

**Smithfield, VA: Windsor Castle Park Longleaf
Pine Demonstration Area Expansion
Conceptual Site Master Plan**



Prepared for the Town of Smithfield
December 2022

Smithfield, VA: Windsor Castle Park Longleaf Pine
Demonstration Area Expansion Conceptual Site Master Plan

Project funding provided in part by the US Forest Service in cooperation with the
Virginia Department of Forestry Urban and Community Forestry Program



21UCF04



PROJECT TEAM

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The **Community Design Assistance Center** (CDAC) is an outreach center in the College of Architecture, Arts, and Design at Virginia Tech that assists communities, neighborhood groups, and non-profit organizations in improving the natural and built environments. Assistance is provided in the areas of landscape architecture, architecture, planning, and interior design. Working with communities, the conceptual planning and design provides communities with a graphic vision of their project that can then be used for grant applications and fundraising for the next steps toward implementation.

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ACKNOWLEDGMENTS

The CDAC team would like to acknowledge the following individuals and organizations for their contributions throughout the project:

Amy Novak

Director, Smithfield Parks and Recreation

Henry McBurney

Volunteer, Windsor Castle Park Foundation

Scott Bachman

Senior Area Forester, Virginia Department of Forestry

The Windsor Castle Park Foundation

Smithfield Town Council

and

Those who volunteered time for the betterment of Smithfield and Windsor Castle Park.

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PART 1: INTRODUCTION



PROJECT DESCRIPTION

Introduction

Located adjacent to historic downtown Smithfield, Windsor Castle Park's 208 acres feature a four-mile woodland trail system, picnic and open areas, dog park, kayak/canoe launch, fishing pier, mountain bike path, scenic overlooks, fields under cultivation and the historic manor house – Windsor Castle. Windsor Castle Farm was originally part of a 1,450 acre parcel patented in 1637 by Arthur Smith, an ancestor of the town's founder, Arthur Smith IV. The purchase of the land and the creation of the park in 2010 were made possible through the generous contributions of Mr. Joseph W. Luter III, former CEO of Smithfield Foods.

In the spring of 2014, the Town of Smithfield (which owns the park), the non-profit Windsor Castle Park Foundation, and representatives of the Virginia Department of Forestry decided to explore the possibility of creating a forest of native species on approximately 3.5 acres of the park's farmland adjoining the Route 10 bypass. The project would serve to reintroduce species such as the Virginia Longleaf Pine. Called "the tree that built Tidewater," the longleaf pine was the backbone of the area's early boat-building industry. Experts believe more than 1 million acres of Longleaf forest once graced the Commonwealth but, according to a 2012 article in the Richmond Times-Dispatch, today "there are so few big, native Longleaf pines that you can literally count them — about 300 on a few patches of land." Virginia Longleaf Pines can attain 300 years of age – they are the longest-living southern pine species – and can grow to be 150 feet tall.

The Windsor Castle Park Foundation, in collaboration with Windsor Castle Park and the Town of Smithfield, have been working on the Windsor Castle Park Longleaf Pine Restoration Initiative and identified the need for a conceptual site master plan for a demonstration area within Windsor Castle Park. The goal is to showcase several methods of planting small acreages of longleaf pines for the purpose of encouraging interested landholders to follow suit. To date, work on this effort has included the planting of three areas:

- A fenced plot of nine longleaf pines;
- A specimen planting area containing 47 longleaf pines; and
- A contoured planting area consisting of 3.5 acres with a mixture of potted longleaf pines and seedlings.

In 2020, the Community Design Assistance Center worked with a Stakeholders Committee comprised of different agencies such as the Windsor Castle Park (WCP) Foundation, Windsor Castle Park, the Town of Smithfield, the Department of Conservation and Recreation (DCR), the Virginia Department of Forestry (DOF), and the Nature Conservancy (TNC) to develop the conceptual site master plan for the 3.5 acre demonstration area.

The site master plan, which is included for reference in the appendix on page 30, envisions the longleaf pine demonstration area as a regional destination for longleaf pine restoration and education as well as utilizing the adjacent recreational

PROJECT DESCRIPTION

opportunities of Windsor Castle Park. Two distinctly different longleaf pine planting styles offers unique potential to connect with people interested in protecting such an important native tree species with a variety of management strategies. Some of the elements included in the conceptual site master plan were a new main entrance with an entry sign, information kiosk, permeable parking, interpretive panels, a walking trail with a connection to the Windsor Castle Park trail system, a picnic shelter, a maintenance building, and portable toilets.

