Pender County
Planning and Community Development

805 S. Walker Street
PO Box 1519
Burgaw, NC 28425

Phone: 910-259-1202
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www.pendercountync.gov

AGENDA
Pender County Planning Board
Wednesday, September 6, 2017 7:00 p.m.
Pender County Public Assembly Room
805 S. Walker Street, Burgaw, North Carolina

Call to Order: Chairman Williams

Roll Call: Chairman Williams
Pender County Planning Board Members:
Williams: __ Fullerton __ Baker: __ Carter: __ Jordan: __ McClammy: __ Nalee: __

1. **Adoption of the Agenda:**

2. **Adoption of the Minutes: (August 1, 2017)**

3. **Public Comment:**

(Public Hearings Open)

4. **Major Site Development Plan: (Tabled from 8/1/2017)**
River Rock Farms, LLC., applicant, on behalf of HCT Pender, LLC., owner, is requesting the approval of a Major Site Development Plan for a Wastewater Treatment Facility (NAICS 221320) for the previously approved mixed use development known as Lane's Ferry (Case 11369). The Major Site Development Plan for the Wastewater Treatment Facility is included in Phase I, approximately 31.7 acres. The portion of the property for the Wastewater Treatment Facility is north of NC HWY 210 and approximately 2,000 feet to the west of the intersection of Moore Town Road (SR 1518) and NC HWY 210 in the Rocky Point Township and may be further identified as Pender County PIN: 3245-84-0109-0000

5. **Conditional Zoning Map Amendment: (Tabled from 8/1/2017)**
Hardison Building Company, applicant, on behalf of Gerald D. Hardison, owner, is requesting the approval of a Conditional Zoning Map Amendment for one (1) tract totaling approximately ±326.15 acres from RA, Rural Agricultural zoning district to RM-CD3, Residential Mixed Conditional zoning district 3, and an additional three (3) tracts as part an overall Master Development Plan for a total of ±347.23 acres. This request is to allow for single family and single family townhome residential units. The subject properties are located along the south side of NC HWY 210 approximately ± 2,100 feet to the east of the intersection of NC HWY 210 and Island Creek Road (SR 1002) in the Topsail

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Anyone wishing to address the **Pender County Planning Board** shall make a request on the "Public Comment" **sign-up sheet. Please provide the information requested.**

If you wish to speak on ***a specific public hearing item***, please sign-in on the appropriate "Public Hearing" **sign- up sheet.** Speakers will be allowed to speak *prior* to any action/vote taken by the Board.

*****A time limit of **two** minutes per speaker or up to **ten** minutes for groups of five or more, with a designated speaker will be imposed.

Township and may be further identified by Pender County PINs: 3273-50-0693-0000, 3273-71-1319-0000, 3273-61-9426-0000, and 3273-32-7562-0000.

6. **Zoning Text Amendment:**
   Pender County, applicant, is requesting the approval of Zoning Text Amendments to the Pender County Unified Development Ordinance. Specifically, the request is to amend the density calculation and provide clear standards for density bonuses for mixed-use developments in the RM, Residential Mixed and PD, Planned Development zoning districts. Section 4.8.1.C shall be moved to Section 4.6.7 with further clarification of superior design elements for additional densities. A detailed description of the proposed changes is available in the Pender County Planning and Community Development Department Offices.
   (Public Hearings Closed)

7. **Discussion Items:**
   a. **Planning Staff Items: (outstanding items from the Work Session)**

   b. **Planning Board Members Items:**

8. **Next Meeting:** October 3, 2017

9. **Adjournment:**

PLANNING STAFF REPORT
MAJOR SITE DEVELOPMENT PLAN REVISION

SUMMARY:

Hearing Date:	August 1, 2017	Planning Board tabled
	September 6, 2017	
Applicant:	River Rock Farms, LLC.	
Property Owner:	HCT Pender, LLC.	
Case Number:	594-2017	

Land Use Proposal: River Rock Farms, LLC., applicant, on behalf of HCT Pender, LLC., owner, is requesting the approval of a Major Site Development Plan for a Wastewater Treatment Facility (NAICS 221320) for the previously approved mixed use development known as Lane's Ferry (Case 11369).

Property Record Number, Acreage, and Location: The portion of the property for the Wastewater Treatment Facility is north of NC HWY 210 and approximately 2,000 feet to the west of the intersection of Moore Town Road (SR 1518) and NC HWY 210 in the Rocky Point Township and may be further identified as Pender County PIN: 3245-84-0109-0000.

Zoning District of Property: The subject property is currently zoned PD, Planned Development zoning district and in this case, per the Pender County Unified Development Ordinance §5.2.3 Table of Permitted Uses; Sewage Treatment Facility (NAICS 221320) is permitted in conjunction with the Master Development Plan process in the PD, Planned Development zoning district.

RECOMMENDATION

Planning Staff is submitting the proposal for Planning Board disposition. The request is consistent with two (2) policies, one (1) goal, and conflict with no policies included in the 2010 Pender County Comprehensive Land Use Plan and Pender County Unified Development Ordinance, as well as, other approved planning documents. Therefore, Planning Staff recommends the approval of the Major Site Development request as detailed in the report.

HISTORY

The Master Development Plan proposal was conditionally approved from the June 2, 2015 Planning Board (Attachment 1).

The Major Site Development application for the Wastewater Treatment Facility was originally held on August 1, 2017, but was tabled at the request of the applicant to better address the concerns of the Planning Board members as well as the neighboring citizens such as noise, odor, and groundwater quality. Since the first hearing the applicant has updated their submittal by consulting with a wastewater engineer. Additionally, they have reached out to property owners who spoke at the hearing to speak with them regarding their concerns directly.

DEVELOPMENT PROPOSAL

River Rock Farms, LLC., applicant, on behalf of HCT Pender, LLC., owner, is requesting approval of a Major Site Development Plan approval for the construction and operation of an onsite Wastewater Treatment Facility (NAICS 221320) in the mixed use development known as Lane's Ferry. As depicted on the approved Master Development Plan, the facility will be built during Phase I of the proposed development, encompassing a treatment area of ± 31.7 acres out of the total Phase I area of ± 221.86 acres.

Buffers

All landscape and buffers are to be approved in accordance with Section 8.2.8, Project Boundary Buffer of the Pender County Unified Development Ordinance. In Planned Developments, the following buffers are required;

- Buffer 'A' along all boundaries adjacent to a street;
- Buffer 'B' along all other boundaries;
- Buffer 'C' is required along all boundaries adjacent to single family residential uses or residential lots with a parcel size of less than one (1) acre and when a single-family structure is within fifty (50) feet of the boundary of the development.

The applicant is proposing a twenty-foot (20') C-3 Buffer around the perimeter of the wastewater treatment site, which will include six (6) foot evergreen hedges and one (1) canopy tree per 100 lineal feet. Along Roads 'F', 'C', and 'D' the applicant has proposed a thirty-foot (30') A-4 Buffer to include one (1) canopy tree and two (2) understory trees per 100 lineal feet. The buffers submitted are sufficient to meet Section 8.1.6.A.1.a of the Pender County Unified Development Ordinance.

Street Connectivity and Access

The submitted site plan has proposed direct access to what is labeled as Road 'C', which is a public road, that will serve as the primary means of ingress and egress.

The PD, Planned Development zoning district per Section 4.8.1.E requires reasonable access to be provided to adjacent properties for development. Adequate connections to adjacent parcels will promote interconnectivity and build road networks throughout the County. Per Section 7.5.3.C.5 these roadways are required to be designated as public when connected to adjacent parcels. As previously mentioned, these street connections are required to be built and dedicated as public and the applicant has demonstrated this requirement within the proposal. This project includes proposing both public and private roadways. Public and private roadways are required to be built to NCDOT subdivision road standards as outlined in the NCDOT Subdivision Manual published in January 2010. Public roadways are subject to NCDOT review and approval through district approval, the applicant is required submit plans to the NCDOT for approval prior to Pender County subdivision approval. The Private street can be seen to the right in blue and the Public to be dedicated to NCDOT streets appear in green.

Parking

Per the site plan, thirteen (13) parking spaces will be provided. Per Section 7.10.1, the Industrial category specifically states that for Waste-Related Services 1 parking space shall be required per 500 square feet of enclosed floor area plus one parking space per 5,000 square feet of outside storage area. Based upon this calculation, the applicant would need to provide 13 parking spaces to meet the minimum standard. Per Section 7.10.1, the parking provided by the applicant is in compliance with the Pender County Unified Development Ordinance.

Traffic

Per Section 6.1.2.A.15 a Traffic Impact Analysis (TIA) is required when the development generates 100 trips in the morning or peak hours or 1,000 trips per day. The Traffic Impact Analysis must state the dates and times the counts were conducted. The TIA was conducted for the Master Development Plan and the approval letter can be found in Attachment 2.

Utilities

Water service shall be provided through a public distribution system to be owned and operated by Pender County Utilities (Attachment 3). Sanitary sewer service shall be provided through construction of collection system and onsite wastewater treatment facility to be owned and operated by the homeowner's association (HOA). The HOA shall be formed to guarantee continual maintenance of the pump stations, force mains, and sanitary sewer lines, and wastewater treatment facility.

Per the request of Heide Trask, Old North State Water Company, LLC (ONSWC) has provided a Memorandum of Understanding between ONSWC and River Rock Farm, LLC (RRF) concerning the construction, ownership, and operations of the wastewater treatment facility consisting of wastewater treatment (WWTP), a wastewater collection system (WWCS), high-rate infiltration basins (HRIB), and a groundwater lowering discharge system (GWLS) to serve all connections to be constructed within Lane's Ferry Landing Subdivision in Pender County (Attachment 4).

ONSWC will prepare the Asset Purchase Agreement (APA) and related documents regarding due authorization, title to and condition of assets and regulatory compliance, as well as indemnification provisions and closing conditions. The APA will be subject to the mutual approval of the both RRF and ONSWC. The applicant states that the APA will either be negotiated directly with the developer or with the HOA depending on the timing of the agreement. Being that ONSWC's APA is contingent upon the approval of the plans, both the HOA and ONSCW have been listed as operators of the wastewater treatment plant.

