### PROJECT PURPOSE

Restore pine savanna & native meadow areas

Preserve & protect Blue Swamp Creek

Re-introduce fire through use of controlled burns

Control invasive native & non-native species that have taken over since Hurricane Katrina & construction of Recreation Complex

This allows sunlight to reach the ground so desirable species can be re-established



SOURCES: Text - The Nature Conservancy of Louisiana; Louisiana Department of Wildlife & Fisheries  
Photos - Keep Covington Beautiful, Inc.

# NATIVE LARVAL HOST PLANTS FOR LEPIDOPTERA BUTTERFLIES, SKIPPERS & MOTHS

Native plants can host huge numbers of Lepidoptera

Oak trees, as many as 517 species, Willows, 456; Cherry, 448; Maples, 285

Here are a very few of the Lepidoptera you may see as caterpillars on these plants or as adult butterflies, skippers or moths nectaring on flowers along the trails:



GRAY HAIRSTREAK



TIGER SWALLOW-



AMERICAN SNOOT



RED SPOTTED PURPLE

Oaks - Gray Hairstreak  
 Willow – Eastern Tiger Swallowtail  
 Black Cherry – Red Spotted Purple  
 Maple -- Promethea Moth  
 Magnolia - Tulip-Tree Beauty Moth  
 Hackberry – American Snout  
 Red Bay – Spicebush Swallowtail  
 Blackgum – Hebrew Moth  
 Pine - Pine Sphinx Moth  
 Aster – American Lady  
 Purple False Foxglove – Common Buckeye  
 Maypops – Gulf Fritillary



SPICEBUSH SWALLOWTAIL



AMERICAN LADY



COMMON BUCKEYE



GULF FRITILLARY

Sources: Allen, Charles. "Preferred Hosts for Larvae of Butterflies"; Tallamy, Douglas. *Bringing Nature Home: How Native Plants Sustain Wildlife in Our Gardens*; Wagner, David L. *Caterpillars of Eastern North America*

Photos: left to right - jeffpippen.com; gardenswithwings; Ken Childs butterfliesandmoths.com; butterflybushes.com; Donald Hall Univ. of FL;

Gary Jue butterfliesandmoths.com; naba.org; rogueembryo.com

# IMPORTANCE OF NATIVE PLANTS

## WILDLIFE DEPENDS ON PLANTS FOR SHELTER & FOOD

Many species of wildlife are attracted to acorns, berries, nuts & seeds produced by native plants

Birds collect insects & caterpillars found on native plants to feed their young

Many primarily insectivorous songbirds alter their diets to include fleshy fruits during migratory and winter periods when fewer insects and invertebrates are available

Fruiting plants have evolved strategies to capitalize on birds as seed dispersers



VIBURNUM FRUIT



EASTERN BLUEBIRD



VIRGINIA CREEPER BERRIES



POISON IVY FLOWERS



BROWN THRASHER

### SOME FRUIT-BEARING PLANTS ALONG TRAILS, FRUITING SEASON & BIRDS ATTRACTED TO THEM INCLUDE:

**Arrowwood Viburnum** (*Viburnum dentatum*) (September-November) - Eastern Bluebird, White-throated Sparrow

**Eastern Poison Ivy** (*Toxicodendron radicans*) (August-January)

Downy Woodpecker, Pileated Woodpecker, Red-bellied Woodpecker, Brown Thrasher, Carolina Chickadee, Eastern Bluebird, Northern Cardinal, Tufted Titmouse, White-throated Sparrow

**Sassafras** (*Sassafras albidum*) (July-October) - Northern Cardinal, Red-bellied Woodpecker

**Southern Magnolia** (*Magnolia grandiflora*) (August-December) - Northern Cardinal, Pileated Woodpecker

**Virginia Creeper** (*Parthenocissus quinquefolia*) (August-November)

Brown Thrasher, Eastern Bluebird, Northern Cardinal, Downy Woodpecker, Red-bellied Woodpecker



SASSAFRAS FRUIT



PILEATED WOODPECKER



NORTHERN CARDINAL

MAGNOLIA SEEDS



# WHAT IS BIODIVERSITY?

The diversity of ecosystems, natural communities, habitats & the species that comprise them  
The ways species interact with each other and their environments

## WHY IS BIODIVERSITY IMPORTANT?

Diversity of plants, soils & pollinators, provides array of food that sustains life.  
Plants make life livable on earth by providing oxygen to breathe, cleansing the air & water.  
The complex interactions of the many living species of plants & animals  
on earth produce a healthy ecosystem.  
It allows ecosystems to adjust to disturbances like extreme fire or floods.

## THREATS TO BIODIVERSITY & HABITAT LOSS

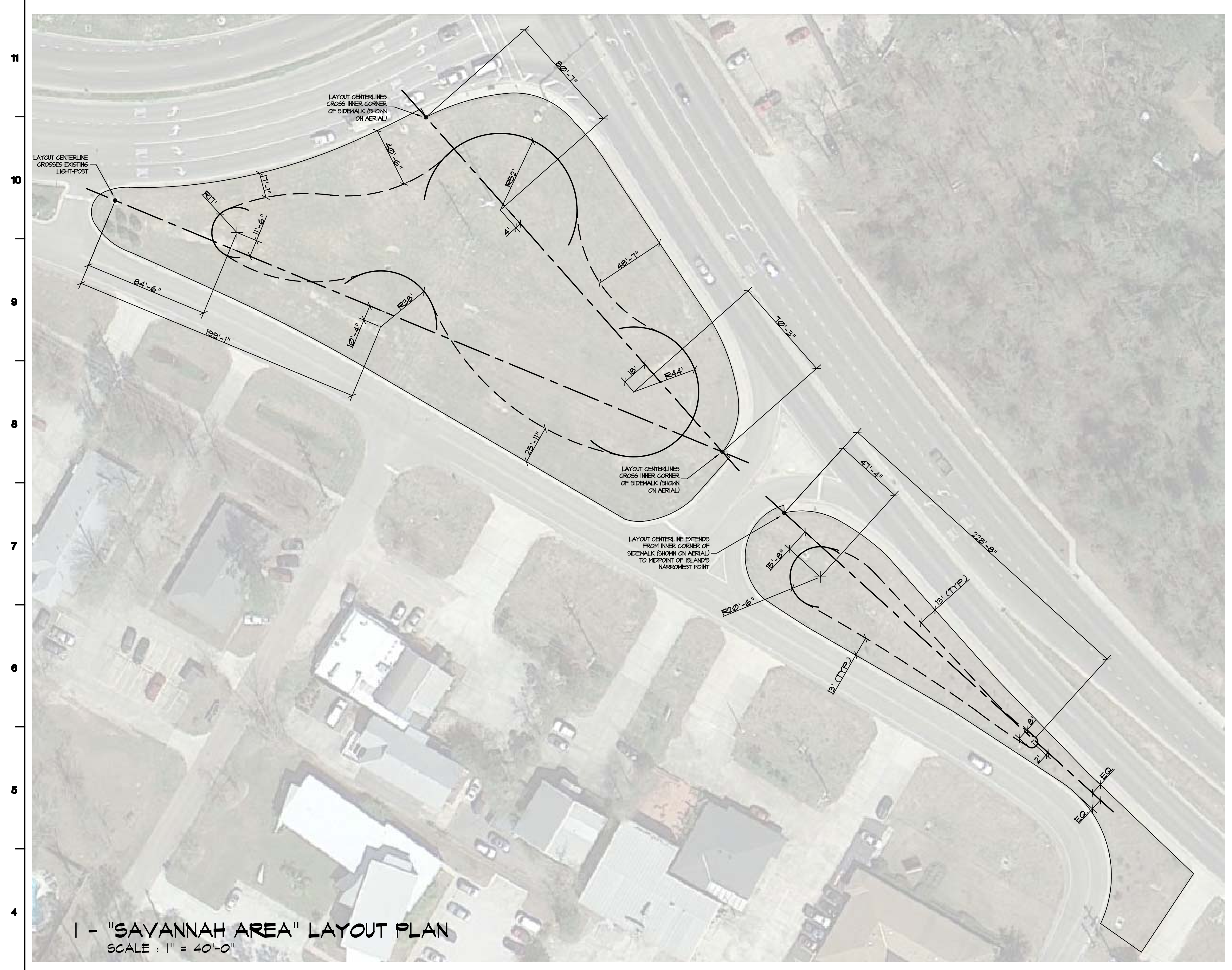
### IN LONGLEAF PINE SAVANNAS INCLUDE

Non-natural environmental changes caused by human activities  
Over exploitation of natural resources  
Spread of non-native species  
Pollution of natural resources