In 2022, the Windsor Castle Park Foundation identified the need for a conceptual site master plan that depicts the expanded planting of longleaf pines and additional walking trails in Windsor Castle Park in the 8.7 acre field north of the existing 3.5 acre planted area. This planting will be managed over time by prescribed burns, so it will require a firebreak between the existing mixed mature hardwoods and the new planting of longleaf.

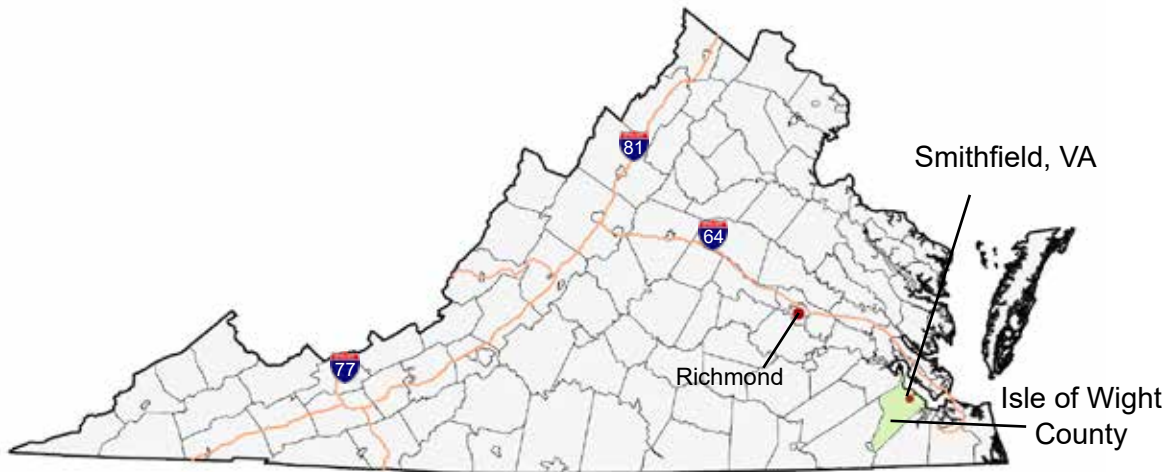
Needed in the expansion plan were:

- The general location of where the new longleaf pine plantings will happen
- A trail centered within a 30' wide firebreak
- Trail connection(s) to the existing Windsor Castle Park trail(s)
- Expanded parking lot design located across Dan Smith Drive from 8.7 acre planting area

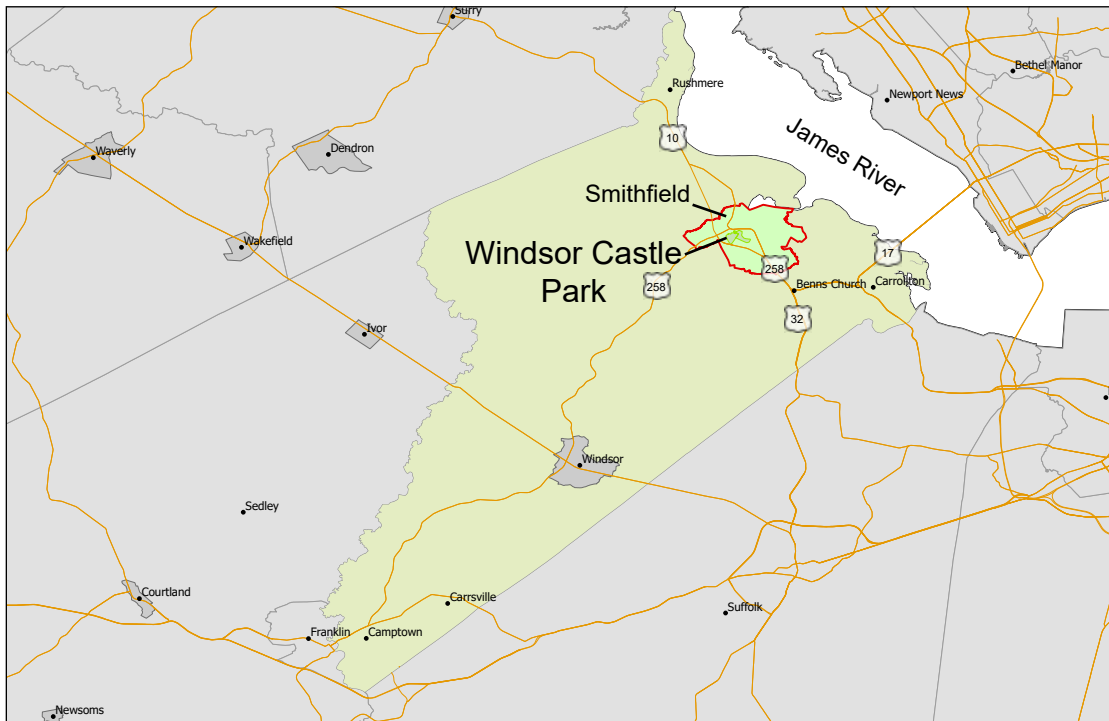
The Community Design Assistance Center worked with a Stakeholders Committee to develop the conceptual site master plan for the expanded demonstration area.