Construction of each expansion will begin once actual flows exceed ninety percent (90%) of the existing capacity. It is anticipated that the construction of the WWTP will be as follows:

Phase	Gallons Per Day (GPD)
1	62,000
2	122,000
3	250,000
4	500,000
5	800,000

The applicant has provided an overview of the wastewater treatment and disposal system with the intention to provide information regarding the treatment method that is being employed and the expected reduction in waste strength, the effluent disposal methodology, and some information on backup provisions, safety, noise, and odor considerations (Attachment 5).

Environmental Concerns

The subject parcel, of approximately ± 125.40 acres contains environmentally sensitive areas including wetlands and Special Flood Hazard Areas.

Wetlands

Any development within wetland areas is subject to the permit requirements of Section 404 of the Clean Water Act. The National Wetlands Inventory does indicate that wetlands are located within the subject properties. A Jurisdictional Determination of the Wetlands has not been submitted on the subject properties by the Army Corps of Engineers and is required. The applicant has indicated that 6.75 acres of wetlands exist on the subject parcel of Phase I.

Flood

A portion of the subject properties are located within the "Approximate Zone A" Special Flood Hazard Area, according to the 2007 Flood Insurance Rate Maps (FIRMs), Map 3720420300J Panel Number 4203. This is the effective flood map; however, with the preliminary FIRMs to serve as the best available data it appears that the amount of the parcel in the "Approximate Zone A" was reduced and the subject properties will contain "Zone AO" with an established depth of two (2) feet on Panel 4203. This area appears to be dedicated as open space, any development in this portion of the project bounds must be in conformance with the Pender County Flood Damage Prevention Ordinance.

Hazard and Nuisance

Per Attachment 5, the applicant has presented the following comments to address some of the concerns voiced by the citizens and echoed by the Board members at the previous Planning Board hearing on August 1, 2017.

Back-Up Power

Under North Carolina's Coastal Regulations, all necessary components of the wastewater treatment plan will be dualized. This dualization includes all pumps, blowers, motors, treatment components, and disinfection units, so that the plant can continue to function with the largest of any necessary treatment unit temporarily out of commission. Also, all necessary pumps, blowers, motors, and disinfection units will be connected to an automatically-actuated stand-by power system that will continue to operate the facility during any power outages.

Odor

Odors associated with the treatment process are primarily in the equalization basin, where aeration occurs but otherwise the waste stream has not yet undergone treatment. The equalization tanks have been designed so that they can be covered if odors become problematic, allowing the addition of air scrubbers to eliminate any offensive odors. We would typically expect odors to not be detectable beyond a distance of 500 feet. Since neighboring residences are beyond this distance, odor control has not been included in the original design; however, if odor is detected beyond the buffer area, the cover and air scrubber can be easily added.

Noise

In order to reduce noise, exterior blowers will be outfitted with silencers as well as being recessed for noise attenuation. The remaining plant blowers will be enclosed within a dedicated structure, with only the muffled exhaust discharging to the atmosphere outside the building. There should be no odor emanating from the building, as it houses pumps, motors, controls, and chemical feed equipment.

Groundwater Quality

Monitoring wells will be installed in appropriate locations on the wastewater disposal site for the purpose of sampling and testing the groundwater quality, to demonstrate compliance with North Carolina's groundwater standards.

Permits

All applicable state and federal agency permits including a Stormwater Management Permit, Erosion Control Plan, wetlands impact permits, and NCDOT Driveway Permit will be required prior to the approval of the for each phase as applicable. There have been no permits submitted for the subject properties.

Technical Review Committee (TRC) Responses:

On July 5, 2017, the Pender County Technical Review Committee reviewed the Major Site Development for Phase I of the proposed development known as Lane's Ferry. The responses collected can be seen in Attachment 6.

Evaluation

A) Public Notifications: Public Notice of the proposal for map change has been advertised in the Pender Topsail Post and Voice. Property owners within 500 feet of the buffer of the subject parcels have been given written notice of the request, and a public notification sign has been placed on the property.

B) Existing Zoning in Area: The adjacent tracts have RA, Rural Agricultural zoning districts, Residential Performance zoning districts, and one General Industrial zoning, and district. The subject property is located within a PD, Planned Development zoning district. The intent of the PD, Planned Development zoning district is to provide an alternative to a conventional development. The PD, Planned development District allows projects of innovative design and layout that would not otherwise be permitted under this Ordinance because of the strict application of zoning district or general development standards. The PD District encourages progressive land planning and design concepts.

C) Existing Land Use in Area: Along the immediate northern and western boundaries are vacant land, to the east is the Phase I residential proposal and to the south is an industrial plant.

D) 2010 Comprehensive Land Use Plan: The subject property is classified as Mixed Use in the 2010 Pender County Comprehensive Land Use Plan. The Mixed Use land use classification designates locations where a mixture of higher density/intensity uses is to be encouraged. Mixed Use areas should be characterized by physically and aesthetically unified developments containing a mixture of commercial, office, institutional, and high- and medium-density residential uses, arranged in a walkable, compact, pedestrian and transit friendly manner. Mixed Use areas are intended to help reduce sprawl by concentrating a mix of uses in convenient locations; by promoting an efficient sustainable pattern of land uses, and by providing most of the goods and services needed by residents in a coordinated, concentrated manner. Mixed Use areas are intended to reduce the number and length of auto trips by placing higher-density housing close to shopping and employment center. They also should function to improve the quality of life for residents living in higher density housing by placing daily conveniences, shops, and employment within walking distance.

According to the 2010 Comprehensive Land Use Plan, package treatment plants have the potential to fill a technological void. For instance, in sensitive environmental areas, package sewage treatment plants may offer the best hope of allowing for greenspace residential development. Pender County has elected to allow package treatment plants, but only where centralized public sewer is not feasible. No regional wastewater services are proposed for the surrounding area.

The request is consistent with two (2) policies and one (1) goal from the 2010 Pender County Comprehensive Land Use Plan.

Water and Sewer Goal 2A.1 Manage the timing, location and intensity of growth by locating water and sewer improvements in accordance with the Comprehensive Land Use Plan and Water and Wastewater Master Plans.

Policy 1A.1.2 Encourage development in areas where the necessary infrastructure – roads, water, sewer, and schools - are available, planned or can be most cost effectively provided and extended to serve existing and future development.

Policy 2A.1.2 Allow the use of package treatment plants only in areas where development is desirable but public sewer service is not feasible. If package treatment plants are use they should be designed to enable, at minimum public. Cost, the conversion of the system to public ownership, operation and maintenance in the future when public sewer service is viable, and cost effective.

The request does not conflict with any goals or policies within the 2010 Pender County Comprehensive Land Use Plan.

RECOMMENDATION

Planning Staff is submitting the proposal for Planning Board disposition. The request is consistent with two (2) policies, one (1) goal, and conflict with no policies included in the 2010 Pender County Comprehensive Land Use Plan and Pender County Unified Development Ordinance, as well as, other approved planning documents. Therefore, Planning Staff recommends the approval of the Major Site Development request as detailed in the report.

BOARD ACTION FOR MAJOR SITE DEVELOPMENT PLAN:

Motion:_____**Seconded**_____

Approved:_____**Denied:**_____**Unanimous**_____

Williams: ___Fullerton: ___Baker: ___Carter: ___ Jordan: ___McClammy: ___Nalee: ___

RECEIVED

JUN 16 2017

PENDER PLANNING DEPT

Pender County
Planning and Community Development

Planning Division
805 S. Walker Street
PO Box 1519
Burgaw, NC 28425

Phone: 910-259-1202
Fax: 910-259-1295

MAJOR AND MINOR SITE DEVELOPMENT APPLICATION

THIS SECTION FOR OFFICE USE			
Date: 6-16-17	Permit Number: 594	Permit Fee: $250	Invoice Number: 406
		Final Zoning Compliance Approved: YES / NO / N/A	
Type of Site Development Plan:	☑ Major	☐ Minor	

SECTION 1: GENERAL INFORMATION			
Applicant's Name:	RIVER ROCK FARMS, LLC	Property Owner's Name:	HCT PENDER, LLC
Applicant's Address:	2511 S. CANTERBURY RD	Property Owner's Address:	2511 S. CANTERBURY RD.
City, State, & Zip	WILMINGTON, NC 28403	City, State, & Zip	WILMINGTON NC 28403
Phone Number:	910.791.6707	Phone Number:	910.791.6707
Email Address:		Email Address:	
Legal relationship of applicant to land owner:	SAME		

SECTION 2: PROJECT INFORMATION			
PIN (Property Id #):	3245-84-409-0000	Total property acreage:	223.11 AC
Zoning :	PD	Acreage to be disturbed:	131.7 AC
Directions to Site:			
Lot Size:		Sq Ft of Building:	Building Height:
Setbacks	Front: 5'	Side: 5'	Rear: 5'
NAICS Code/Use:			
Business Name:			
Describe activities to be undertaken on project site:	WASTEWATER TREATMENT FACILITY		

Ownership:	Number of Employees:		Number of Members:		Seating Capacity:	
☑ Private ☐ Public						

**If the applicant is not the owner of the property, a notarized letter from the property owner may be required*

SECTION 4: ADDITIONAL COMMENTS

SECTION 5: SIGNATURES			
Applicant:		Date:	5/18/17
Owner:		Date:	5/18/17
Planning Staff:		Date:	

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JUN 16 2017

FENDER PLANNING DEPT.

LANE'S FERRY LANDING WASTEWATER TREATMENT PLANT

NC HWY 210
PENDER COUNTY, NORTH CAROLINA

MAJOR SITE SUBMITTAL

JULY 2017

FOR:
RIVER ROCK FARMS, LLC
2511 S. CANTERBURY RD
WILMINGTON, NC 28403

DEVELOPER:
RIVER ROCK FARMS, LLC.
2511 S. CANTERBURY RD
WILMINGTON, NC, 28403

ENGINEER (CIVIL):
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
ATTN: TIM CLINKSCALES, PE, PLS (910) 791-6707

SURVEYOR:
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
ATTN: CHRIS GAGNE, PLS (910) 791-6707

APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT ORDINANCE ADMINISTRATOR.