### WATCH FOR A VARIETY OF WILDLIFE ALONG THE TRAILS

REPTILES & AMPHIBIANS: Frogs, Snakes & Turtles  
BIRDS \* POLLINATORS: Bees, Wasps, Flies, Butterflies  
MAMMALS: Deer, Mice Opossum, Rabbits, Raccoons, Squirrels, Skunks





1 - "SAVANNAH AREA" LAYOUT PLAN  
SCALE : 1" = 40'-0"

**MAINTENANCE**

1. Begin maintenance immediately after planting.
2. Maintain installed plant stock for no less than (1) one year after substantial completion of planting.
3. Maintain all plants by pruning, cultivating, fertilizing, mulching, and weeding as required for healthy growth. Upon completion of the (1) one year maintenance and warranty period, the Contractor, Owner, and Landscape Architect shall schedule a warranty and maintenance inspection to review the work and develop a punchlist of items to be completed or corrected. It shall be the responsibility of the Landscape Architect to determine which plant materials are in need of replacement due to death or decline in health. The Contractor will have seven (7) days to correct the work for another inspection. It is to be understood by the owners that this is a naturally shifting installation, and mortality of certain species is intended to occur as the final plant community grows into profusion.

"WILDFLOWER" MIX SHALL INCLUDE APPROX. 80% OF PLANTS LISTED BELOW (AS APPROVED BY L.A. AT TIME OF PROPOGATION).

LOCAL GENETIC STOCK WILL BE REQUIRED.

GRASSES:

- Agrostis elliptica - elliot's bentgrass
- Andropogon gerardii - Big Bluestem
- Andropogon glomeratus - Bushy Bluestem
- Andropogon ternarius - Split Beard Bluestem
- Aristida longispicata
- Aristida purpurescens - Three Awn Grass
- Ctenium aromatic - Toothache Grass
- Dicanthellum scabrusculum
- Eragrostis bahiensis
- Eragrostis spectabilis - Purple Love Grass
- Eragrostis refracta - Coastal Love Grass
- Eragrostis elliotii - Elliot Lovegrass
- Muhlenbergia capillaris - Coastal Muhly Grass
- Panicum anceps - Beaked Switchgrass
- Panicum virgatum - Switchgrass
- Paspalum floridanum - Florida Paspalum
- Paspalum pilcabilum - Brownseed Paspalum
- Schizachyrium scapanum - Little Bluestem
- Schizachyrium tenerum - Thin leaf Bluestem
- Sorghastrum nutans - Indian Grass
- Sporobolus juncus - Prairie Dropseed
- Tridens ambiguus
- Tridens flavus - Purple Top Grass
- Tridens strictus - Long-spike Tridens
- Tripsicum dactylodes - Eastern Gamma

COMPOSITES:

- Aster dumosus
- Aster paludosus V. hemispherica - Showy Aster
- Aster patens - Clasping Leaf Aster
- Aster puniceus - Roughstem Aster
- Bigelovia - Yawless Goldenrod
- Bidens aristosa - Beaded Beggar's Ticks
- Cacalia ovata - Indian Plantain
- Chrysopsis mariana - Maryland Golden Aster
- Chrysopsis graminifolia - Silk Grass
- Coreopsis tripteris - Tall Tickseed
- Coreopsis pubescens
- Coreopsis lanceolata
- Coreopsis tinctoria
- Echinacea pallida - Pale Cone Flower
- Eupatorium rotundifolia - Round Leaf Boneset
- Eupatorium hyssopifolia
- Eupatorium perfoliatum
- Euthamia leptoccephala - Flat-topped Goldenrod
- Euthamia tenuifolia - Narrow-Leaved Flat-topped Goldenrod
- Gallardia aestivalis - Yellow Indian Blanket
- Helianthus angustifolius - Narrow Leaf Sunflower
- Helianthus mollis - Ashy Sunflower
- Helianthus vernal vernal sneezeweed
- Liatris spicata - Blazing Star
- Liatris squarrosa - Button Blazing Star
- Liatris squarilosa
- Liatris acidota
- Rudbeckia grandiflora
- Rudbeckia nitida V. texana
- Rudbeckia amplexicaulis
- Silphium gracile
- Silphium laciniata
- Solidago nitida - Flattopped Goldenrod
- Solidago odora - Sweet Goldenrod
- Solidago rugosa - Roughleaf Goldenrod
- Solidago sempervirens - Seaside Goldenrod
- Solidago ludoviciana - Louisiana Goldenrod
- Solidago nitida
- Solidago ulmifolia - Elm Leaf Goldenrod
- Vernonia gigantea - Giant Ironweed
- Vernonia texana - Texas Ironweed

OTHER FORBS:

- Agalinus Purpurea
- Baptisia alba - Wild White Indigo
- Baptisia sphaerocarpa - Yellow Wild Indigo
- Baptisia bracteata
- Chamaecrista fasciculata - Annual Cassia
- Chasanthium ornithorhynchum
- Croton monanthogynus - Dove weed
- Erygeron strigosus - Fleabane
- Eryngium yuccifolia - Button Snakeroot
- Erythrina herbacea - Coral Bean
- Euphorbia corollata
- Gaura lindheimeri
- Hibiscus moscheutos
- Hypericum tetrapetalum - Four petal St. John's wort
- Lespedeza capitata - Round Head Lespedeza
- Lespedeza virginica - Slender Lespedeza
- Manfreda virginica - Rattlesnake Master
- Monarda fistulosa - Wild Bergamot
- Monarda lindheimeri - Lindheimer's Beebalm
- Monarda punctata - Spotted Horsemint
- Passiflora incarnata - Passion Flower
- Penstemon digitalis - Smooth Beardtongue
- Penstemon laxiflorus
- Prunella vulgaris - Heal All
- Psychanthemum albescens - Whiteleaf Mountain Mint
- Psychanthemum tenuifolium - Thin Leaf Mt. Mint
- Psychanthemum muticum - Lowland Mt. Mint
- Salvia azurea - Blue Sage
- Verbena halei - Texas Vervain

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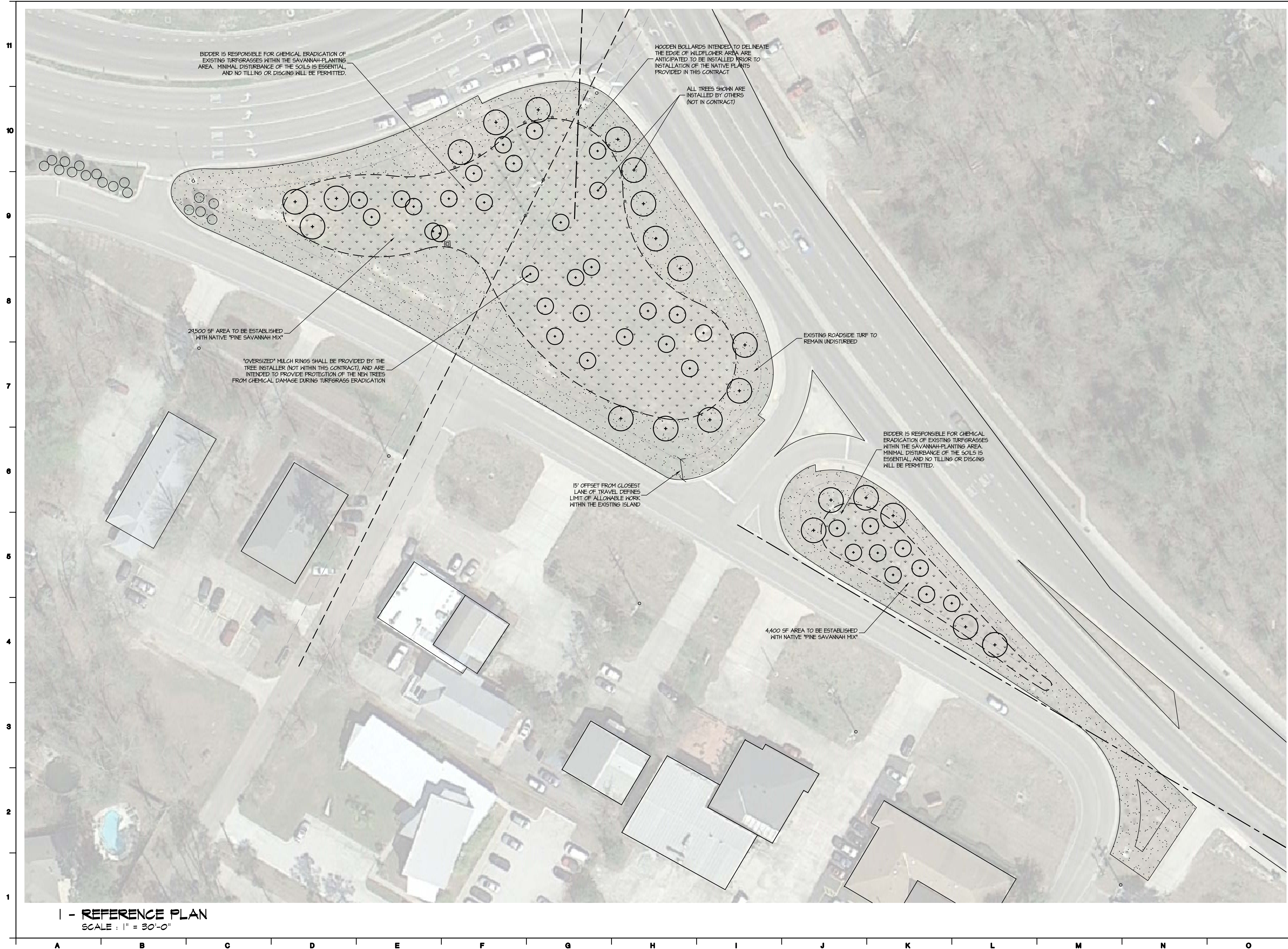
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LANDSCAPE ARCHITECTS AND PLANNERS  
2700 STATE STREET, SUITE 300  
METairie, LA 70002  
PH: 504-835-2000 FAX: 504-835-2007