PROJECT DESCRIPTION

Project Location



4



The maps above show the location of Isle of Wight County within southeast Virginia and where Smithfield and Windsor Castle Park are located within Isle of Wight County.

PROJECT DESCRIPTION



The map above shows where Windsor Castle Park is located within the Town of Smithfield. The aerials on the following pages show the location of the project site within Windsor Castle Park. Existing site images show the current condition of the site.

Smithfield, VA: Windsor Castle Park Longleaf Pine
Demonstration Area Expansion Conceptual Site Master Plan

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- Key:**
- Windsor Castle Park Property Line
 - - - Approximate Longleaf Pine Initiative Project Area (2020) (3.5 Acres)
 - ||||| Approximate Expanded Longleaf Pine Initiative Project Area (2022) (8.7 Acres)
 - Existing Parking Lot
 - Approximate Expanded Parking Lot Area
 - ▭ Nearby Parcel Lines



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Project Location
Windsor Castle Park Overview
November 9th, 2022

Key:

- - - Windsor Castle Park Property Line
- - - Approximate Longleaf Pine Initiative Project Area (2020) (3.5 Acres)
- ||||| Approximate Expanded Longleaf Pine Initiative Project Area (2022) (8.7 Acres)
- Existing LLP Educational Area
- Existing Dog Park
- Existing Parking Lot
- Approximate Expanded Parking Lot Area
- Nearby Parcel Lines



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Project Location
Longleaf Pine Demonstration Area Overview
November 9th, 2022



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Project Location
Existing Site Images
November 9th, 2022



1: Existing educational area with nine longleaf pine trees and interpretive signage showing LLP expansion area in background.



2: View facing north showing existing walking trail, which borders the LLP expansion area to the south and east.



3: Partial view of existing parking lot, which is paved asphalt and has twenty-eight standard parking spaces and one two-way access point.



4: Wide view from near the center of the site looking north showing LLP expansion area.



5: View facing northeast along west side of site showing wide view of LLP expansion area and future walking path location.



6: View facing east from existing parking lot showing parking expansion area.



7: View from southwest end of the LLP expansion area looking across the path towards the LLP demonstration area planted in 2020.



8: View facing southwest showing dog park fence, future walking path location, and LLP expansion area.



Existing site image locator map

PROJECT DESCRIPTION

Design Process

The design process began with a site visit on October 4th, 2022, where the project team met with stakeholders at Windsor Castle Park and discussed their vision for the project. The CDAC team had the opportunity to tour the site and existing surrounding areas including the planted demonstration areas from the 2020 plan. Following this meeting, the CDAC team was led by Virginia Department of Forestry Senior Area Forester Scott Bachman to the Zuni Pine Barrens Antioch Pines Natural Area Preserve located ~20 miles from Windsor Park in Isle of Wight County to observe a mature longleaf pine forest. The CDAC team returned to Windsor Castle Park on October 5th, 2022 to take additional photographs of the site. These site visits, photographs, and input from the stakeholders created a comprehensive foundation that the CDAC team used to develop a preliminary conceptual site master plan for the longleaf pine demonstration area.

