

# **Preliminary Engineering Report**

## **Wilson Estates Subdivision – Phase I**

Located in:

Town of Spindale  
Rutherford County North Carolina

Prepared for:

Rutherford County Habitat for Humanity  
686 W Main Street  
Forest City, NC 28043

August 1, 2024

Prepared by:



169 Oak Street  
Forest City, North Carolina 28043  
(828) 247-4495 fax (828) 247-4498

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### *Executive Summary:*

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Rutherford County Habitat for Humanity owns two parcels of real property in Rutherford County, North Carolina, for the purpose of developing a single-family residential development with approximately 100 lots. Phase I of this project would create 31 lots.

The subject parcel numbers are 1203593 and 1652378 which lie off Whitesides Road and at the end of Wilson Road and just outside the jurisdictions of the Town of Rutherfordton, Town of Ruth and Town of Spindale. The parcel has been recently voluntarily annexed into the Town of Spindale considering the potential for connection to the Town of Spindale's sanitary sewer system.

It is intended that the proposed development will utilize the entire 43.3 acres for a multi-phased development consisting of an estimated 71 lots. Phase I of this project will include an estimated 31 lots ranging in size from 0.33 acres to 0.78 acres encompassing roughly 15 acres of the site.

As an aid for determining feasibility of the project, Rutherford County Habitat for Humanity engaged Odom Engineering, PLLC to perform this preliminary engineering report for costs estimates for the following:

- Erosion Control Measures
- Mass Grading
- Stormwater
- Streets
- Public Water Extension and Relocation
- Public Sanitary Sewer Extension

Not included:

- Sidewalks
- Natural Gas
- Electric Power
- Telecommunications



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### ***Uses and characteristics of adjacent properties.***

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The project parcel is currently a wooded, undeveloped property. The surrounding parcels to the North, South and West are single family residential. There is undeveloped property to east across Reynolds Creek that is wooded, undeveloped property.

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### ***Property's legal encumbrances due to easements, rights of way acquisition, or eminent domain.***

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A preliminary survey of the project area has not yet been completed, but known or assumed incumbrances for the site area include the following:

- Sanitary Sewer Gravity Line Easement – Town of Spindale, with manholes and pipe crossing the eastern boundary of the project area, generally east and parallel to the Reynolds Creek.
- A regulatory floodway, approximately 0.99 acres on the eastern property line with source being Reynolds Creek.
- A 16-inch cross-country waterline crossing running North to South at roughly the midpoint of the parcel. This will need to be considered with site design.

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### ***Environmental Impacts***

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#### **Land Use**

The two parcels making up the project site lie within the Town of Spindale and are currently subject to Spindale zoning and development requirements.

It is intended that on completion, the entire subdivision will lie within the Town of Spindale limits, under zoning compatible with the proposed subdivision and with future land use plans of the Town of Spindale. See Appendix 1 and 2 for Site Map and Conceptual Map/Orientation.

#### **Stormwater**

Appropriate stormwater and erosion control measures will be included in the project design and implemented during the construction phases to avoid unnecessary impacts to receiving waters. Proper permits will also be obtained prior to construction.

## **Floodplains**

The proposed project site will not be located within the floodplain nor a floodway. As shown on the attached Appendix 3.

## **Wetlands Map**

Initial site information reveals potential wetlands are on the parcel in the northernmost portion of the property. Phase I of this project will not need to cross the wetlands in this area, therefore no clearing or impacts to the wetlands are anticipated with this phase. Future phases will need to be evaluated for lot layout and potential impacts. The Class C Surface Water Reynolds Creek lies on the east portion of the property. See Appendix 4.

## **Historic Preservation**

The North Carolina State Historic Preservation Office (SHPO) GIS service does not show historic properties in the vicinity of the project area. A map from the SHPO website is provided in the attached Figure. No adverse impacts to historic properties are anticipated. See Appendix 5.

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## ***Availability of water, sewer and power utilities.***

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### **WATER AND SEWER AVAILABILITY:**

#### **Water**

The Broad River Water Authority (BRWA) is the area service provider for water services.

#### **Phase I – Flow Calculations**

31 homes X 400 GPD/home = **12,400 Gallons per Day**

BRWA has the infrastructure and capacity to provide 12,400 GPD.