Causeway Approach Wildflower Restoration Area  
Tree Planting and Irrigation Improvements  
Mandeville, Louisiana

**Mandeville**

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LAYOUT / PLANT LIST  
CONSTRUCTION DOCUMENTS  
3



1 - REFERENCE PLAN  
SCALE : 1" = 30'-0"

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**Tree Planting and Irrigation Improvements**  
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LANDSCAPE ARCHITECTS AND PLANNERS  
10000 WOODLAND DRIVE  
MANDERLYN, MISSISSIPPI 39209  
PHONE: (601) 833-1327 FAX: (601) 833-2827

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**REFERENCE PLANT PLAN**  
CONSTRUCTION DOCUMENTS

**2**



# Wildflower Restoration Area

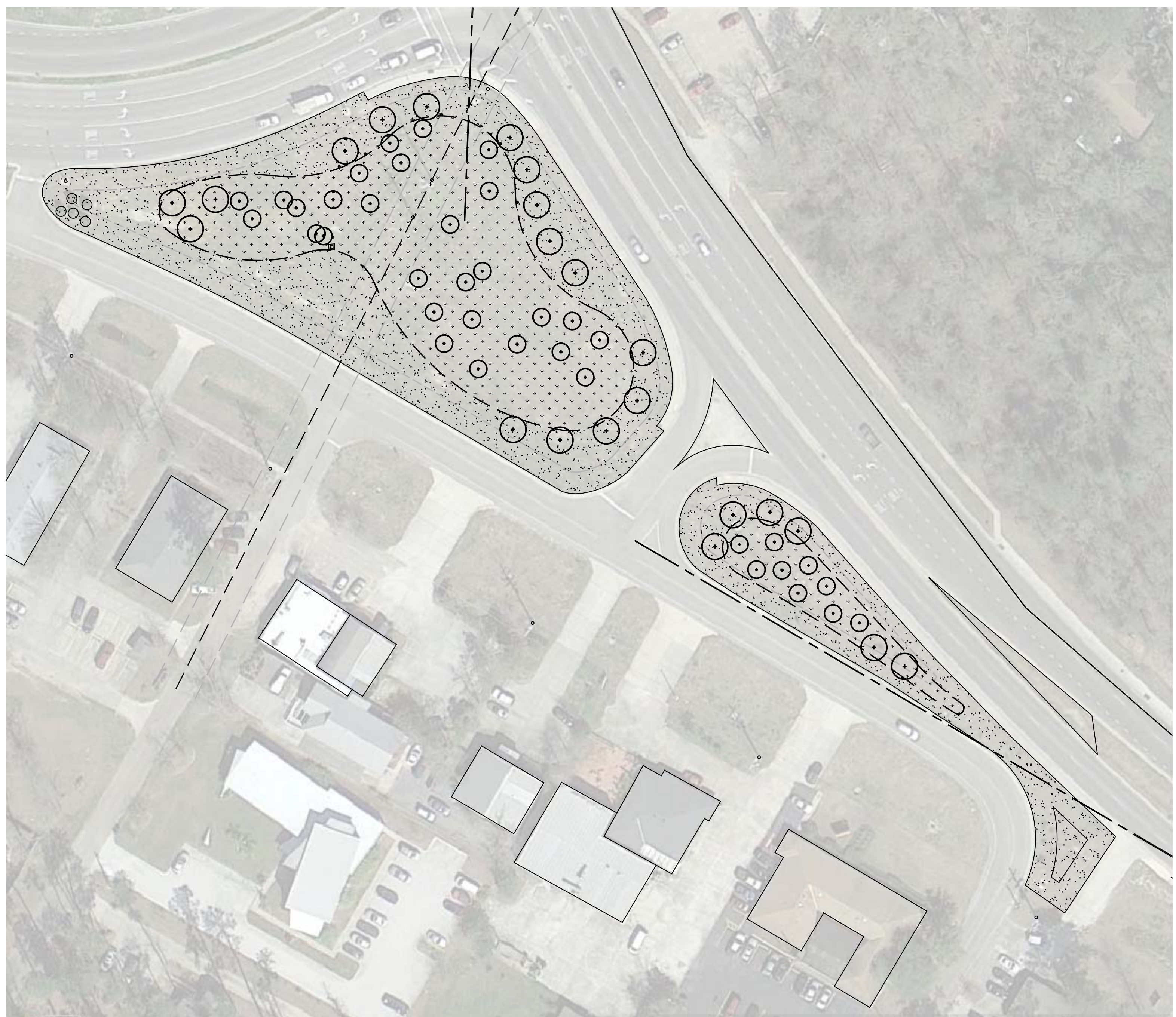
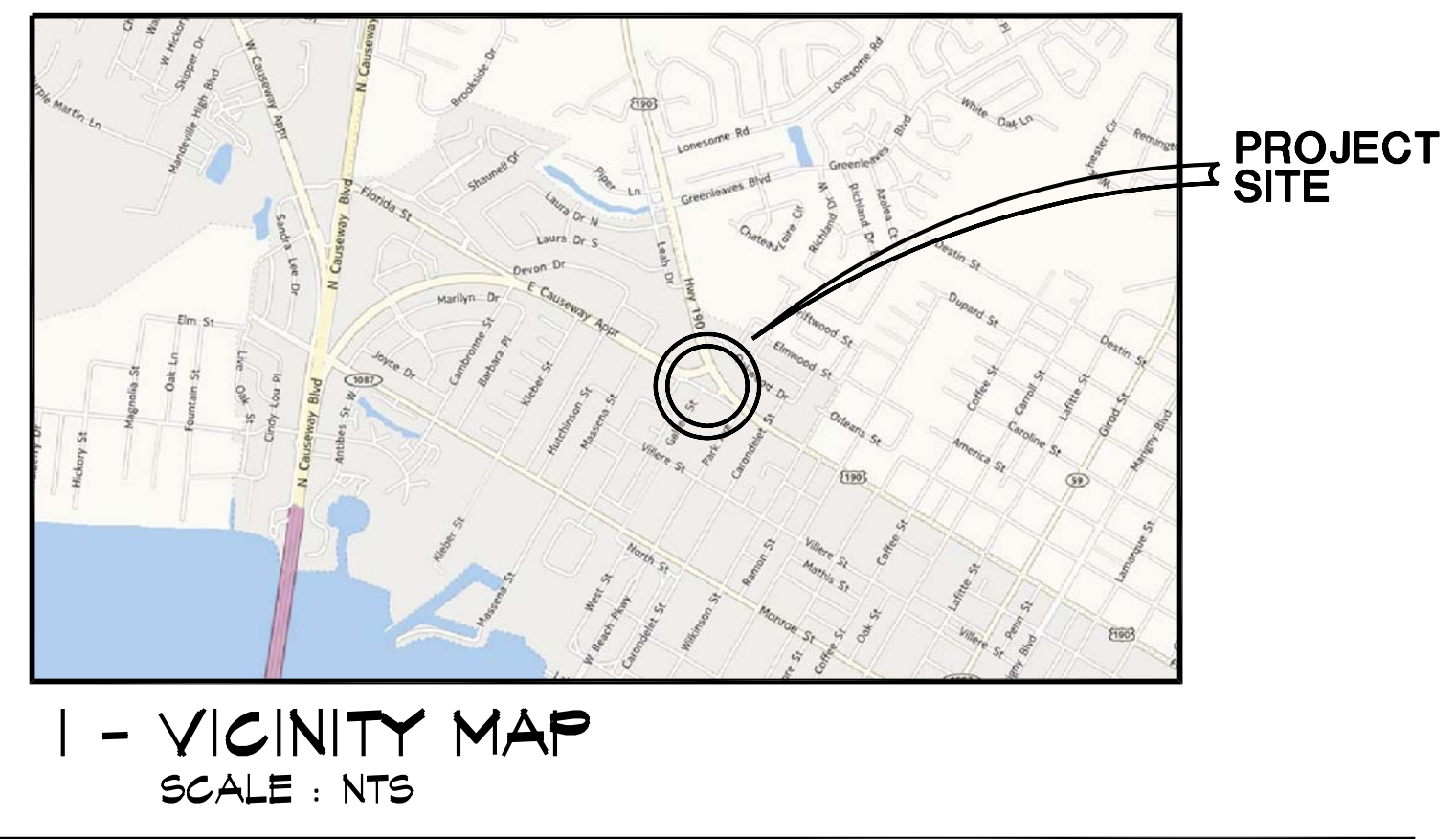
Site Preparation  
and Planting  
Documents