The CDAC team presented the preliminary design concepts virtually on November 9th, 2022. Following the presentation, stakeholders provided feedback about what they (dis)liked about each design. The final design concept was presented virtually on December 20th, 2022.

Meeting notes from the stakeholder input session and preliminary design presentation can be found in the Appendix.

Smithfield, VA: Windsor Castle Park Longleaf Pine
Demonstration Area Expansion Conceptual Site Master Plan

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PART 2: FINAL DESIGN CONCEPT

FINAL DESIGN CONCEPT

Site Master Plan Description

The final site master plan furthers the 2020 vision conceptualizing the longleaf pine demonstration area as a regional destination for longleaf pine restoration and education as well as utilizing the adjacent recreational opportunities of Windsor Castle Park. A naturalistic curvilinear planting design compliments the existing plantings and offers the unique potential to connect with people interested in protecting such an important native tree species with a variety of management strategies.

Planting Configuration

The final design concept depicts a distinct configuration for planting longleaf pines with irregular curvilinear rows. This configuration offers a naturalistic viewing experience that differs from typical linear configurations found in production forestry. Newly planted trees include a 30' buffer from existing vegetation to protect the surrounding areas during prescribed burns.

Trail Connections

An additional trail runs parallel to the existing mature trees located along the western edge of the site. This trail connects to the existing trail located along the southern edge of the site. The new trail also connects with the existing trail running parallel with Jericho Road just north of the newly planted area and runs through the existing fenced LLP demonstration area to Dan Smith Drive.

New trails maintain a 6'-8' buffer on either side from existing vegetation and newly planted LLPs for mowing and maintenance.

Expanded Parking Area

The existing parking area is expanded eastward from 26 standard parking spaces and 2 ADA parking spaces to 81 standard parking spaces, 4 van accessible ADA spaces, and three 50' bus parking spaces. The expanded parking area also has an additional entry/exit along Dan Smith Drive, which provides additional two-way traffic circulation for cars and creates a simple one-way loop for buses.

The following pages contain the final site master plan and perspectives.

Key:

- A Existing LLP Demonstration Area (2020) (3.5 Acres)
- B Additional Walking Path
- C Planted Expansion Area (approx. 200 trees per acre) (8.7 Acres)
- D Existing LLP Educational Area
- E Expanded Parking Lot
 - 81 Standard Spaces (21 existing, 7 removed, 60 added)
 - 4 Van-accessible ADA Spaces
 - 3 Bus Spaces
 - Exceeds minimum dimensions for bus turnaround
- Windsor Castle Park Property Line
- ▭ Nearby Parcel Lines
- Perspective Viewcone
- Existing Trails
- Proposed Trails



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Final Design Concept
Site Master Plan
December 20th, 2022

Key:
 A Additional Entry/Exit Point
 B 50' Bus Parking Spaces
 C Existing Parking Entry/Exit
 ⇄ Two-Way Personal Vehicle Circulation
 → One-Way Bus Circulation



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Final Design Concepts
 Parking Lot Plan Detail
 December 20th, 2022



Perspective 1: Walking Path with Curvilinear Planting Configuration

This perspective shows the added 8' wide walking path looking south and the expanded longleaf pine area with a long, curvilinear planting configuration.



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration
Area Expansion Conceptual Site Master Plan

Final Design Concept
Perspective 1: Walking Path with Curvilinear Planting Configuration
December 20th, 2022