SIGNATURE: _____

DATE: _____

SITE PLAN VALID FOR TWO YEARS FROM APPROVAL DATE.

Certification of Submission
A copy of this plat has been submitted, approved in subject to review; this does not constitute an approval.

Pender County Utilities: _____ Date: _____
Pender County Environmental Health: _____ Date: _____
Pender County Addressing Coordinator: _____ Date: _____

Certificate of Preliminary Plat Approval
Preliminary Plat Approval by Pender County for a period of two (2) years subject to the Pender County Unified Development Ordinance requirements and conditions of approval.

Planning Staff: _____ Date: _____

RECEIVED
AUG 08 2017
PENDER PLANNING DEPT.

NOTICE REQUIRED

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION

CONTACT "CAROLINA ONE CALL" AT
1-800-632-4949

CONTACT THESE UTILITIES

PENDER COUNTY PLANNING AND COMMUNITY DEVELOPMENT
ATTN: REBAH CROWE
PH: 910-259-5119

PIEDMONT NATURAL GAS
ATTN: CARL PRIDLET
PH: 910-395-2242

EMERGENCY DIAL 911 POLICE - FIRE - RESCUE

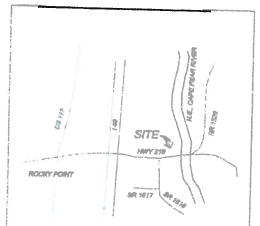
NCDOT
ATTN: PATRICK RIDDLE
PH: 910-445-5945

PENDER COUNTY UTILITIES (WATER)
ATTN: BRYAN BECABB, PE
PH: 910-259-5172

DUKE ENERGY
ATTN: RIRAN LEATHERWOOD
PH: 910-625-4984

AT&T
ATTN: STEVE DAUNAULT
PH: 910-341-0241

TIME WARNER CABLE
PH: 910-763-4628



VICINITY MAP
NOT TO SCALE

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C-0.0	COVER SHEET
C-2.0	MAJOR SITE PLAN
L-1.0	LANDSCAPE PLAN

NORTH CAROLINA PROFESSIONAL SEAL 028847 ENGINEER TIMOTHY C. CLINKSCALES
07/13/17

PREPARED BY:
PARAMOUNTE ENGINEERING, INC
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (C) (910) 791-6708 (F)
NC License #: C-2846
PROJECT # 17239.PE

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

SITE INFORMATION

CURRENT LAND USE:	VACANT LAND
CURRENT ZONING:	PD
PIN:	3245-84-0109-0000
DB/PG:	DB 3574 PG 289
TOWNSHIP:	ROCKY POINT
PROPOSED USE:	WASTEWATER TREATMENT (AS REFERENCED ON APPROVED MDP PR-30-2016)
TOTAL PHASE 1 AREA:	± 221.85 ACRES
TOTAL WASTEWATER TREATEMENT AREA:	± 31.7 ACRES
OWNER INFORMATION:	RCT PENDER, LLC 2511 S. CANTERBURY RD WILMINGTON, NC 28403

DIMENSIONAL REQUIREMENTS

MINIMUM LOT SIZE:	3,300 SF
MINIMUM LOT FRONTAGE:	20' STANDARD LOT 25' CORNER LOT
FRONTYARD SETBACK:	5' MINIMUM
SIDEYARD SETBACK:	5' MINIMUM
CORNER SIDEYARD SETBACK:	5' MINIMUM
REAR SETBACK:	5' MINIMUM
CHORD:	30' MINIMUM
MAXIMUM HEIGHT:	35'
DENSITY:	NOT TO EXCEED 5 DU/AC

UTILITIES

1. WATER SERVICE SHALL BE PROVIDED THROUGH A PUBLIC DISTRIBUTION SYSTEM TO BE OWNED AND OPERATED BY PENDER COUNTY AND BUILT TO CONFORM WITH PENDER COUNTY STANDARDS AND SPECIFICATIONS.
2. SANITARY SEWER SERVICE SHALL BE PROVIDED THROUGH CONSTRUCTION OF COLLECTION SYSTEM AND ON-SITE WASTEWATER TREATMENT FACILITY TO BE OWNED AND OPERATED BY THE HOMEOWNER'S ASSOCIATION, (HOA). THE HOA SHALL BE FORMED TO GUARANTEE CONTINUAL MAINTENANCE OF THE PUMP STATIONS, FORCE MAINS, AND SANITARY SEWER LINES AND WASTEWATER TREATMENT FACILITY. REFERENCE SPECIAL USE PERMIT CASE NUMBER 07-03-16-18 AND WASTE WATER PERMIT NUMBER WO0033710
3. ALL WATER AND SANITARY SEWER SYSTEMS WILL BE DESIGNED TO MEET COUNTY AND STATE REQUIREMENTS. FINAL CONSTRUCTION PLANS WILL BE SUBMITTED TO BOTH AGENCIES FOR REVIEW AND PERMITS TO CONSTRUCT SHALL BE OBTAINED PRIOR TO UTILITY INSTALLATION.
4. ALL WATER LINES SHOWN WILL BE SIZED IN ACCORDANCE WITH APPLICABLE PENDER COUNTY AND STATE REQUIREMENTS. THE EXISTING WATER MAIN LOCATED ALONG THE RIGHT OF WAY OF NC HIGHWAY 210 IS 36" DUCTILE IRON PIPE.
5. IF UTILITIES REQUIRE AN EASEMENT, A 20-FT UTILITY EASEMENT WILL BE CENTERED ALONG UTILITIES.
6. DESIGN OF WASTEWATER PLANT BY OTHERS AS AS PERMITTED BY STATE WASTEWATER PERMIT NUMBER WO0033710.

LANDSCAPE NOTE

ALL BUFFERS TO COMPLY WITH APPROVED MASTER DEVELOPMENT CONDITIONS AND WITH ALL STANDARDS FOR BUFFERS AS PER ARTICLE 8 OF THE PENDER COUNTY UDO. SEE SHEET L-1.0

PARKING CALCULATIONS

REQUIRED PARKING:	1/ 500 SF OF ENCLOSED FLOOR AREA AND 1 SPACE PER 5,000 SF OF OUTSIDE STORAGE AREA 6,400 &/7,500 SF = 12.8 OR 13 SPACES (NO OUTDOOR STORAGE AREA PROPOSED)
PROVIDED PARKING:	13 SPACES

WASTE NOTE

SOLID WASTE PRODUCED DURING NORMAL OPERATION TO BE HANDLED BY ROLL-CART CURB SIDE PICK UP.

SIGNAGE

NO PROJECT SIGNS ARE PROPOSED FOR THIS FACILITY.

LAND DISTURBANCE NOTE:
SITE EXCEEDS ONE ACRE IN DISTURBANCE, ALL STATE PERMITS WILL HAVE TO BE SECURED PRIOR TO ISSUANCE OF A BUILDING PERMIT.

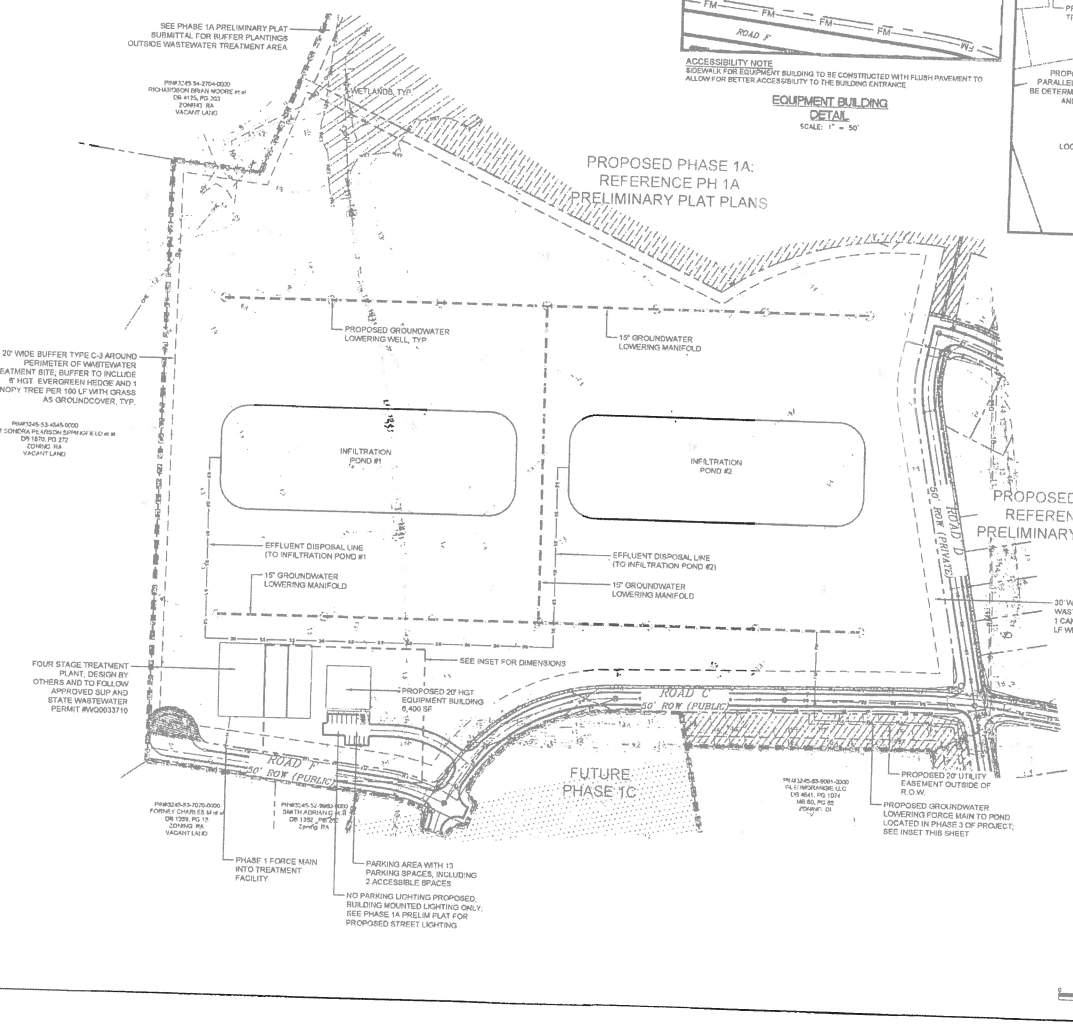
FEMA NOTE:
PORTIONS OF THIS PARCEL ARE LOCATED WITHIN ZONE "C" AS INDICATED ON FEMA FIRM MAPS PANEL NO. 37203-2400J BEARING AN EFFECTIVE DATE OF FEBRUARY 18 2007. EFFECTIVE MAPS WILL BE CONSULTED AT THE TIME OF CONSTRUCTION TO ENSURE ANY DEVELOPMENT COMPLIES WITH THE MOST CURRENT FEMA REQUIREMENTS.