MANDEVILLE, LOUISIANA

| SYMBOL KEY            |  |
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| DETAIL NO.            |  |
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| DETAIL NO.            |  |
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| NEW ELEVATION MARK    |  |
| EXIST. ELEVATION MARK |  |
| PROPERTY LINE         |  |
| CENTER LINE           |  |

**INDEX TO DRAWINGS**

1. GENERAL NOTES / MASTER SITE PLAN
2. REFERENCE PLAN
3. BED LAYOUT PLAN / PLANT MATERIALS LIST



## General Notes

- All project base information is based on engineering survey information provided by the Client.
- The contractor shall supply all materials in quantities sufficient to complete the work shown on all drawings.
- Contractor shall notify Landscape Architect of errors and/or omissions in plans prior to commencing work.
- Contractor is responsible for determining the location and depth of all underground utilities prior to the commencement of work.
- Contractor shall stake-out all work in the field for inspection/approval by Landscape Architect prior to construction.
- All excess material to be removed from site by contractor.
- Contractor is responsible for verifying all existing conditions and dimensions and to report any discrepancies to the Landscape Architect prior to the commencement of work.
- Contractor is responsible for applying for and obtaining all necessary permits as required by the City of Mandeville, St. Tammany Parish, and the State of Louisiana.
- All plant material shall conform to the guidelines established by the current "American Standard for Nursery Stock", published by the American Association of Nurserymen or equivalent.
- Landscape Architect reserves the right to alter plant locations in the field without cost to the owner.
- All bed areas not identified on drawings shall be staked out in the field by the Landscape Architect.
- Contractor shall notify Landscape Architect of delivery of plant materials to the site for inspection prior to unloading. Landscape Architect reserves the right to reject any plant materials due to poor health, damage, or if materials do not meet specifications.
- All plants shall bear the same relationship to finished grade as the plants' original grade before digging.
- All plants shall be installed as per details and the contract.
- All plants and stakes shall be set plumb unless otherwise specified.
- All plants shall be watered thoroughly twice during the first 24-hour period after planting. All plants shall then be watered weekly or more often, if necessary, during the first growing season. The Landscape Contractor shall refer to the contract specifications for additional requirements.
- The Landscape Contractor shall refer to the plant list for seasonal requirements and other restrictions related to the time of planting.
- All plants shall be balled and wrapped or container grown as specified. No container grown stock will be accepted if it is root bound. All material made of synthetics or plastics shall be removed at time of planting.
- All plants shall be balled and wrapped or container grown as specified. No container grown stock will be accepted if it is root bound. All material made of synthetics or plastics shall be removed at time of planting.
- With container grown stock, the container shall be removed and the container ball shall be cut through the surface vertically in two locations.
- The contractor shall be required to attend a Pre-Bid meeting as scheduled by the landscape architect.
- The contractor shall visit the site and thoroughly acquaint himself with all aspects of the construction outlined in this document prior to submitting a bid. Any discrepancies shall be brought immediately to the attention of the landscape architect.
- The contractor shall provide all necessary safety apparatus required to insure the health of workers as well as the owners and general public.
- The contractor shall provide any site demolition / utility relocation necessary for completion of work.
- The existing survey represents general locations of improvements. It shall be the general contractor's responsibility to locate all improvements on site.
- The general contractor shall verify all existing underground utilities' exact locations prior to excavation work. Repair of the system shall be the responsibility of the general contractor should they be damaged during the course of this construction project.
- Prior to alteration, addition, or tie-in, all damage by contractor shall be properly repaired by the general contractor, at the contractor's expense.
- The contractor shall keep the site clear of trash and construction debris during construction on a weekly basis.
- The contractor shall be responsible for permits and any changes for tie-in to existing streets and utilities.
- In no way do the dimensions shown on the plans represent an exact quantity of materials. The bidder is solely responsible for the quantities in his bid.
- The storage of materials on-site shall be allowed. Under no circumstances will staging be allowed on pre-existing lawn or garden areas. Any damage to existing lawn surfaces or garden / landscape areas shall require immediate restoration to original condition by general contractor.
- All removed topsoil shall be stored and used for finish grading. The contractor shall be responsible for removal and disposal of all debris material prior to finish grading.
- Fine grading and sod shall extend over entire site as per landscape plan.
- Contractor shall prevent erosion of stockpiled topsoil.
- Removal and disposal of all substances and material is to be accomplished according to specifications and Federal, State, and local regulations.
- All materials shall be new except where otherwise noted and shall conform with the standards of Underwriter's Laboratory in every case where such a standard has been established for the particular type of material in question.
- All work shall be performed in accordance with all applicable National and State codes and regulations.
- The contractor shall obtain and pay all necessary permits, and after completion, furnish owner certifications of final inspections and approval.
- All required tests shall be made in accordance with the latest standards of the NEC. The tests shall be made in the presence of the owner or their representative.
- All concrete shall be a minimum 3,000 PSI at 28 days and a minimum of 3-1/2" thick.
- The contractor shall provide for positive drainage around the building at all times.
- All exterior slabs (exposed to weather) shall be sloped so that all surfaces drain in a positive manner.
- All formwork is to be set true and plumb, bracing shall be adequate to maintain required lines.
- All portions of this project shall be bid as drawn. Any part of this project excluded in the contractor's bid shall be submitted in writing at the time of the bid submittal.

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LANDSCAPE ARCHITECTS AND PLANNERS  
1000 PINE BLVD., SUITE 200  
MANDEVILLE, LA 70478  
PH: 504-835-7400 FAX: 504-835-7401