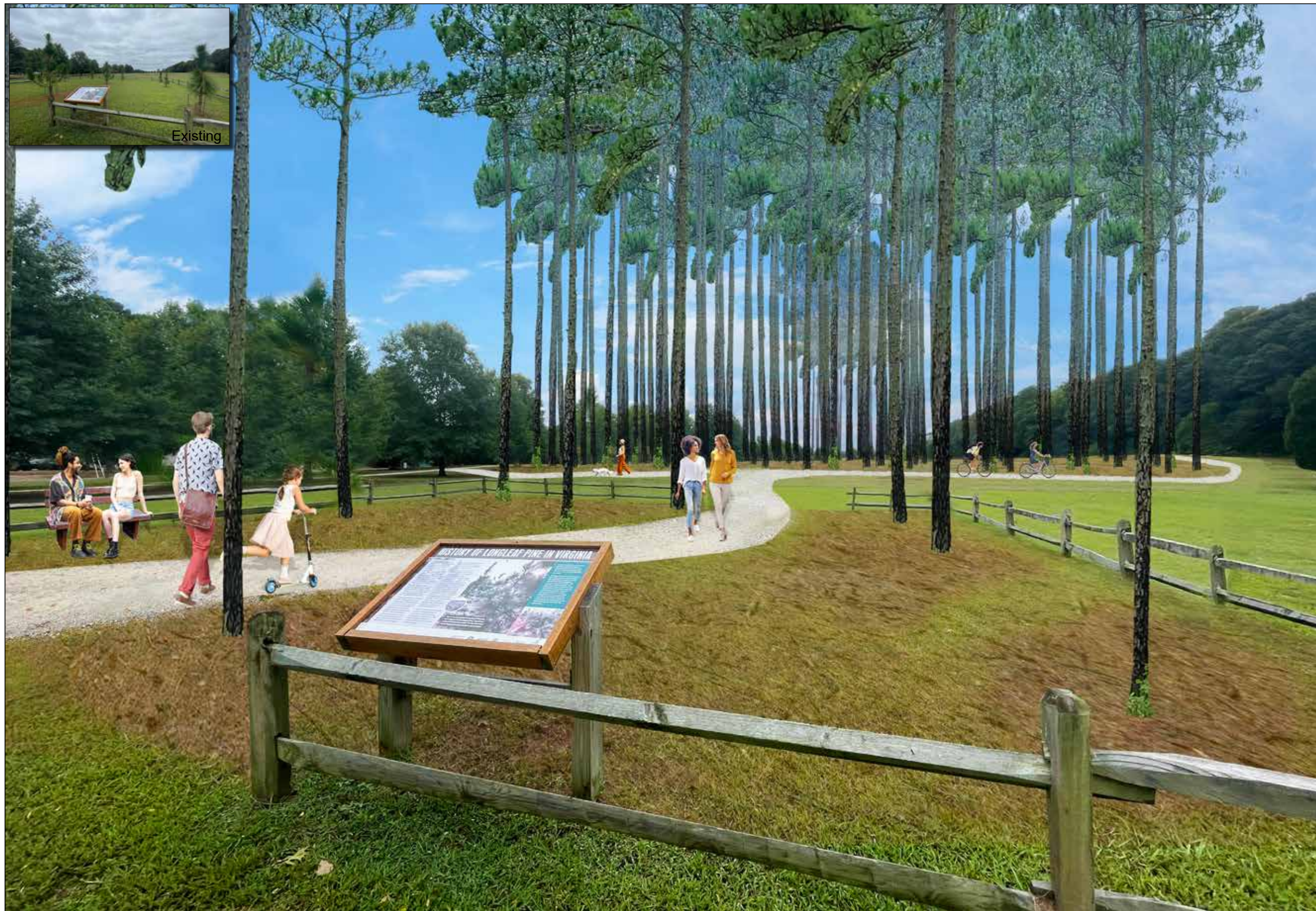
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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Final Design Concept
Perspective 2: Added Trail Through Fenced LLP Demonstration Area
December 20th, 2022



Perspective 2: Added Trail Through Fenced Longleaf Pine Demonstration Area
This perspective shows the new walking path connection through the existing fenced demonstration area with a curvilinear planting configuration.

PART 3: PRELIMINARY DESIGN CONCEPTS



PRELIMINARY DESIGN CONCEPTS

Preliminary Design Concepts

Two preliminary site master plans were presented to the stakeholder group on November 9th, 2022.

Key differences between the preliminary design concepts (following pages; pp. 20-23) and the final design concept (pp. 14-17) are:

- Walking path width increased from 6' to 8' wide to match existing trails
- Proposed walking path joins existing path and is routed through existing fenced demonstration area
- Updated key to reflect 200 trees per acre (trees left as-is for illustrative purposes)
- Four ADA parking spots added to final design

In early December 2022, the Windsor Castle Park Foundation organized a volunteer event where approximately fifty volunteers planted longleaf pine seedlings in a curvilinear design.

The following pages include the preliminary site master plans and perspective images.