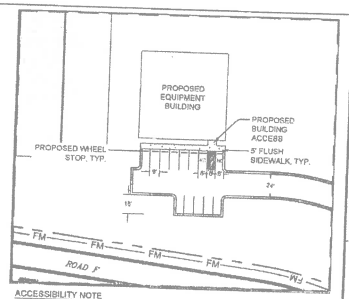
WETLAND NOTE:
DELINEATED WETLANDS ON SITE ARE IN PROCESS OF BEING REVIEWED.

SURVEY NOTE:
THE BOUNDARY SURVEY WAS PERFORMED BY PARAMOUNTE ENGINEERING, INC. AND SEALED BY CHRISTOPHER J. GAGNE ON 5/16/17

MASTER DEVELOPMENT PLAN NOTE:
THIS MAJOR SITE PLAN PROPOSES THE WASTEWATER TREATEMENT FACILITY REFERENCED IN APPROVED MDP PR-30-2016 BY PENDER COUNTY PLANNING STAFF ON 8/2/2017.

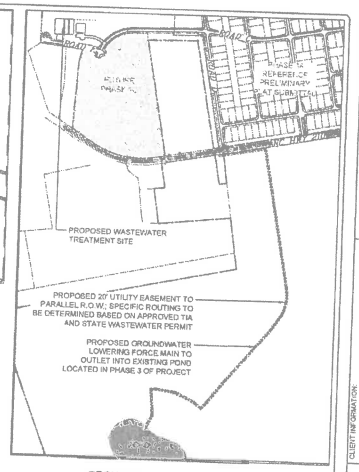
PROJECT NOTE:
THIS MAJOR SITE PLAN RELATES DIRECTLY TO THE CONCURRENT PHASE 1A PRELIMINARY PLAT SUBMITTAL AND ALL ITS LOCAL AND STATE PERMITS.





ACCESSIBILITY NOTE
SIDEWALK FOR EQUIPMENT BUILDING TO BE CONSTRUCTED WITH FLUSH PAVEMENT TO ALLOW FOR BETTER ACCESSIBILITY TO THE BUILDING ENTRANCE

EQUIPMENT BUILDING DETAIL
SCALE: 1" = 50'



GROUNDWATER LOWERING FORCE MAIN OUTLET
SCALE: 1" = 500'

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT ORDINANCE ADMINISTRATOR.
SIGNATURE: _____
DATE: _____
SITE PLAN VALID FOR TWO YEARS FROM APPROVAL DATE.

REVISIONS:
REVISIONS PER TRC COMMENTS ON 07/07/17 — 07.13.17
REVISIONS PER COMMENTS ON 07/31/17 — 08.01.17

CLIENT INFORMATION:
RIVER ROCK FARMS, LLC.
2511 S Canterbury Road
Wilmington, NC 28403

PARAMOUNTE ENGINEERING, INC.
5911 Oleander Drive, Suite 201
Wilmington, North Carolina 28403
(910) 797-5707 (O) (910) 791-9760 (F)
NC License #: C-2846

MAJOR SITE PLAN
PHASE 1A
LANE'S FERRY LANDING
ROCKY POINT
PENDER COUNTY, NORTH CAROLINA

PROJECT STATUS
PRELIMINARY
PRELIMINARY LAYOUT
PRELIMINARY PLAT
RELEASED FOR CONST

DRAWING INFORMATION
DATE: 07/07/17
SCALE: 1"=100'
DRAWN: CJB
CHECKED: TGC

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028847 TIMOTHY C. CUMMINGS
07/18/17

C-2.0

PEI JOB#: 17239.PE

SITE INFORMATION

CURRENT LAND USE:	VACANT LAND
CURRENT ZONING:	PD
PIN:	3245-84-0106-0000
DB/PG:	DB 3674 PG 289
TOWNSHIP:	ROCKY POINT
PROPOSED USE:	WASTEWATER TREATMENT (A6 REFERENCED ON APPROVED MDP PR-50-2018)
TOTAL PHASE 1 AREA:	± 221.89 ACRES
TOTAL WASTEWATER TREATEMENT AREA:	± 31.7 ACRES
OWNER INFORMATION:	RCT PENDER, LLC 2511 S. CANTERBURY RD WILMINGTON, NC 28403

DIMENSIONAL REQUIREMENTS

MINIMUM LOT SIZE:	3,500 SF
MINIMUM LOT WIDTH:	20' STANDARD LOT 25' CORNER LOT
MINIMUM LOT FRONTAGE:	20' STANDARD LOT 25' CORNER LOT
FRONTYARD SETBACK:	5' MINIMUM
SIDEYARD SETBACK:	5' MINIMUM
CORNER SIDEYARD SETBACK:	5' MINIMUM
REAR SETBACK:	5' MINIMUM
CHORD:	30' MINIMUM
MAXIMUM HEIGHT:	35'
MIN. STRUCTURE SEPARATION:	20'

LANDSCAPE NOTES

1. ALL BUFFERS TO COMPLY WITH APPROVED MASTER DEVELOPMENT CONDITIONS AND WITH ALL STANDARDS FOR BUFFERS AS PER ARTICLE 8 OF THE PENDER COUNTY UDO.

PLANT SCHEDULE A-4 BUFFER AREA

TREES	CODE	QTY	COMMON NAME		SIZE
	CMT	44	CRAPE MYRTLE LAGERSTROEMIA INDICA 'TUSCARORA'		8' - 10' HGT.; MULTI-STEM
	SRO	24	SOUTHERN RED OAK QUERCUS FALCATA		2" CAL

BUFFER A-4 CALCULATIONS
REQUIRED (1) CANOPY TREE AND (2) UNDERSTORY TREES PER 100'

BUFFER TYPE	LINEAR FT	CANOPY TREES	UNDERSTORY TREES
A-4	2,154	21 (1/100)	44 (2/100)

PLANT SCHEDULE C-3 BUFFER AREA

TREES	CODE	QTY	COMMON NAME	SIZE
	SPO	28	SOUTHERN RED OAK QUERCUS FALCATA	2" CAL
SHRUBS	CODE	QTY	COMMON NAME	CONT
	WMJ	303	WAX MYRTLE MYRICA CERIFERA	7 GAL

BUFFER C-3 CALCULATIONS
REQUIRED (1) CANOPY TREE AND CONTINUOUS STAND EVERGREEN HEDGE

BUFFER TYPE	LINEAR FT	CANOPY TREES
C-3	2,154	28 (1/100)

LAND DISTURBANCE NOTE:
SITE EXCEEDS ONE ACRE IN DISTURBANCE. ALL STATE PERMITS WILL HAVE TO BE SECURED PRIOR TO ISSUANCE OF A BUILDING PERMIT.

FEMA NOTE:
PORTIONS OF THIS PARCEL ARE LOCATED WITHIN ZONE "X" AS INDICATED ON FEMA FIRM MAPS PANEL NO. 3720342600J BEARING AN EFFECTIVE DATE OF FEBRUARY 18, 2007. EFFECTIVE MAPS WILL BE CONSULTED AT THE TIME OF CONSTRUCTION TO ENSURE ANY DEVELOPMENT COMPLIES WITH THE MOST CURRENT FEMA REQUIREMENTS.

WETLAND NOTE:
DELINEATED WETLANDS ON SITE ARE IN PROCESS OF BEING REVIEWED

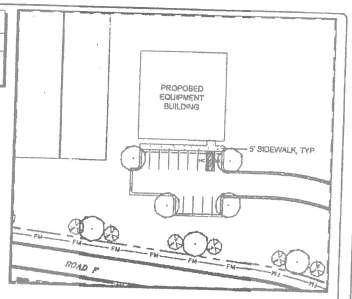
SURVEY NOTE:
THE BOUNDARY SURVEY WAS PERFORMED BY PARAMOUNTE ENGINEERING, INC. AND SEALED BY CHRISTOPHER J. GAGNE ON 5/18/17.