BRWA will require that the Waterline connect to the 16-inch waterline crossing the property from North to South. BRWA will require a loop of the waterline back to Whitesides Road and possibly Wilson Road (2-inch).

#### **Sewer**

The Town of Spindale is the area service provider for wastewater treatment services.

## **Phase I – Flow Calculations**

31 homes X 3 bedrooms X 75 GPD/bedroom = **6,975 Gallons per Day**

The Town of Spindale has the infrastructure and capacity to provide 6,975 GPD.

Public sewer is accessible on the subject property along Reynolds Creek.

Water and sewer installation will have to be installed within ROW and within easements granted to the appropriate entity.

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### ***Regulatory agencies that will have jurisdiction in the civil engineering and land planning.***

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Regulatory agencies that will have jurisdiction in the civil engineering and land planning for this project include:

- Town of Spindale – Spindale, NC
  - Sewer
  - Subdivision Planning Approval
- Rutherford County
  - Building Permits
- Broad River Water Authority – Rutherfordton, NC
  - Water
- North Carolina Department of Transportation / NCDOT for SR1543 and SR1538
  - Utility Encroachments
  - Driveway Permits
  - Traffic Impact Analysis, if required.
- State of North Carolina
  - Erosion Control and Stormwater
- Army Corps of Engineers
  - Stream Crossing & Wetlands Impacts, if required.

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## *Summary*

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A cost estimate has been provided and attached in Appendix 5 for Phase I construction of 31 homes. Based on this preliminary estimate, Odom Engineering recommends the following project budget:

### Estimated Project Budget

Construction Estimate	\$	1,765,000
Engineering Services	\$	192,500
Total Estimate	\$	1,962,500

## **APPENDICES**

- Appendix 1      Site Map
- Appendix 2      Conceptual Map/Orientation
- Appendix 3      NC Flood Map - FIRM
- Appendix 4      National Wetlands Inventory Map
- Appendix 5      NCSHPO Map (Historic Preservation)
- Appendix 6      Cost Estimate



PROPOSED  
SITE PROPER- APPROXIMATELY 44.98 ACRES  
COMBINED PINS 1620545762 & 1620454247

PROPOSED ACCESS FROM  
SITE PROPER TO WILSON RD

PROPOSED SECONDARY ACCESS FROM  
SITE PROPER TO WHITESIDES RD

POSSIBLE STREAM BUFFER  
AREA TO BE DELINEATED


FLOOD ZONE AE

PARCEL INFORMATION:

OWNER: RUTHERFORD COUNTY HABITAT FOR  
HUMANITY INC  
PO BOX 1534  
RUTHERFORDTON, NC 28043  
PROPERTY ADDRESS: O WILSON ROAD  
PARCEL NO.: 1652378  
PIN: 1620545762  
MAP BLOCK LOT: 137-1-37  
ACREAGE: 43.43  
DEED BOOK: 2068 PAGE: 2267  
PLAT BOOK: 43 PAGE: 145  
TOWNSHIP: RUTHERFORDTON

SITE DEVELOPMENT PLANS FOR  
WILSON ESTATES  
A HABITAT for HUMANITY PROJECT  
SPINDALE RUTHERFORD COUNTY, NC  
ORIENTATION MAP