Key:

- A Existing LLP Demonstration Area (2020) (3.5 Acres)
 - B Additional Walking Path
 - C Planted Expansion Area (1073 trees; approx. 160 trees per acre) (8.7 Acres)
 - D Existing LLP Educational Area
 - E Expanded Parking Lot
 - 88 Standard Spaces (24 existing, 4 removed, 64 added)
 - 3 Bus Spaces
 - Exceeds minimum dimensions for bus turnaround
- Windsor Castle Park Property Line
- ▭ Nearby Parcel Lines
- Perspective Viewcone



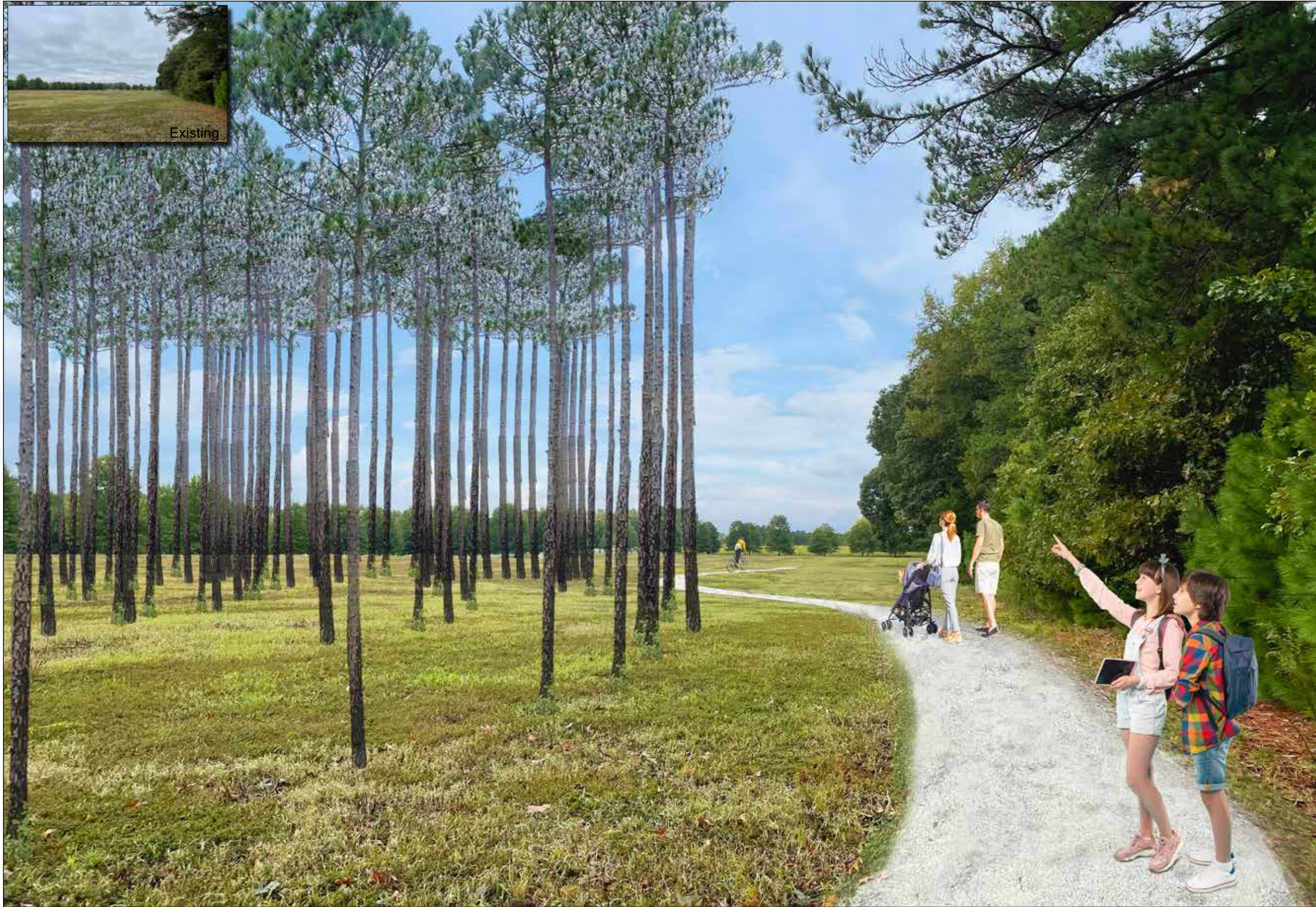
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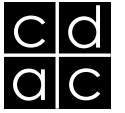
Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Preliminary Design Concepts
Site Plan - Curvilinear Planting Layout
November 9th, 2022



Perspective 1: Walking Path with Curvilinear Planting Configuration

This perspective shows the added 6' wide walking path looking south and the expanded longleaf pine area with a long, curvilinear planting configuration.