MASTER DEVELOPMENT PLAN NOTE:
THIS MAJOR SITE PLAN PROPOSES THE WASTEWATER TREATEMENT FACILITY REFERENCED IN APPROVED MDP PR-50-2018 BY PENDER COUNTY PLANNING STAFF ON 9/20/17

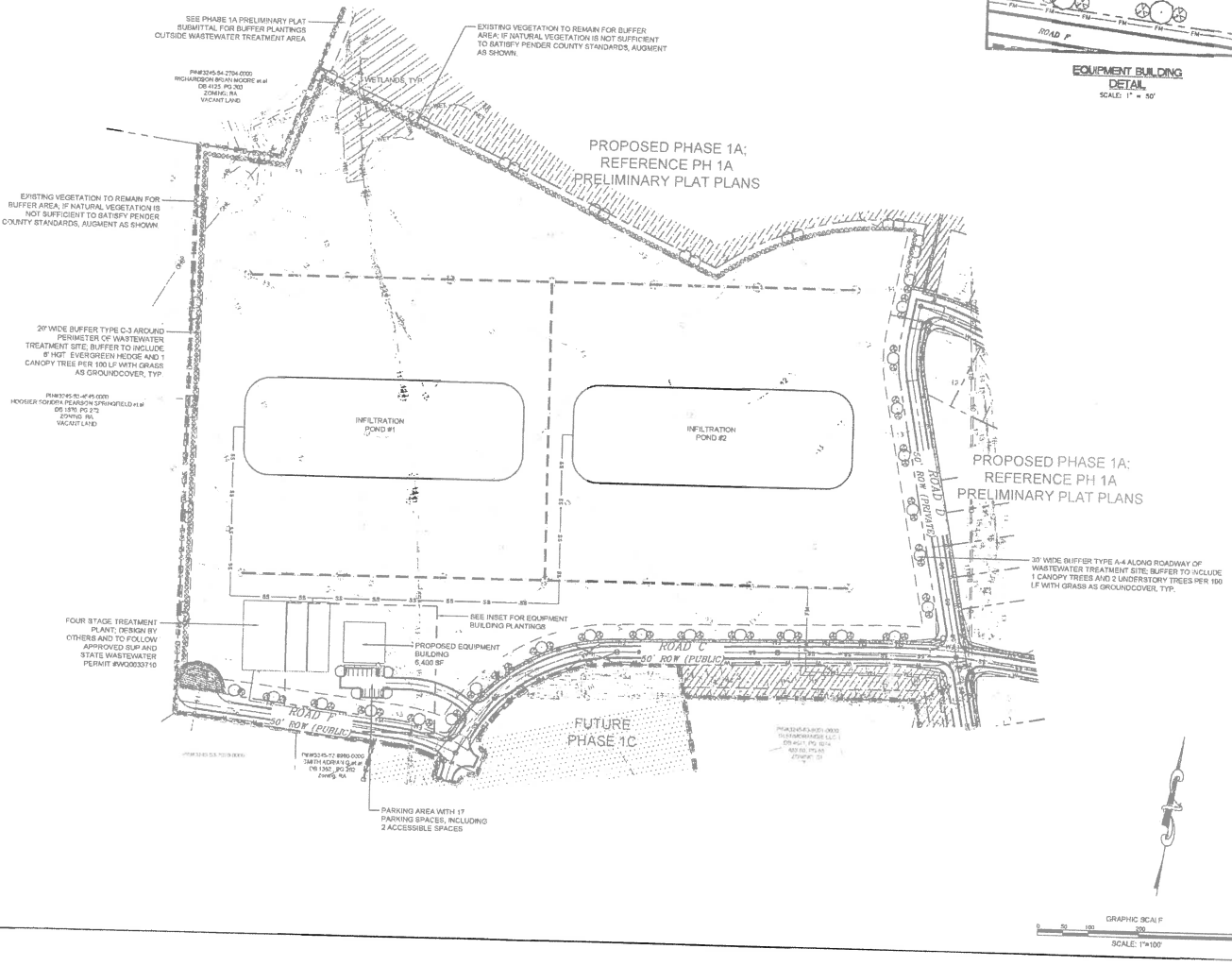
PROJECT NOTE:
THIS MAJOR SITE PLAN RELATES DIRECTLY TO THE CONCURRENT PHASE 1A PRELIMINARY PLAT SUBMITTAL AND ALL ITS LOCAL AND STATE PERMITS.

PLANT SCHEDULE PARKING AREA

TREES	CODE	QTY	COMMON NAME	SIZE
	SRO	4	SOUTHERN RED OAK QUERCUS FALCATA	2" CAL



EQUIPMENT BUILDING DETAIL
SCALE: 1" = 50'



PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT ORDINANCE ADMINISTRATOR:

SIGNATURE: _____

DATE: _____

SITE PLAN VALID FOR TWO YEARS FROM APPROVAL DATE.

REVISIONS:

REVISIONS PER IRC COMMENTS DATED 07.05.17	07.13.17
REVISIONS PER COMMENTS DATED 07.18.17	07.18.17

CLIENT INFORMATION:

RIVER ROCK FARMS, LLC.
2511 S Canterbury Road
Wilmington, NC 28403

PARAMOUNTE ENGINEERING, INC.
5911 Oleander Drive, Suite 201
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-5760 (F)
NC License #: C-2846