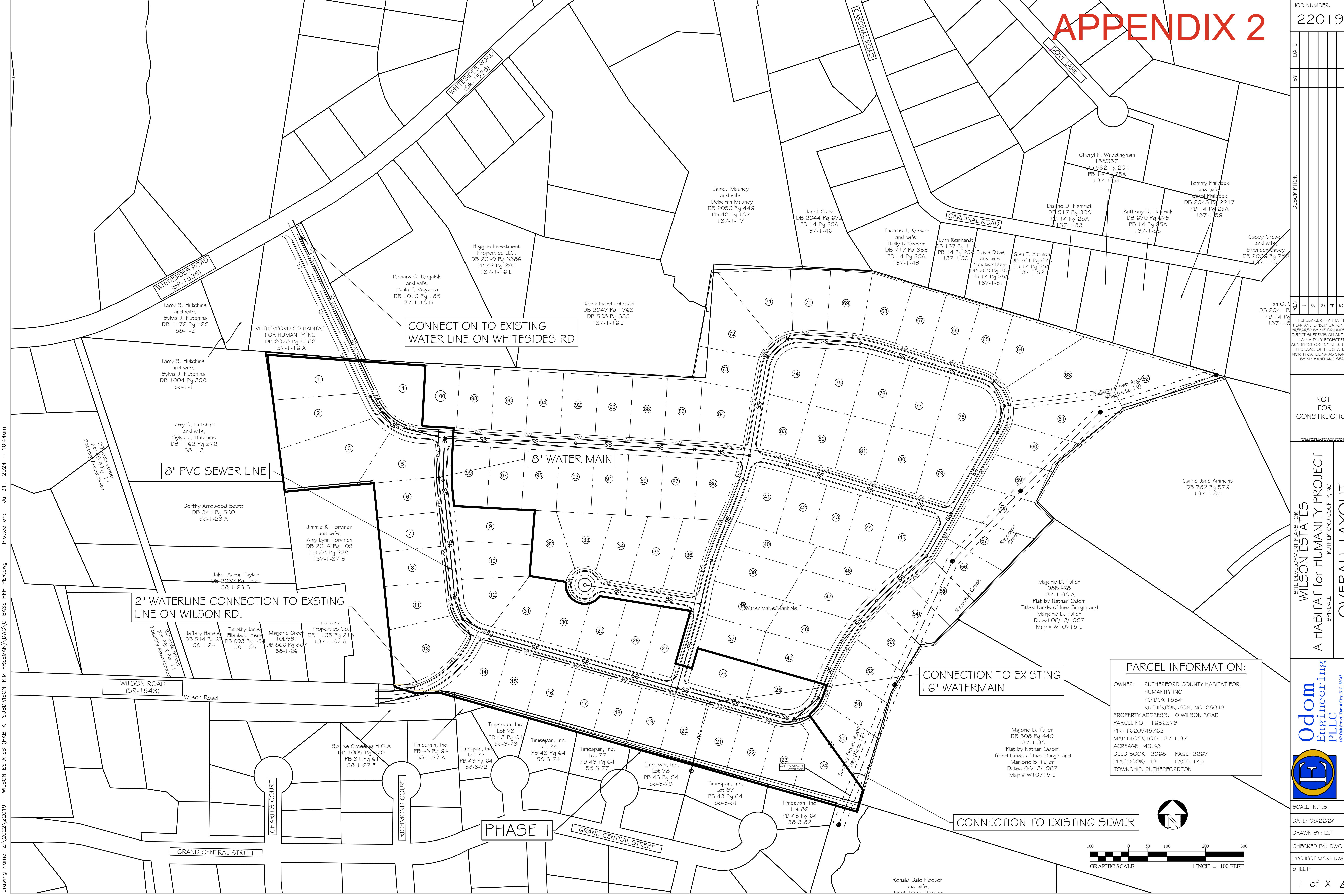
**Odom  
Engineering  
PLLC**  
609 Oak Street, Forest City, N.C. 28043



SCALE: N.T.S.
DATE: 05/22/24
DRAWN BY: LCT
CHECKED BY: DWO
PROJECT MGR: DWO
SHEET:
1 of X

Drawing name: Z:\2022\2019 - WILSON ESTATES (HABITAT SUBDIVISION-KIM FREEMAN)\DWG\C-BASE HFH PER.dwg Plotted on: Jul 31, 2024 - 4:43pm





APPENDIX 2

JOB NUMBER:  
22019

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

I HEREBY CERTIFY THAT THIS PLAN AND SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ARCHITECT OR ENGINEER UNDER THE LAWS OF THE STATE OF NORTH CAROLINA AS SIGNIFIED BY MY HAND AND SEAL.

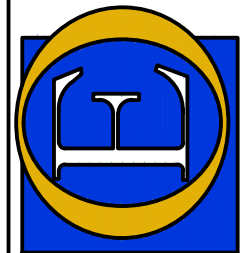
NOT FOR CONSTRUCTION

CERTIFICATION

SITE DEVELOPMENT PLANS FOR  
WILSON ESTATES  
A HABITAT FOR HUMANITY PROJECT  
SPINDALE RUTHERFORD COUNTY, NC

OVERALL LAYOUT

Odom Engineering PLLC



SCALE: N.T.S.