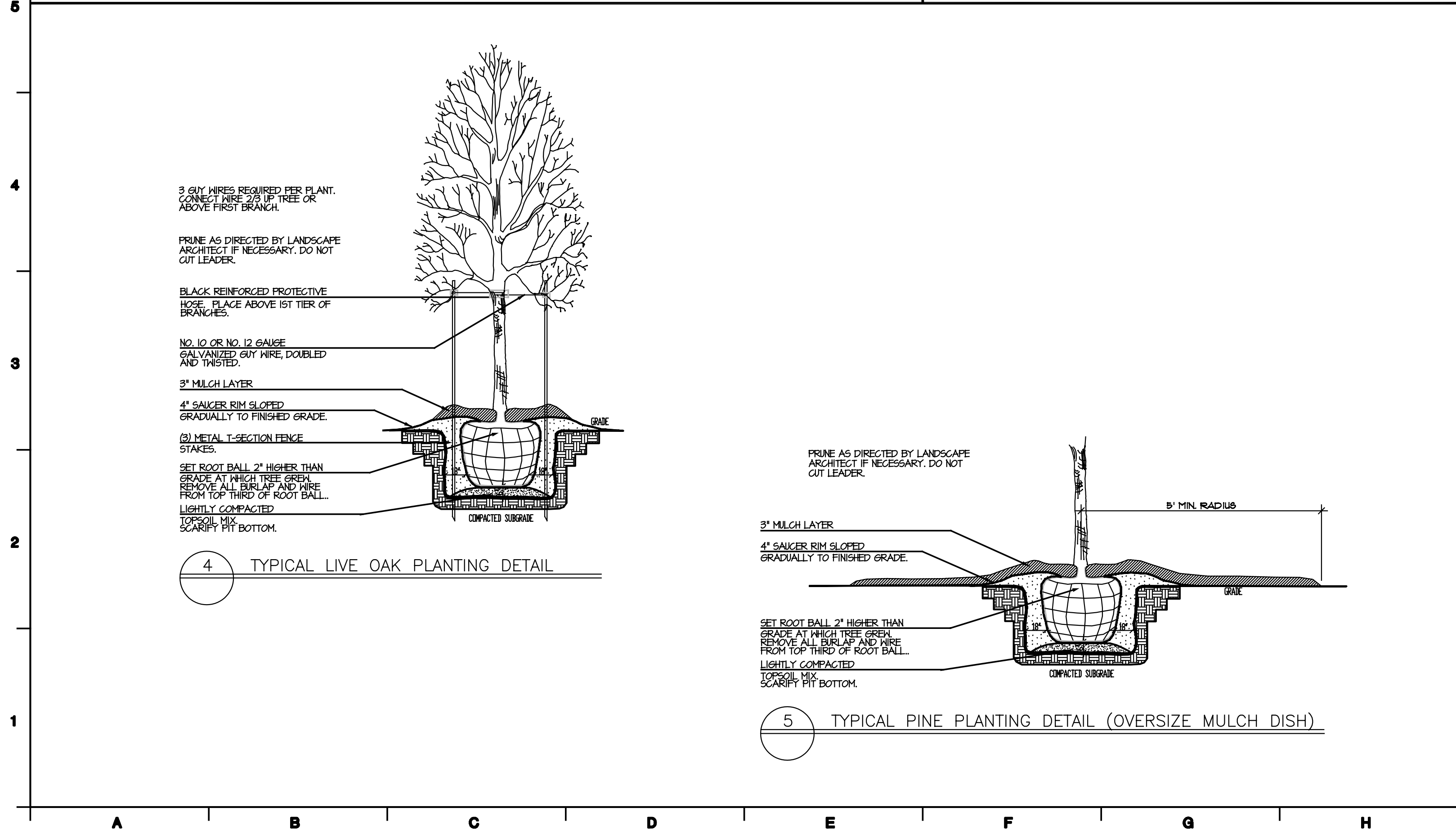
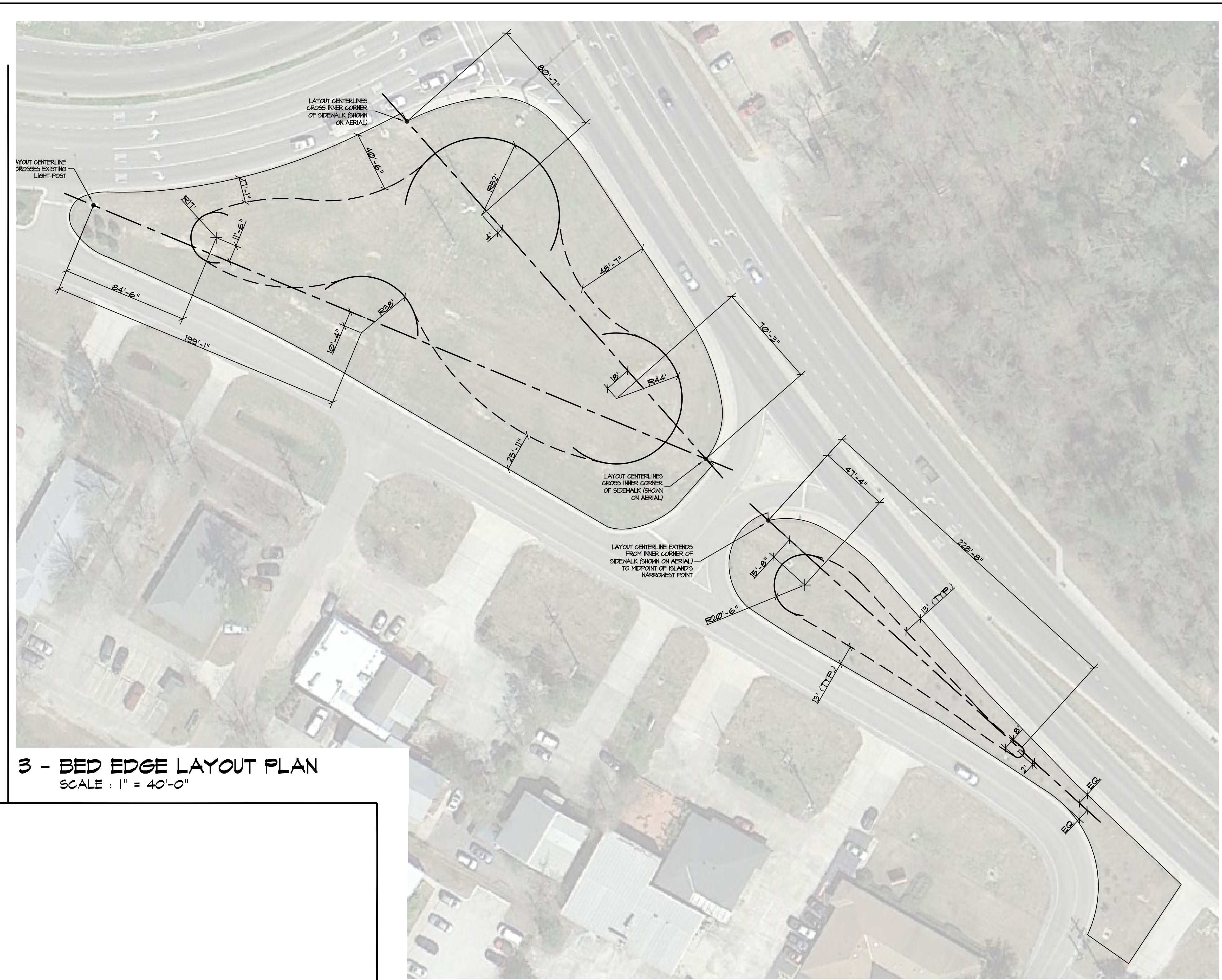
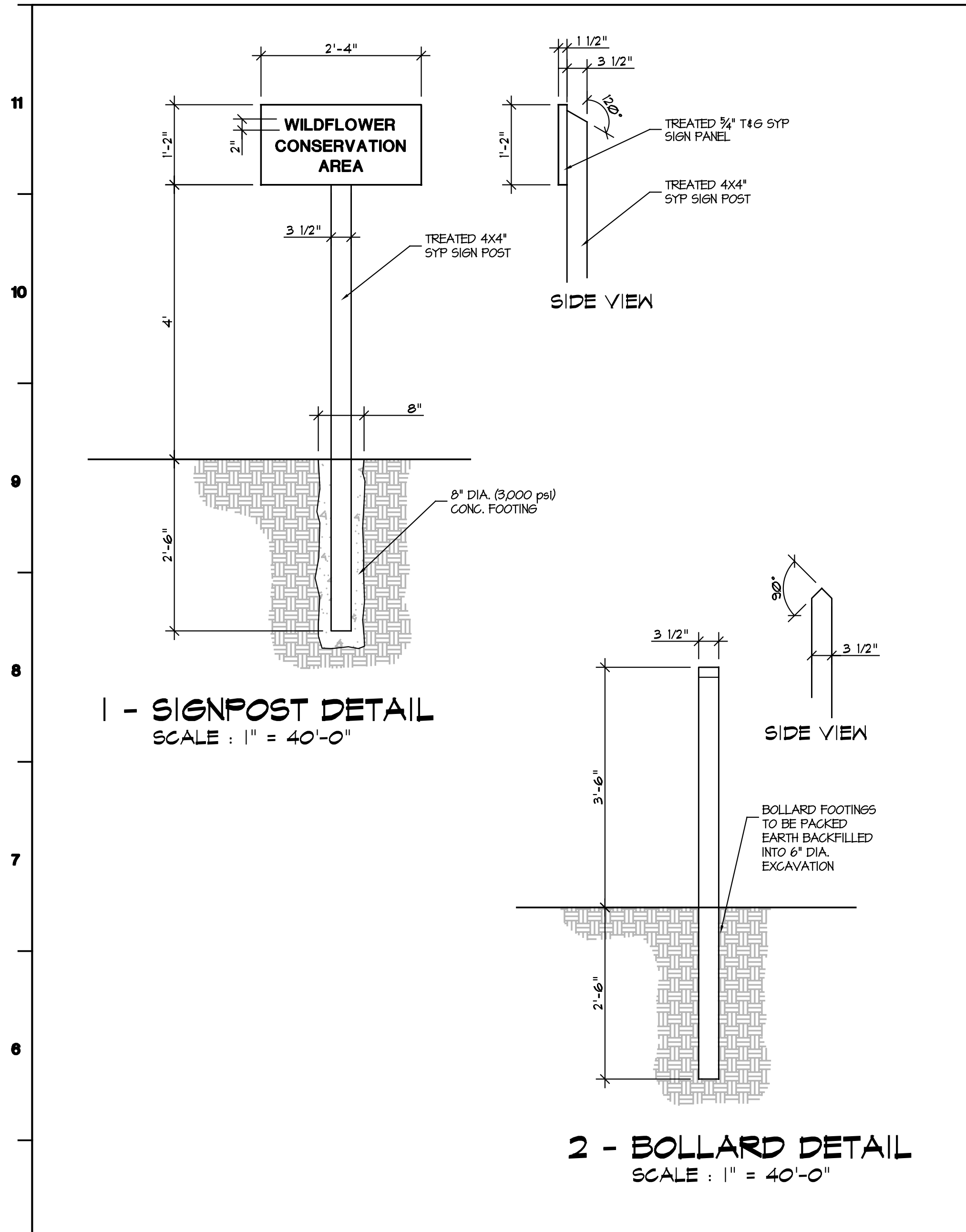
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**SITEPLAN / GEN. NOTES**