LANDSCAPE PLAN
PHASE 1A
LANE'S FERRY LANDING
ROCKY POINT
PENDER COUNTY, NORTH CAROLINA

PROJECT STATUS
PRELIMINARY PLAT
PRELIMINARY PLAN
RELEASED FOR CONST

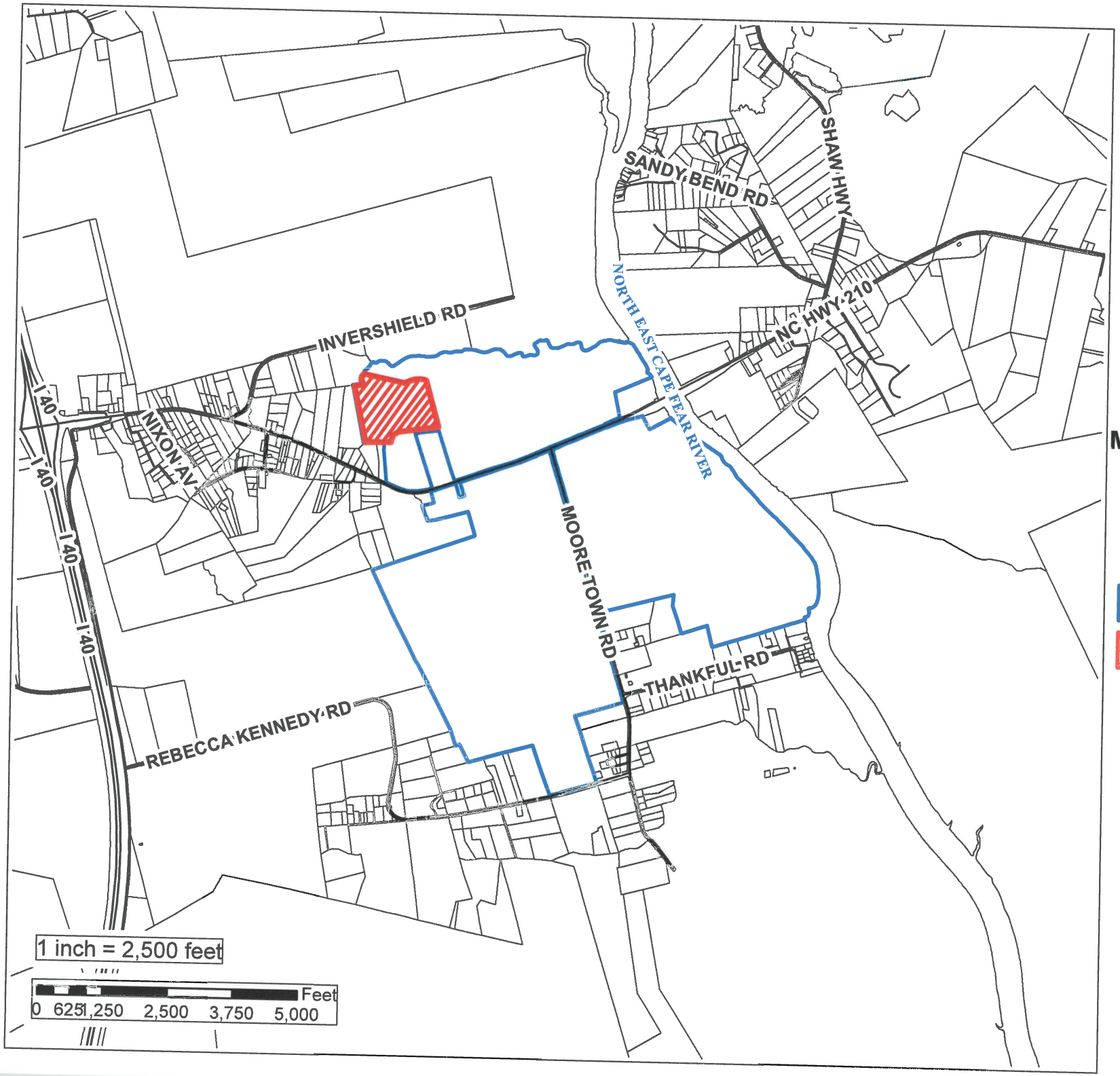
DRAWING INFORMATION

DATE	7/10/17
SCALE	1"=100'
DESIGNED	CJM
DRAWN	CJM
CHECKED	PHE

SEAL

L-1.0

PEI JOB#: 17239.P2



COUNTY OF PENDER

Applicant:
River Rock Farms, LLC

Owner:
HCT Pender, LLC

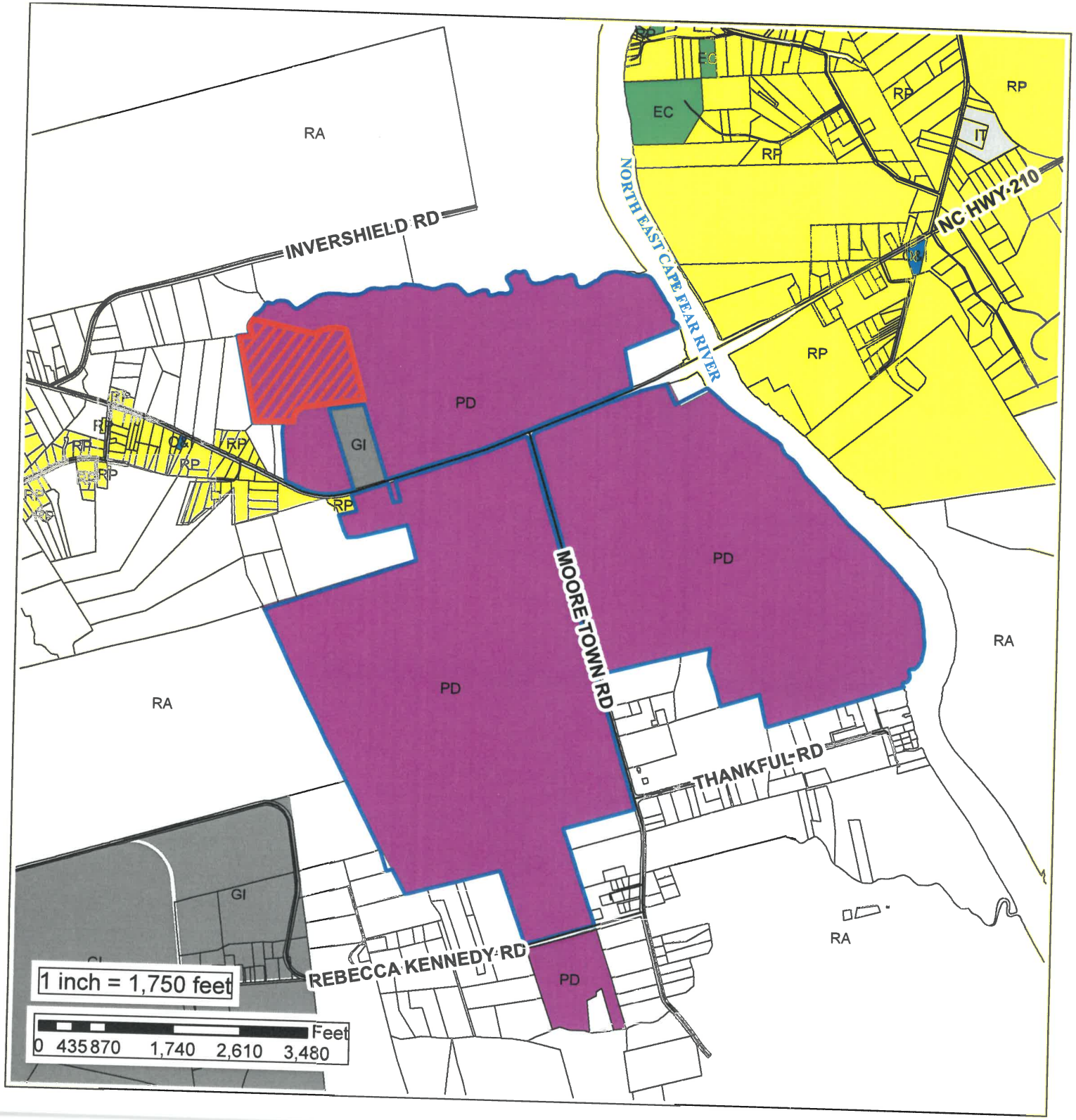
Master Development Pla
594-2017

Legend

- Subject Parcels
- Waste Treatment Plan

N

Vicinity



Applicant:
River Rock Farms, LLC

Owner:
HCT Pender, LLC

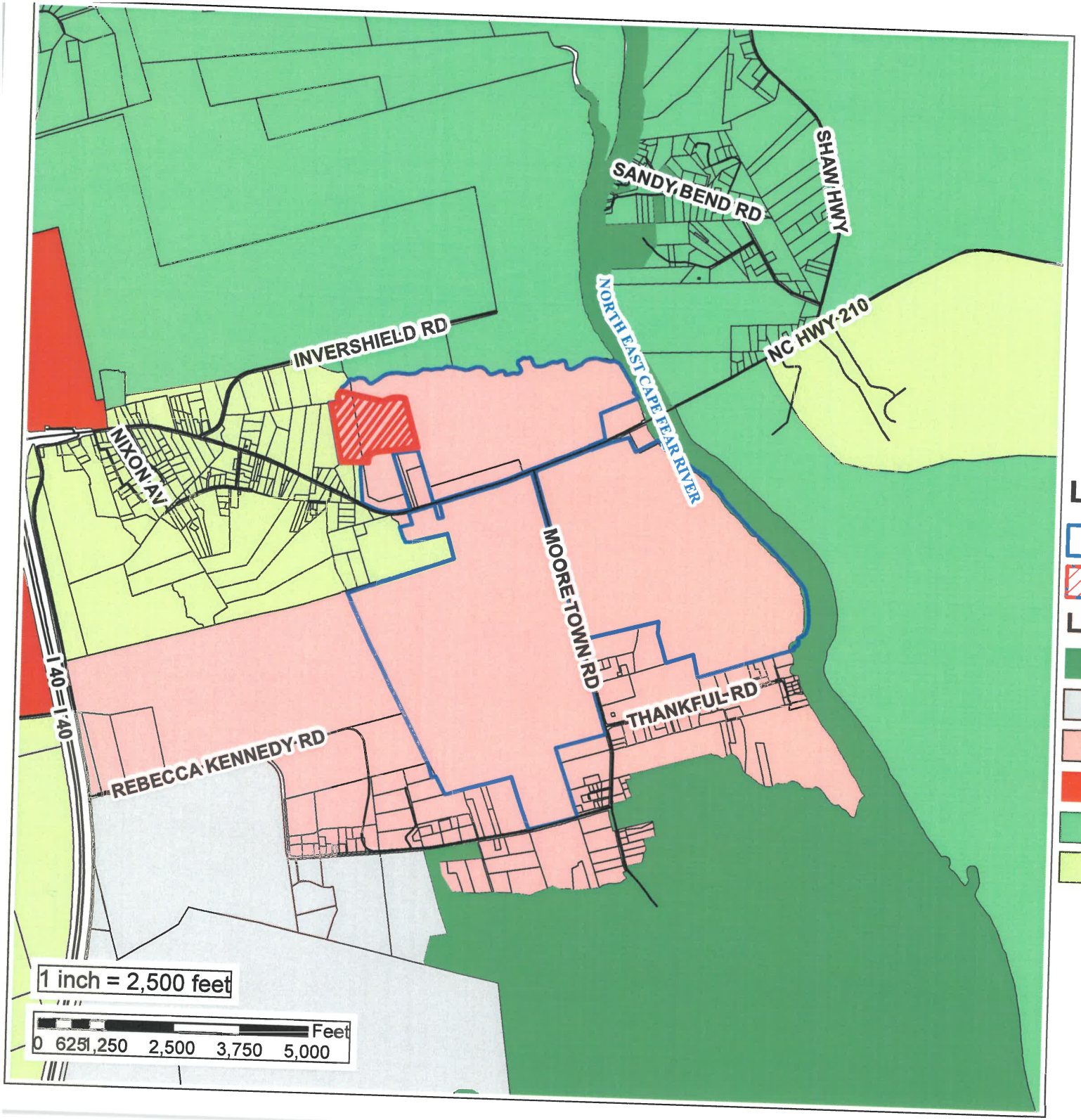
Master Development Plan
594-2017

Legend

- Subject Parcels
- Waste Treatment Plant
- Conservation
- General Business
- General Industrial
- Industrial Transitional
- Office and Institutions
- Planned Development
- Rural Agricultural
- Residential Performance

N

Current Zoning



Applicant:
River Rock Farms, LLC

Owner:
HCT Pender, LLC

Master Development Plan
594-2017

Legend

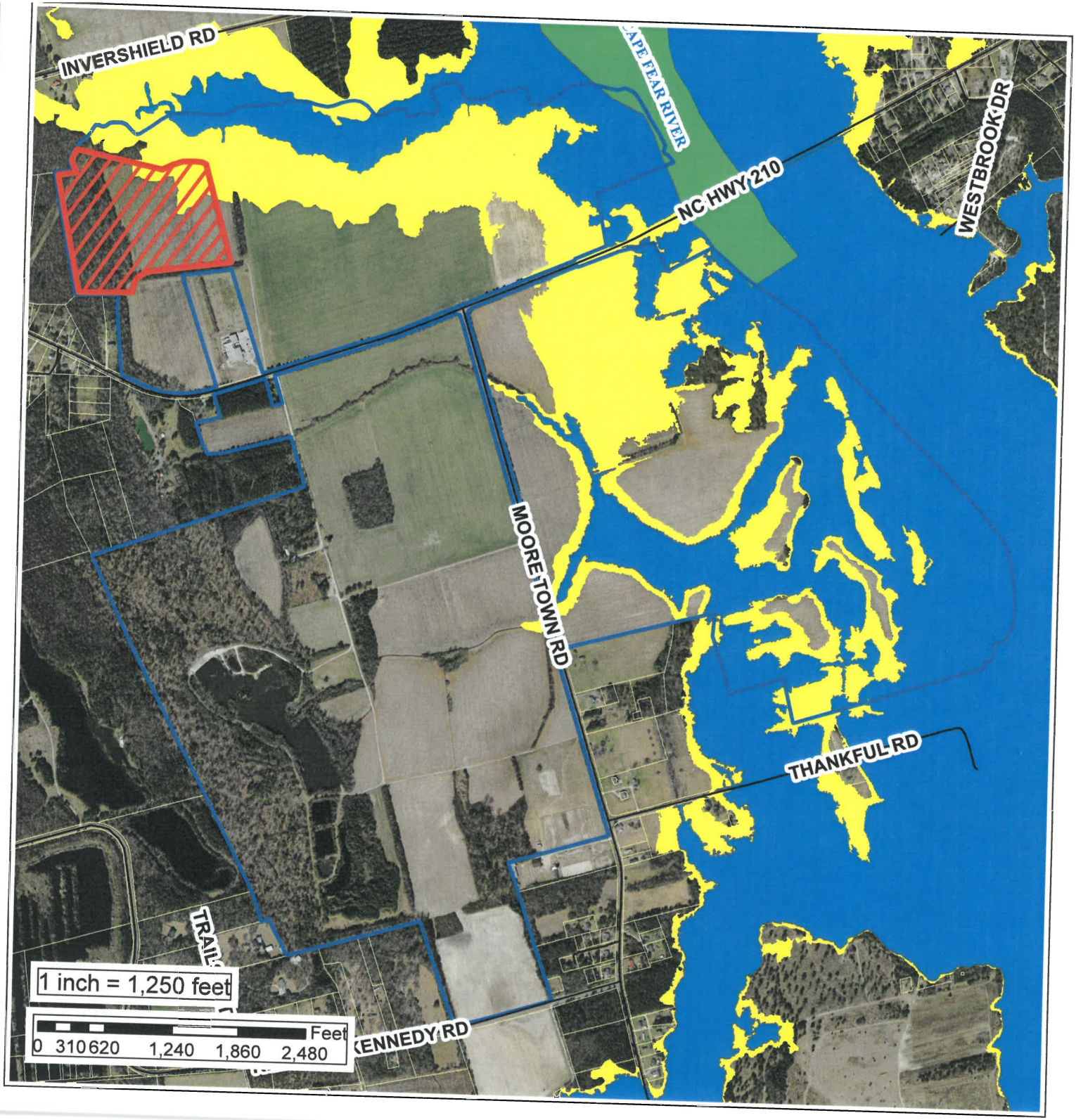
- Subject Parcels
- Waste Treatment Plant