DATE: 05/22/24

DRAWN BY: LCT

CHECKED BY: DWO

PROJECT MGR: DWO

SHEET:  
1 of X

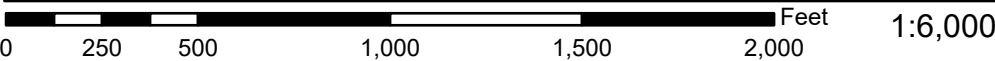
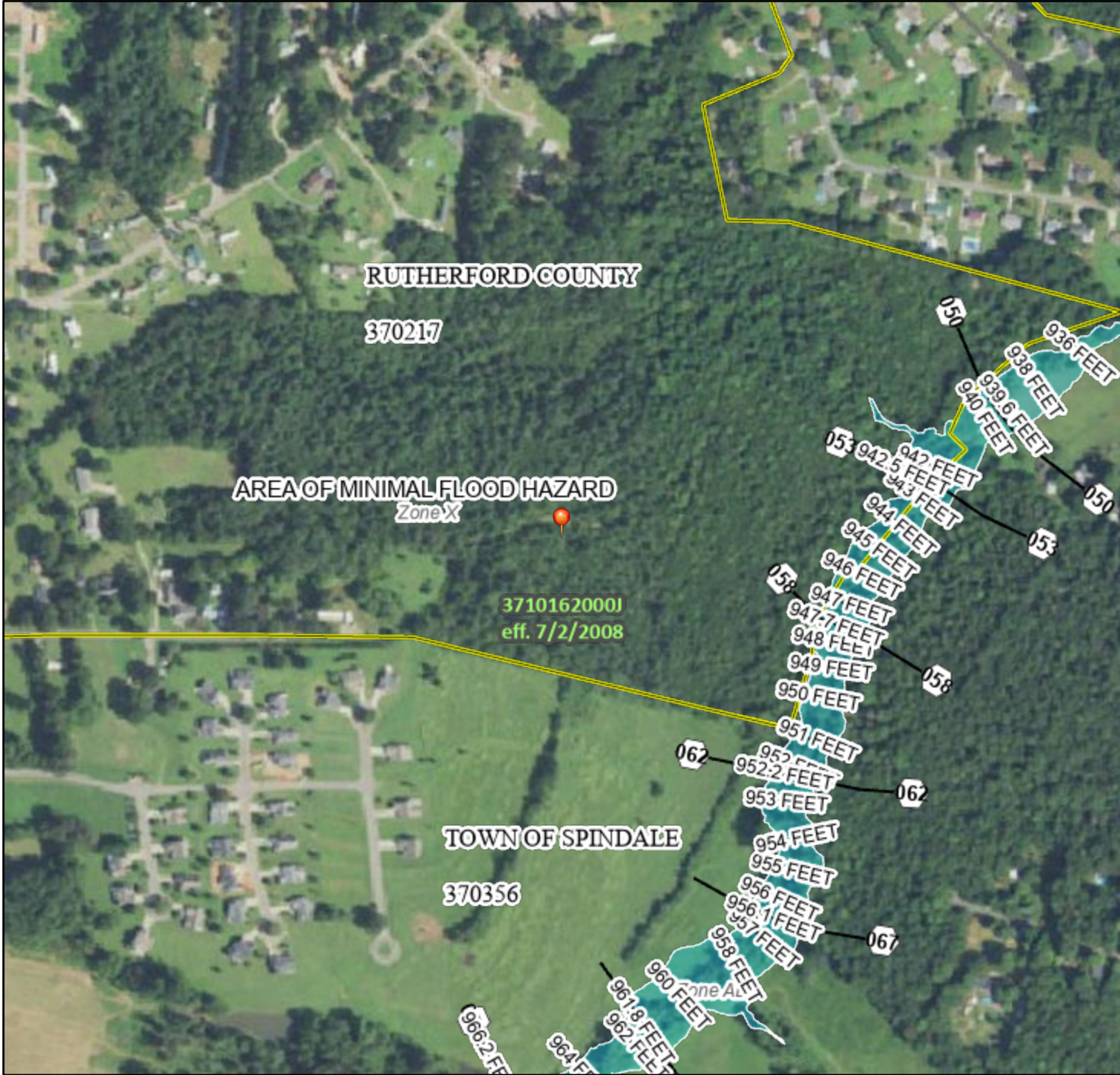
Drawing name: Z:\2022\22019 - WILSON ESTATES (HABITAT) SUBDIVISION-KIM FREEMAN\DWG\C-BASE-HPH-PER.dwg Plotted on: Jul 31, 2024 - 10:44am