CONSTRUCTION DOCUMENTS

**1**

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**Causeway Approach Wildflower Restoration Area**

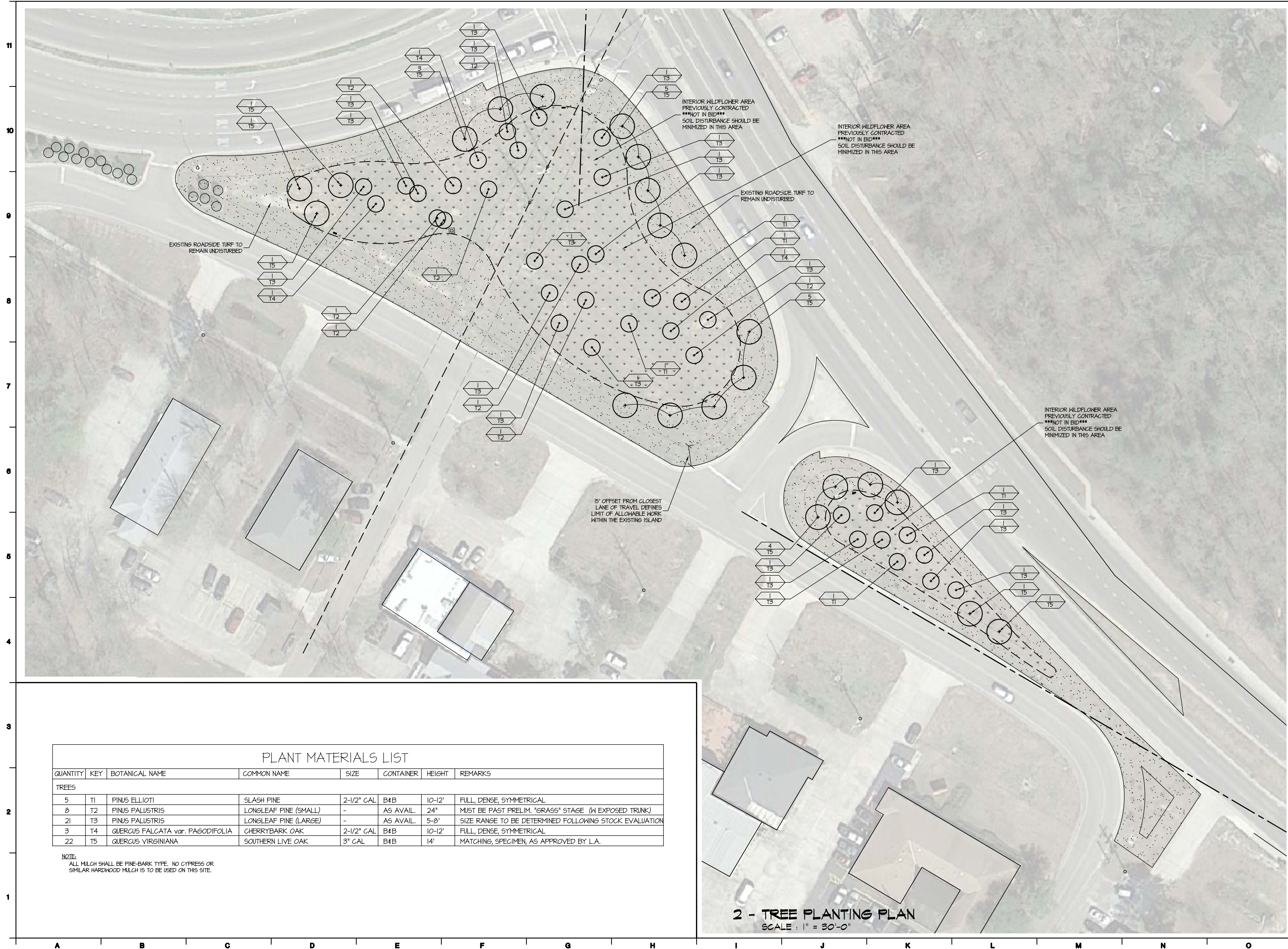
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**LAYOUT PLAN / DTLs.**  
CONSTRUCTION DOCUMENTS

**3**



PLANT MATERIALS LIST

| QUANTITY | KEY | BOTANICAL NAME                   | COMMON NAME           | SIZE       | CONTAINER | HEIGHT | REMARKS  |
|----------|-----|----------------------------------|-----------------------|------------|-----------|--------|--|
| TREES    |     |                                  |                       |            |           |        |  |
| 5        | T1  | PINUS ELLIOTTI                   | SLASH PINE            | 2-1/2" CAL | B4B       | 10-12' | FULL, DENSE, SYMMETRICAL                               |
| 8        | T2  | PINUS PALUSTRIS                  | LONGLEAF PINE (SMALL) | -          | AS AVAIL. | 24"    | MUST BE PAST PRELIM. "GRASS" STAGE (N EXPOSED TRUNK)   |
| 21       | T3  | PINUS PALUSTRIS                  | LONGLEAF PINE (LARGE) | -          | AS AVAIL. | 5-8'   | SIZE RANGE TO BE DETERMINED FOLLOWING STOCK EVALUATION |
| 3        | T4  | QUERCUS FALCATA var. PAGODIFOLIA | CHERRYBARK OAK        | 2-1/2" CAL | B4B       | 10-12' | FULL, DENSE, SYMMETRICAL                               |
| 22       | T5  | QUERCUS VIRGINIANA               | SOUTHERN LIVE OAK     | 3" CAL     | B4B       | 14'    | MATCHING, SPECIMEN, AS APPROVED BY L.A.                |

NOTE:  
ALL MULCH SHALL BE PINE-BARK TYPE. NO CYPRESS OR SIMILAR HARDWOOD MULCH IS TO BE USED ON THIS SITE.