LU

- Conservation
- Industrial
- Mixed Use
- Office, Institutional, Busine
- Rural Growth
- Suburban Growth

N

Future Land Use



COUNTY OF PENDER

Applicant:
River Rock Farms, LLC

Owner:
HCT Pender, LLC

Master Development Plan
594-2017

Legend

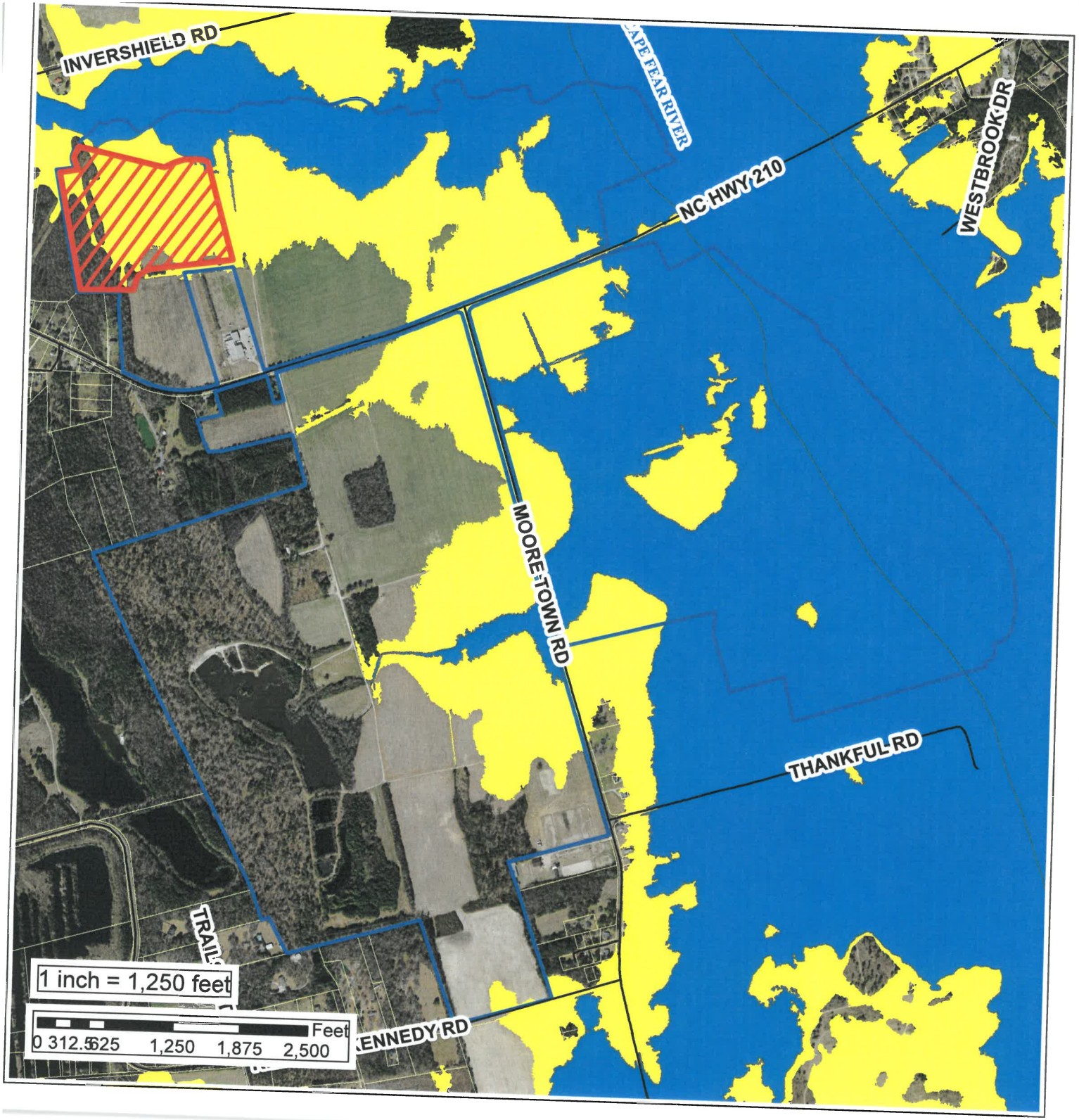
- Subject Parcels
- Waste Treatment Plant

FLOODZONE

- AE
- AEFW
- SHADED X

N

Floodzones



COUNTY OF PENDER

Applicant:
River Rock Farms, LLC

Owner:
HCT Pender, LLC

Master Development Plan
594-2017

Legend

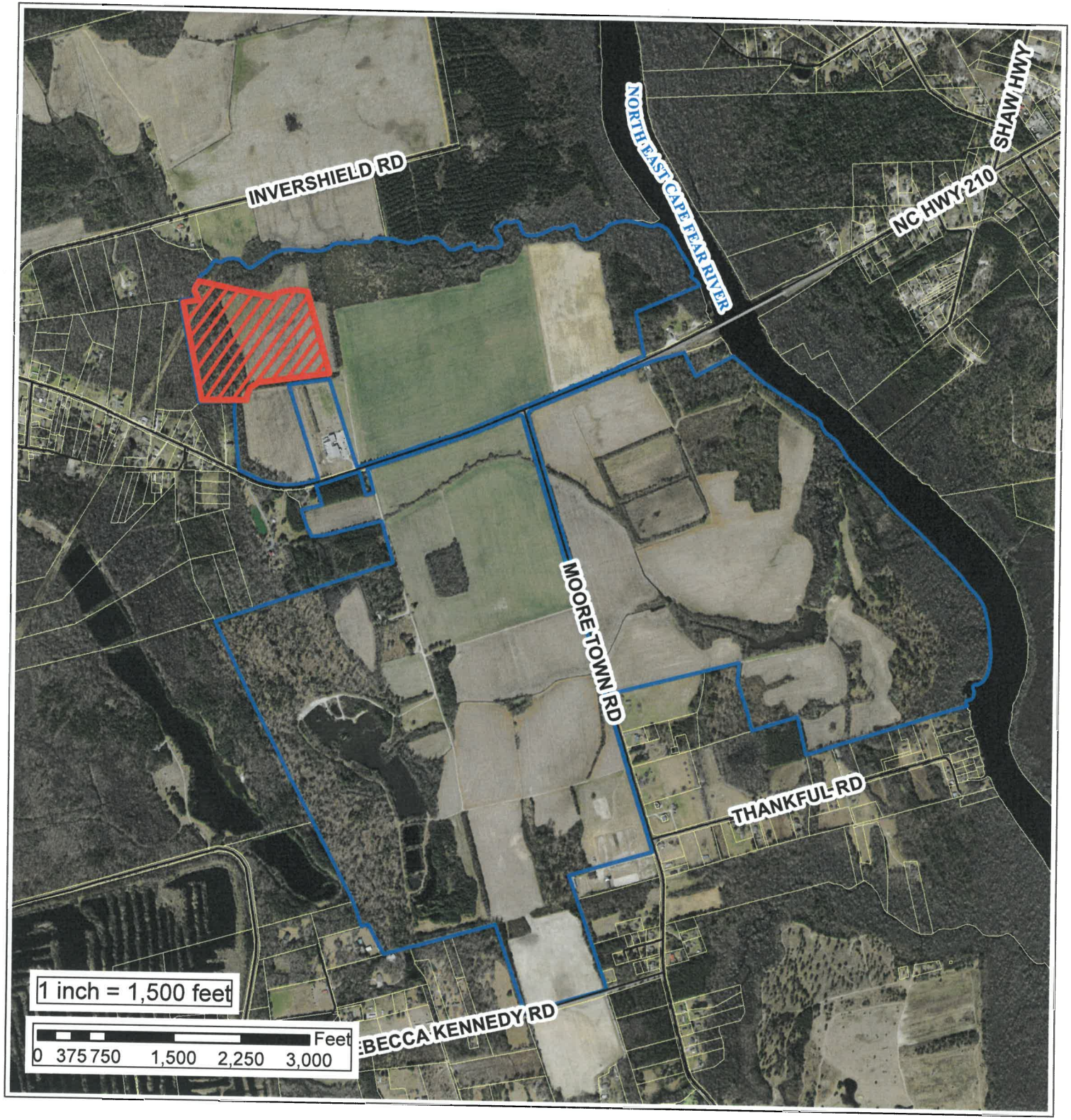
- Subject Parcels
- Waste Treatment Plant

Preliminary Flood Hazard

- 0.2 % ANNUAL CHANCE
- AE

N

Preliminary Floodzones



Applicant:
River Rock Farms, LLC

Owner:
HCT Pender, LLC

Master Development Plan
594-2017

Legend

- Subject Parcels
- Waste Treatment Plant

N

2016 Aerial

Pender County
Planning and Community Development

Planning Division
805 S. Walker Street
PO Box 1519
Burgaw, NC 28425

Phone: 910-259-1202
Fax: 910-259-1295
www.pendercountync.gov

June 2, 2017

River Rock Farms, LLC.
2511 S. Canterbury Road
Wilmington, NC 28403

Re: Pr-50-2016 River Rock Farms, LLC. Master Development Plan

Dear River Rock Farms, LLC.

Conditions necessary for the Master Development Plan approval have been met. Per Section 3.5.5 if all required changes have been made and all requirements of Pender County Unified Development Ordinance have been met approval of the Master Development Plan shall be granted.