# National Flood Hazard Layer FIRMMette



81°56'24"W 35°22'46"N



Basemap Imagery Source: USGS National Map 2023

## Legend APPENDIX 3

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/30/2024 at 1:47 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



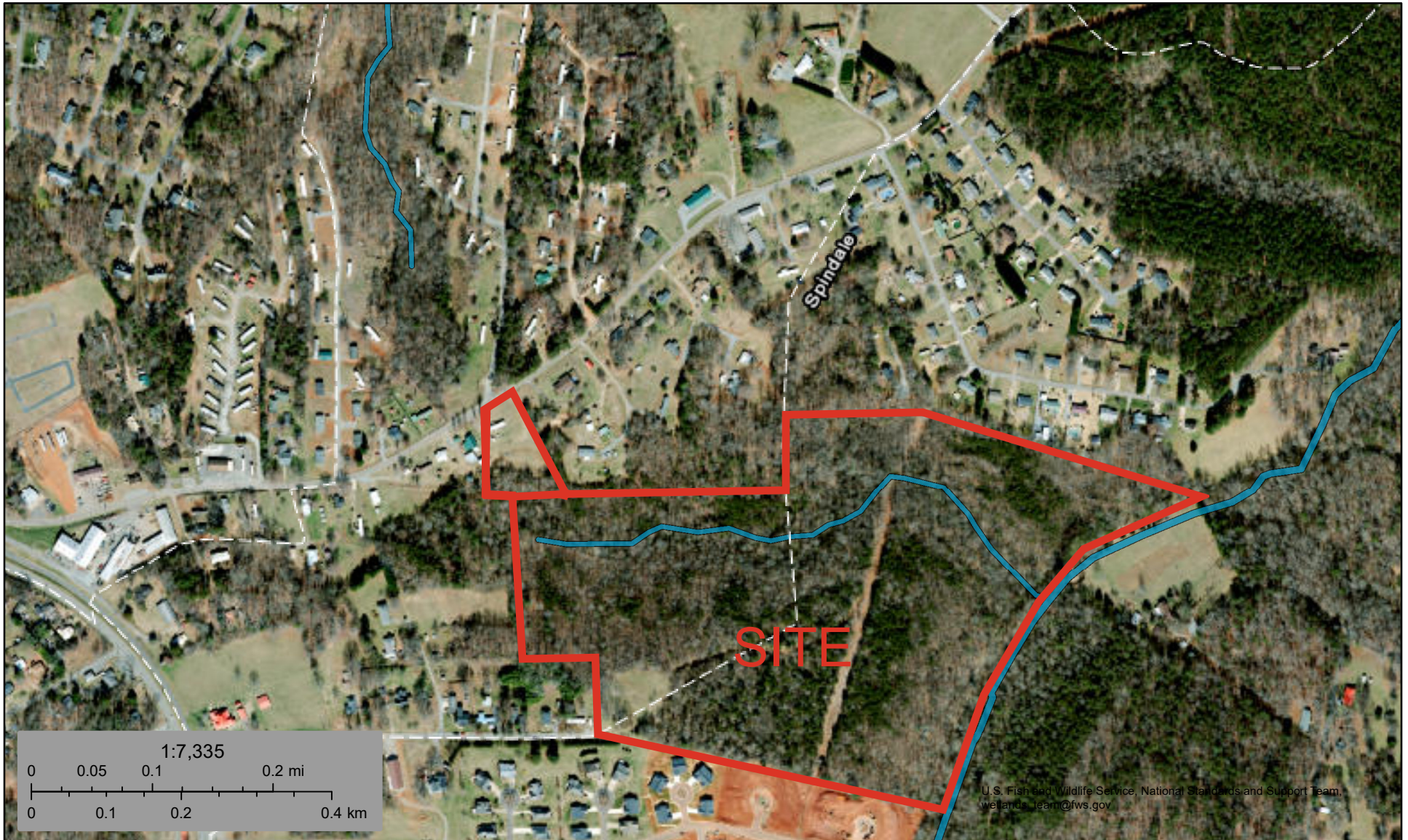


U.S. Fish and Wildlife Service

## National Wetlands Inventory

## Habitat for Humanity - Spindale NC

### APPENDIX 4



U.S. Fish and Wildlife Service, National Standards and Support Team,  
wetlands\_team@fws.gov