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LANDSCAPE ARCHITECTS AND PLANNERS

1000 W. PINE STREET, SUITE 200  
MANDERVILLE, LOUISIANA 70468  
PHONE: 813-382-1111 FAX: 813-382-1112

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LANDSCAPE PLAN  
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# Wildflower Restoration Area

Tree Planting  
and Irrigation  
Documents

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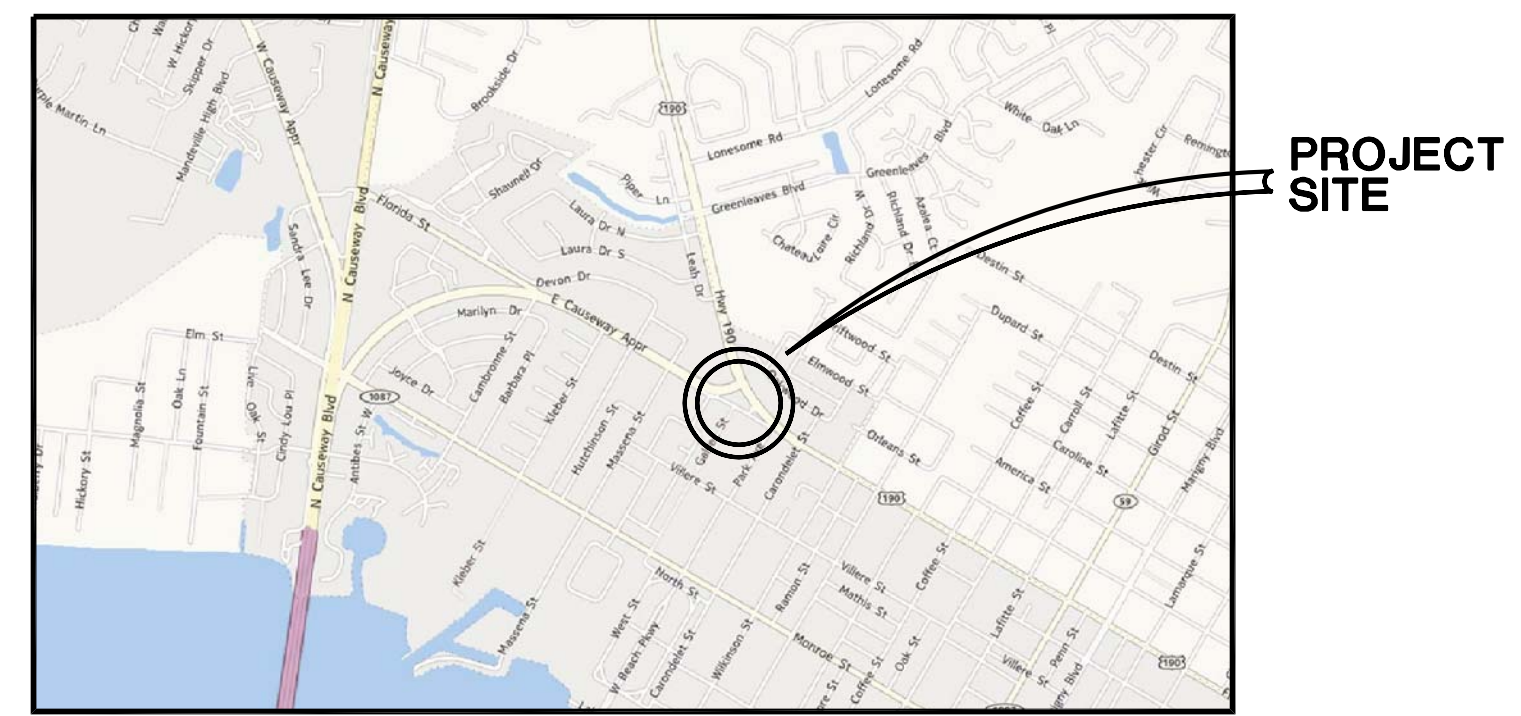
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REVISIONS: XXX

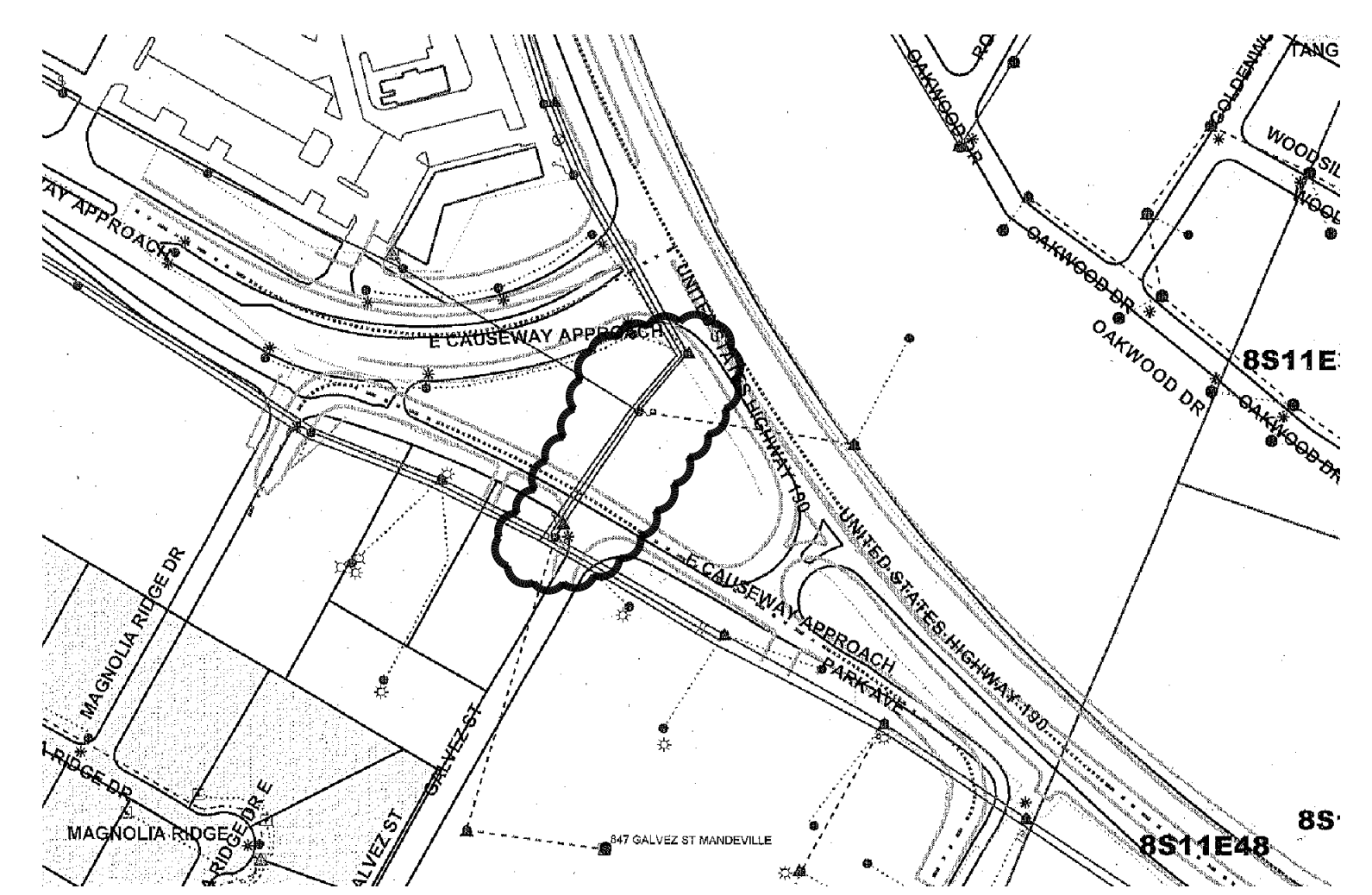
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| SYMBOL KEY                                |  |
|---|--|
| DETAIL NO. / PAGE NO. / SECTION NO./SH.   |  |
| DETAIL NO. / PAGE NO. / ELEVATION NO./SH. |  |
| REVISION NO.                              |  |
| DETAIL NO. / PAGE NO. / DETAIL NO. / SH.  |  |
| NEW ELEVATION MARK                        |  |
| EXIST. ELEVATION MARK                     |  |
| PROPERTY LINE                             |  |
| CENTER LINE                               |  |