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration
Area Expansion Conceptual Site Master Plan

Preliminary Design Concepts
Perspective 1: Walking Path with Curvilinear Planting Configuration
November 9th, 2022

Key:

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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Preliminary Design Concepts
Site Plan - Linear Planting Layout
November 9th, 2022



Perspective 2: Walking Path with Linear Planting Configuration

This perspective shows the added 6' wide walking path looking south and the expanded longleaf pine area with a linear planting configuration and staggered rows.



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Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration
Area Expansion Conceptual Site Master Plan

Preliminary Design Concepts

Perspective 2: Walking Path with Linear Planting Configuration
November 9th, 2022

PART 4: APPENDIX

APPENDIX

Meeting Notes

Stakeholder Input Session

October 4th, 2022

Present:

Amy Novak, Town of Smithfield

Henry McBurney, Windsor Castle Park Foundation

Scott Bachman, Virginia Department of Forestry

Updates from 3-acre plan (2020):

- Maintenance building will now be located at different site in the county
- Keep concrete pad
- Keep existing laydown yard where it is
- Illustrate trail tie-in between 2020 plan and 2022 expansion

Initial Design Ideas:

- Expand parking lot with bus parking and turnaround adjacent to existing parking lot
- Add walking path parallel to existing trail and wooded area
- Keep 6-8' wide strip for mowing on either side of the walking path
- Create 30' buffer from existing trees on all sides for prescribed burning
- They will be planting the site at 200 trees per acre with 15 radius per tree
- Maintain visible break from existing mow lines
- Stagger planted rows

APPENDIX

Preliminary Design Presentation

November 9th, 2022

Present:

Amy Novak, Town of Smithfield

Henry McBurney, Windsor Castle Park Foundation

Notes:

- Site will be maintained by prescribed burns every 2-3 years so the 6-8' mow path does not need to happen between tree rows.
- They will be 15' trunk to trunk
- 200 trees per acre or 1400 trees on 7.5 acres
- 30' buffer with 6'-8' on either side of the path to mow
- Once trees are 15' tall, they drop a lot of needles and prune themselves
- Run the trail through the existing fenced area (fence rails will need to be removed) and have the trail link to the trails on either side.
- The only thing to add to these drawings from the old plan is the path that parallels Jericho Road (don't add parking lot, laydown pad, or maintenance building)
- Include both linear and curvilinear options in final design. Either leave as is for illustrative purposes or do with exact counts. The main thing that is needed is to show the envelope of space needed.
- Check ADA requirements for parks, sidewalks leading from spaces, surfaces, and if the route from parking space to destination can go on a road. Use crusher run or some kind of hard-packed surface if possible.
- Have a total of 4 ADA spaces. Parking lot will be asphalt.
- For cross country events, 8-10 buses come, but they park on the grass. This parking lot will be exclusively for park and LLP visitors.

APPENDIX

2020 Site Master Plan

Design Description

The site master plan envisions the longleaf pine demonstration area as a regional destination for longleaf pine restoration and education while also utilizing the adjacent recreational opportunities of Windsor Castle Park. Two distinctly different longleaf pine planting styles offers unique potential to connect with people interested in protecting such an important native tree species with a variety of management strategies.

Main Entrance and Parking

The entrance to the longleaf pine demonstration area is located off of Jericho Road and is marked by a large brick welcome sign. The welcome sign is large enough that it is visible from HW 258 and has a variety of colorful perennial flowers at its base. After visitors enter the site there is a permeable paving parking area that has enough room for 31 vehicles. There are 29 standard spaces and 2 ADA spaces. Permeable paving, an alternative to traditional asphalt or gravel surfacing, is both durable and environmentally friendly. The porous nature of a permeable paving system allows rain water to pass through instead of sheeting off into a centralized storm water system. Each space is delineated with striping and a concrete parking stop barrier. For more information on permeable paving, please visit: <https://vaswcd.org/permeable-pavement-installation>

Trail Connections and Site Amenities

Visitors enter the site through the northeast corner of the parking lot. An information kiosk highlights the longleaf pine as a native species, the two distinct habitat/planting styles present at the demonstration area, management practices, and a trail map. Benches are located outside of the large, contoured planting area so that prescribed fires can be utilized without compromising the wooden benches. Further, the benches are oriented inward for best viewing of the planting areas.