July 31, 2024

### Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



NC SHPO MAP





# APPENDIX 6

## WILSON ESTATES SUBDIVISION FOR HABITAT FOR HUMANITY Phase I - Single Family Development

Item Description		Quantity	Unit	Unit Price	Cost
1	Mobilization	1	LS	\$ 40,000.00	40,000.00
<b>Sediment &amp; Erosion Control (Labor, Materials &amp; Equipment)</b>					
2	Site Grading	1	EA	\$ 75,000.00	75,000.00
3	Temporary Construction Entrance	2	EA	\$ 5,000.00	10,000.00
4	Silt Fence	5,000	LF	\$ 4.00	20,000.00
5	Skimmer Basin	1	LS	\$ 12,000.00	12,000.00
6	Temporary Diversion Berms	500	LF	\$ 4.00	2,000.00
7	Permanent Diversion Berms	500	LF	\$ 5.00	2,500.00
8	Clearing and Grubbing	15	AC	\$ 5,000.00	72,500.00
9	Seeding	13	AC	\$ 4,000.00	52,000.00
<b>Roadway work (Labor, Materials &amp; Equipment)</b>					
10	Asphalt Road - 6" ABC, 2" Binder, 1" Surface	7,125	SY	\$ 60.00	427,500.00
11	Curb and Gutter - Valley	5,025	LF	\$ 20.00	100,500.00
12	Street Signs	1	LS	\$ 5,000.00	5,000.00
<b>Stormwater (Labor, Materials &amp; Equipment)</b>					
13	Storm Pipe (18" HDPE)	1,000	LF	\$ 80.00	80,000.00
14	3 x 3 Catch Basin - Includes Box, Hood, Frame & Grate	10	EA	\$ 5,500.00	55,000.00
15	3 x 3 Junction Box - Includes Box & Manhole Access Lid	3	EA	\$ 5,500.00	16,500.00
16	Flared end Sections	1	EA	\$ 500.00	500.00
17	18" HDPE Entrance Culverts	80	LF	\$ 80.00	6,400.00
<b>Sanitary Sewer - Labor &amp; Equipment Cost</b>					
18	Install 8" PVC Sewer Line (C900 DR-21)	1,700	LF	\$ 75.00	127,500.00
19	Sewer Manhole - 4 ft Diameter	10	EA	\$ 7,000.00	70,000.00
20	Install 4" Sewer Laterals w/Cleanouts	31	EA	\$ 1,750.00	54,250.00
<b>Water Main Extension - Labor &amp; Equipment Cost</b>					
21	8" PVC C900 Waterline	2,800	LF	\$ 60.00	168,000.00
22	8" Fittings	1,000	LBS	\$ 10.00	10,000.00
23	8" Underbore - Whitesides Road water looping	40	LF	\$ 500.00	20,000.00
24	2" SDR 13.5 Waterline with Valves and Fittings	360	LF	\$ 30.00	10,800.00
25	16" X 8" Tapping Sleeve w/ valve	1	EA	\$ 12,000.00	12,000.00
26	8" X 8" Tapping Sleeve w/ valve	1	EA	\$ 8,000.00	8,000.00
27	8" Gate Valves	4	EA	\$ 3,500.00	14,000.00
28	Hydrant Assembly complete w/valve - exclude materials	5	EA	\$ 8,000.00	40,000.00
29	Air Release Valve Complete with Mahhole - exclude materials	1	EA	\$ 3,000.00	3,000.00
30	Water Meter Laterals and Boxes	31	EA	\$ 2,200.00	68,200.00
<b>Allowances</b>					
31	Street Light Allowance - Decorative Lights	1	LS	\$ 20,000.00	20,000.00
<b>Construction Subtotal</b>					\$1,603,150.00
<b>Contingency (10%):</b>					\$160,315.00
<b>Design Engineering:</b>					\$112,220.50
<b>Construction Admin/Inspection:</b>					\$80,157.50
<b>TOTAL CONSTRUCTION ESTIMATE</b>					<b>\$1,955,843.00</b>