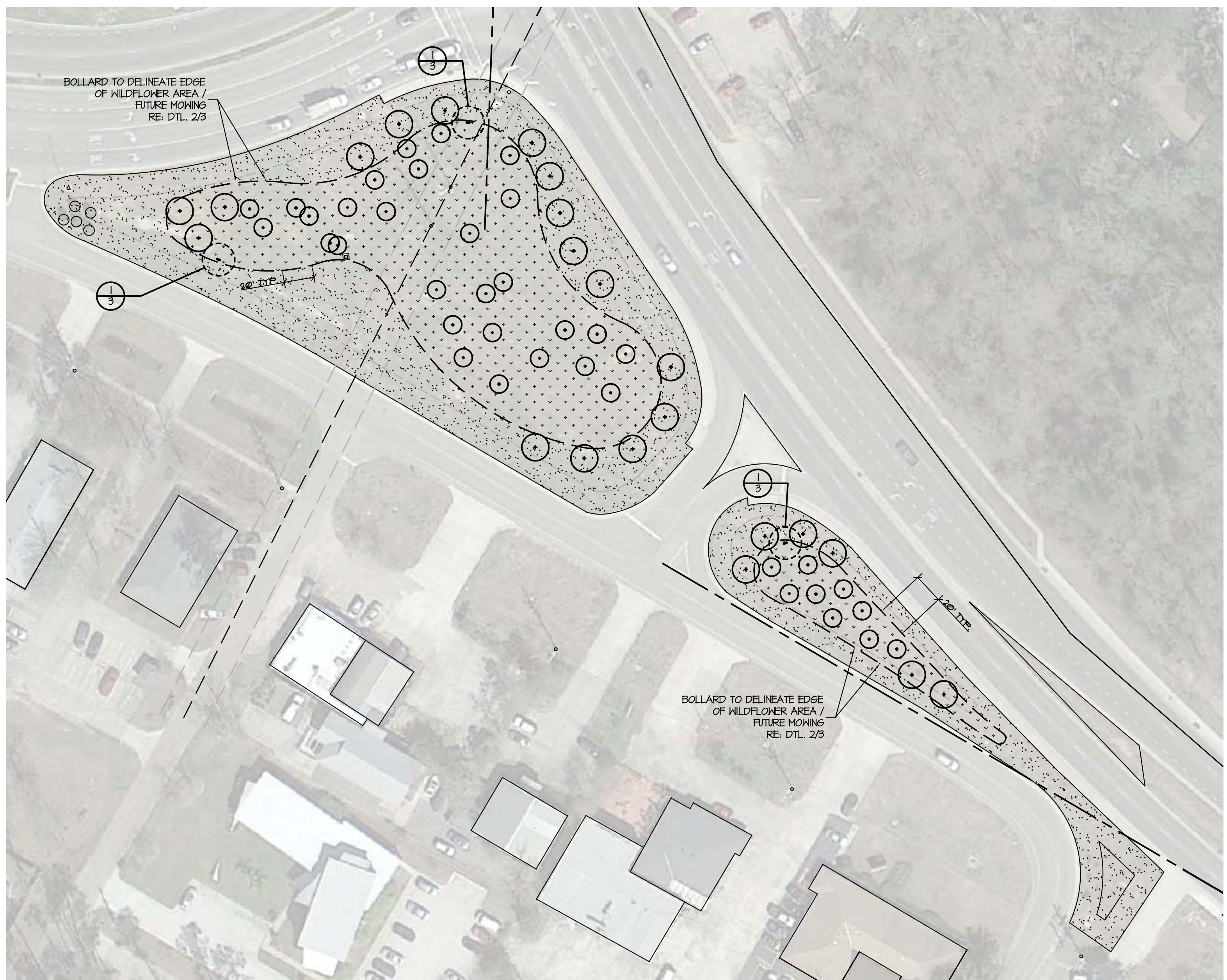
- INDEX TO DRAWINGS**
1. GENERAL NOTES / BOLLARD AND SIGN PLAN
  2. TREE-PLANTING PLAN
  3. LAYOUT PLAN / TREE INSTALLATION DETAILS
  4. IRRIGATION PLAN AND DETAILS
  5. LANDSCAPE AND IRRIGATION SPECIFICATIONS



**1 - VICINITY MAP**  
SCALE : NTS



**2 - OVERHEAD UTILITY PLAN**  
SCALE : 1" = 40'-0"



**3 - MASTER SITE PLAN**  
SCALE : 1" = 50'-0"

## General Notes

- All project base information is based on engineering survey information provided by the Client.
- The contractor shall supply all materials in quantities sufficient to complete the work shown on all drawings.
- Contractor shall notify Landscape Architect of errors and/or omissions in plans prior to commencing work.
- Contractor is responsible for determining the location and depth of all underground utilities prior to the commencement of work.
- Contractor shall stake-out all work in the field for inspection/approval by Landscape Architect prior to construction.
- All excess material to be removed from site by contractor.
- Contractor is responsible for verifying all existing conditions and dimensions and to report any discrepancies to the Landscape Architect prior to the commencement of work.
- Contractor is responsible for applying for and obtaining all necessary permits as required by the City of Mandeville, St. Tammany Parish, and the State of Louisiana.
- All plant material shall conform to the guidelines established by the current "American Standard for Nursery Stock", published by the American Association of Nurserymen or equivalent.
- Landscape Architect reserves the right to alter plant locations in the field without cost to the owner.
- All bed areas not identified on drawings shall be staked out in the field by the Landscape Architect.
- Contractor shall notify Landscape Architect of delivery of plant materials to the site for inspection prior to unloading. Landscape Architect reserves the right to reject any plant materials due to poor health, damage, or if materials do not meet specifications.
- All plants shall bear the same relationship to finished grade as the plants' original grade before digging.
- All plants shall be installed as per details and the contract.
- All plants and stakes shall be set plumb unless otherwise specified.
- All plants shall be watered thoroughly twice during the first 24-hour period after planting. All plants shall then be watered weekly or more often, if necessary, during the first growing season. The Landscape Contractor shall refer to the contract specifications for additional requirements.
- The Landscape Contractor shall refer to the plant list for seasonal requirements and other restrictions related to the time of planting.
- All plants shall be balled and wrapped or container grown as specified. No container grown stock will be accepted if it is root bound. All material made of synthetics or plastics shall be removed at time of planting.
- All plants shall be balled and wrapped or container grown as specified. No container grown stock will be accepted if it is root bound. All material made of synthetics or plastics shall be removed at time of planting.
- With container grown stock, the container shall be removed and the container ball shall be cut through the surface vertically in two locations.
- The contractor shall be required to attend a Pre-Bid meeting as scheduled by the landscape architect.
- The contractor shall visit the site and thoroughly acquaint himself with all aspects of the construction outlined in this document prior to submitting a bid. Any discrepancies shall be brought immediately to the attention of the landscape architect.
- The contractor shall provide all necessary safety apparatus required to insure the health of workers as well as the owners and general public.
- The contractor shall provide any site demolition / utility relocation necessary for completion of work.
- The existing survey represents general locations of improvements. It shall be the general contractor's responsibility to locate all improvements on site.
- The general contractor shall verify all existing underground utilities' exact locations prior to excavation work. Repair of the system shall be the responsibility of the general contractor should they be damaged during the course of this construction project.
- Prior to alteration, addition, or tie-in, all damage by contractor shall be properly repaired by the general contractor, at the contractor's expense.
- The contractor shall keep the site clear of trash and construction debris during construction on a weekly basis.
- The contractor shall be responsible for permits and any changes for tie-in to existing streets and utilities.
- In no way do the dimensions shown on the plans represent an exact quantity of materials. The bidder is solely responsible for the quantities in his bid.
- The storage of materials on-site shall be allowed. Under no circumstances will staging be allowed on pre-existing lawn or garden areas. Any damage to existing lawn surfaces or garden / landscape areas shall require immediate restoration to original condition by general contractor.
- All removed topsoil shall be stored and used for finish grading. The contractor shall be responsible for removal and disposal of all debris material prior to finish grading.
- Fine grading and sod shall extend over entire site as per landscape plan.
- Contractor shall prevent erosion of stockpiled topsoil.
- Removal and disposal of all substances and material is to be accomplished according to specifications and Federal, State, and local regulations.
- All materials shall be new except where otherwise noted and shall conform with the standards of Underwriter's Laboratory in every case where such a standard has been established for the particular type of material in question.
- All work shall be performed in accordance with all applicable National and State codes and regulations.
- The contractor shall obtain and pay all necessary permits, and after completion, furnish owner certifications of final inspections and approval.
- All required tests shall be made in accordance with the latest standards of the NEC. The tests shall be made in the presence of the owner or their representative.
- All concrete shall be a minimum 3,000 PSI at 28 days and a minimum of 3-1/2" thick.
- The contractor shall provide for positive drainage around the building at all times.
- All exterior slabs (exposed to weather) shall be sloped so that all surfaces drain in a positive manner.
- All formwork is to be set true and plumb, bracing shall be adequate to maintain required lines.
- All portions of this project shall be bid as drawn. Any part of this project excluded in the contractor's bid shall be submitted in writing at the time of the bid submittal.

Causeway Approach Wildflower Restoration Area

Landscape and Irrigation Improvements  
Mandeville, Louisiana

Mandeville  
**DUFRECHE PERKINS  
AND ASSOCIATES, L.L.C.**  
LANDSCAPE ARCHITECTS AND PLANNERS

**SITEPLAN /  
GEN. NOTES**

CONSTRUCTION  
DOCUMENTS