Other amenities of the demonstration area include periodic environmental education panels located along the walking trail and bike racks at the information kiosk (bicycles are not allowed along the pedestrian trails). Three portable toilets are located in the northwest corner of the parking area. The toilets are surrounded on two sides with a wooden privacy fence. Further west of the portable toilets and across the maintenance road is a small picnic shelter, containing 2-3 picnic tables, where small groups can gather for a picnic or educational gathering.

Habitat Management

Central to the longleaf pine demonstration area is how each of the two planting styles is maintained. First, the specimen planting area is located on the eastern one-third of the demonstration area and closest to Jericho Road. This area is planted in uniform rows and the understory vegetation is kept neat with regular maintenance. Second, the contoured planting area is located on the western two-thirds of the demonstration area. This area is planted in a more “natural” arrangement and the understory

APPENDIX

vegetation is left to grow throughout the season. Prescribed fires, a controlled burning process, can be conducted in partnership with the Virginia Department of Forestry and local fire departments to reduce understory vegetation and improve to overall health of the longleaf pine stand. It may not be necessary to perform prescribed fires on an annual basis but rather on an as-needed basis. A walking trail divides the two planting areas and serves as a fire break during burning.

Due to the unique nature of prescribed burns as a management strategy, it is an excellent opportunity for community outreach and environment education. Special events can be held in conjunction with the scheduled burns to raise awareness of the benefits of wildfires and provide the general public with opportunities to safely witness such an event in a controlled environment.

CDAC strongly encourages the Windsor Castle Park Foundation to continue to work with representatives from the Virginia Department of Forestry (VDOP) in managing the longleaf pine demonstration area. This office an excellent resource for long-term care, prescribed fires (including obtaining necessary permits), and community outreach related to forestry and forestry management. Prescribed fires should never be lit without prior approval of necessary officials or without the close supervision of professionals.

Contact information for the VDOP Isle of Wight County Senior Area Forester:

Scott Bachman, Senior Area Forester
Virginia Department of Forestry
757-653-2777
21615 Governor Darden Road
Courtland, Virginia 23837

Site Maintenance

Along the western edge of the site is a dedicated area for maintenance materials and equipment. There is a small maintenance building that provides a space out of the elements to work on equipment or store items that need to be secured. The building is neutrally colored in order to blend in with the existing tree stand behind it. Piles of gravel or stone are located to the east of the building. This maintenance area has a limited access roadway that is typically closed to the general public with a gate.

The following page contains the site master plan.

Smithfield, VA: Windsor Castle Park Longleaf Pine
Demonstration Area Expansion Conceptual Site Master Plan

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- Key**
- A Main Entrance
 - B Welcome Sign
 - C Parking w/ Permeable Paving; 31 Total Spaces
2 ADA Spaces
29 Standard Spaces
 - D Information Sign w/ Trash/Recycling Receptacles and Bike Racks
 - E Walking Trail w/ Benches, Fitness Stations
 - F Longleaf Pine Demonstration Area
F₁ Specimen Planting Area
F₂ Contoured Planting Area
 - G Trail Crosses Culvert and Drainage Ditch
 - H Material Laydown Yard
 - I Maintenance Building
25' x 15' (375 sq. ft.)
Single Bay Garage Door
 - J Maintenance Building Access Road
 - K Picnic Shelter
20' x 15' (300 sq. ft.)
(2) 8-person tables
 - L Maintenance Gate
 - M Portable Toilets
-Wooden Fence Screen
-2 Standard Units
-1 ADA unit
 - * Existing Feature
 - < Perspective Viewshed



Smithfield, VA: Windsor Castle Park Longleaf Pine Demonstration Area Expansion Conceptual Site Master Plan

Final Design Concept
Site Master Plan
July 16, 2020