Coordination with Planning Staff is required for the implementation of the remainder of the conditions specific to proposed phasing.

Per Section 3.5.4.I Planning Board Master Development Plan approval shall be valid for two (2) years and will expire on 6/2/2019.

Approved Planning Board Conditions Hearing Date: June 2, 2015

Water
Coordination and phasing with Pender County Utilities must occur to prevent impacts on existing water infrastructure. Coordination through Pender County Utilities shall occur prior to approval of Preliminary Plat for all phases of the approved Master Development Plan. Water shall be located outside the paved areas in the right-of-way.

Waste Water
If the Rocky Point Topsail Water and Sewer District are feasibly able to service the development, then the applicant shall connect to Pender County Utilities for wastewater disposal. If a connection is deemed not feasible by the Rocky Point Topsail Water and Sewer District within 90-days of Master Development Plan then, the applicant shall be approved for a private package treatment facility for wastewater as shown on the approved Master Development Plan. Shall public utility connection be available in the future, a revision to the approved Master Development Plan will not be required. Any additional development proposed on the identified wastewater treatment disposal site shall require further review and approval by the Pender County Planning Board. Feasibility shall be deemed appropriate by both the developer and the Rocky Point Topsail Water and Sewer District.

Safety Concerns
Structure height proposed at thirty-five (35) feet or higher shall be examined for proper fire suppression at each phase approval by the Planning Board based on coordination with the Fire Marshall concerning;
1. Equipment
2. Fire Suppression
3. Resources of the Rocky Point Volunteer Fire Department

Setbacks within the Single Family portion of the Master Development Plan shall be five (5) feet.

Roadways

The applicant shall provide four (4) connections to adjacent properties. The three (3) proposed stub connections shall be consistent with the plan site submittal. A fourth connection shall be demonstrated from the area identified as "Mixed Use Commercial A" to the adjacent parcel immediately west, further identified by Pender County PIN 3245-61-5597-0000 (Thomas Property), in order to promote development connectivity and reasonable access to the adjacent properties.

Additional roadways may require public dedication and be built to public collector street standards as outlined in Section 7.5.3.C of the Unified Development Ordinance. All identified right-of-way in each phase shall be evaluated for these factors to determine additional public dedication and collector street design, reviewed at each phase.

Buffers

Buffers are approved as submitted on the site plan whereas; in the case where the buffer proposed is more stringent than the required buffer, the applicant shall provide the more stringent buffer type. The portions of required buffer around the property which do not meet the minimum buffer standards per Section 8 of the Pender County Unified Development Ordinance shall comply be amended to comply with standards. The following amendments shall be made prior to the approval of the Master Development Plan;

1)Phase I:

a. Buffering around the existing outparcel (industrial site) on the western portion the property shall be a Buffer B;

b. Buffering around the proposed wastewater treatment facility shall be a Buffer C on the outer bounds of the property.

2)Phase II:

a. Buffering along the northeastern side of Phase II property shall be labelled as a Buffer B;

b. Area adjacent to all streets shall be labeled at minimal as a Buffer A;

c. The parcels lying south of Phase II may require a Buffer C extending from Moore Town RD (SR 1518) through to the NE Cape Fear River;

3) Phase III:

a. Buffering of the property by the identified "Area A" shall require a Buffer C nearest to the single family residential outparcel;

b. All areas adjacent to NC HWY 210 and Moore Town Road (SR 1518) shall require a Buffer A;

c. South of Rebecca Kennedy Rd. (SR 1517) may require a Buffer C due to single family dwellings on adjacent properties which may be within fifty (50) feet of the property line;

d. North of Rebecca Kennedy Rd. (SR 1517), the eastern property line shall require a Buffer B and a Buffer C where applicable.

Ron Meredith
Current Planner
Pender County Planning and Community Development
Division of Planning
805 S. Walker Street (Physical Address)
PO Box 1519 (Mailing Address)
Burgaw, NC 28425
(910) 259-1274
(910) 259-1295 (fax)

WMPO

305 Chestnut Street
PO Box 1810
Wilmington, NC 28402
Ph: (910) 341-3258
Fax: (910) 341-7801
www.wmpo.org

May 26, 2017

Ms. Jessica McClure, PE
Ramey Kemp & Associates
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609

RE: Approval of the Traffic Impact Analysis (TIA) associated with the proposed **Lane's Ferry Landing Development**
Pender County, NC

The WMPO, NCDOT, and Pender County staffs have reviewed the Lane's Ferry Landing Development TIA dated February 27, 2016. This development consist of:

Phase 1
- 514 Single Family Units

Full Build
- 70,000 sf of Shopping Center
- 259 Residential Condo/Townhomes
- 322 Apartments
- 2,114 Single Family Units (1600 new units + 514 Phase 1 units)

We concur with the recommendations of the TIA as stated below with modifications shown in red:

Phase 1
US 117 & NC 210 (Signalized Intersection):
- Upgrade signal with flashing yellow arrows and install additional wiring for left turn protection.
- WB NC 210
  - Restripe existing Left/Thru Lane to designated Left Turn Lane
  - Restripe Right Turn Lane to Thru Lane

- 200' Right Turn Lane

NC 210 & Site Driveway #1 (Right In / Right Out):

- An island will need to be constructed on NC 210 to restrict Site Driveway #1 and the developer will be responsible for any public outreach on this subject. The design and termination points for this island will need to be approved by NCDOT.
- SB Site Driveway #1
  - Two lane cross section with one ingress and one egress
  - Egress: Right Turn Lane
  - 100' Internal Protected Stem

NC 210 & Site Driveway #2 (Full Access Intersection):

- EB NC 210
  - 100' Left Turn Lane
- SB Site Driveway #2
  - Two lane cross section with one ingress and one egress
  - Egress: Left/Right combination Lane
  - 100' Internal Protected Stem

NC 210 & Moore Town Road (Full Access Intersection):

- EB NC 210
  - 150' Left Turn Lane
- WB NC 210
  - 100' Right Turn Lane
- SB Moore Town Road
  - Two lane cross section with one ingress and one egress
  - Egress: Left/Right combination Lane
  - 100' Internal Protected Stem

NC 210 & Site Driveway #3 (Full Access Intersection):

- EB NC 210
  - 100' Left Turn Lane
- WB NC 210
  - 100' Right Turn Lane
- SB Site Driveway #3
  - Two lane cross section with one ingress and one egress
  - Egress: Left/Right combination Lane
  - 100' Internal Protected Stem

Phase 2

US 117 & NC 210 (Signalized Intersection):

- WB NC 210
  - Protected left turn phasing will be needed.

NC 210 & I-40 Eastbound Ramps (New Signal Proposed):

- SB I-40 EB Exit Ramp
  - Continuous Right Turn Lane
  - 150' Left Turn Lane
- WB NC 210
  - Dual 250' Left Turn Lanes (One 175' existing)
  - Construct additional receiving lane on I-40 EB entrance ramp.
  - Protected left turn phasing will be needed.
  - The existing 175' left turn lane (on the bridge) will not be adequate to accommodate the development's new 658 vehicles during the peak hours without major bridge improvements.

NC 210 & I-40 Westbound Ramps (Signalized Intersection):

- NB I-40 WB Exit Ramp
  - 250' Left Turn Lane
  - Dual Right Turn Lanes (one continuous and one 300')
  - Construct additional receiving lane on NC 210
- EB NC 210
  - Protected left turn phasing will be needed.

NC 210 & Site Driveway #1 (Right In / Right Out):

- EB NC 210
  - 100' Right Turn Lane
- NB Site Driveway #1
  - Two lane cross section with one ingress and one egress
  - Egress: Right Turn Lane
  - 100' Internal Protected Stem

NC 210 & Site Driveway #2 (Full Access Intersection):

- EB NC 210
  - 125' Right Turn Lane
- WB NC 210
  - 100' Left Turn Lane
- NB Site Driveway #2
  - Three lane cross section with one ingress and two egress
  - Egress: 200' Left Turn Lane and Thru/Right Lane

    - 200' Internal Protected Stem
- SB Site Driveway #2
    - Three lane cross section with one ingress and two egress
    - Egress: 50' Left Turn Lane and Thru/Right Lane

NC 210 & Moore Town Rd (New Signal Proposed):

- EB NC 210
    - 300' Right Turn Lane
    - Protected left turn phasing will be needed.
- WB NC 210
    - 250' Left Turn Lane
    - Protected left turn phasing will be needed.
- NB Moore Town Rd
    - Four lane cross section with one ingress and three egress
    - Egress: 300' Left Turn Lane, Continuous Thru, and 100' Right Turn Lane
    - 300' Internal Protected Stem
- SB Moore Town Rd
    - Three lane cross section with one ingress and two egress
    - Egress: 50' Left Turn Lane and Thru/Right Lane

NC 210 & Site Driveway #3 (Full Access Intersection):

- EB NC 210
    - 125' Right Turn Lane
- WB NC 210
    - 100' Left Turn Lane
- NB Site Driveway #3
    - Three lane cross section with one ingress and two egress
    - Egress: 100' Left Turn Lane and Thru/Right Lane
    - 125' Internal Protected Stem

NC 210 / Dallie Futch Rd & Royal Oak Dr / NC 210 (Full Access Intersection):

- SB NC 210
    - 100' Left Turn Lane
- WB NC 210
    - 200' Right Turn Lane

NC 210 & Island Creek Rd (Full Access Intersection):

- WB NC 210
    - 100' Right Turn Lane

NC 210 / Dan Owen Dr & US 17 (Signalized Intersection):

- Due to the effects the Hampstead Bypass would have on the expected volumes at this intersection, this location will have to be reevaluated prior to this development moving forward with the Full Build Phase.
- EB NC 210
  - Restripe existing Thru/Left to designated Thru
  - Dual 250' (each) Left Turn Lanes (one existing)
  - Right Turn Lane will need to remain
- NB US 17
  - Dual 250' Left Turn Lanes (one existing)
  - Right Turn Lane will need to remain
  - Construct additional receiving lane on NC 210
- SB US 17
  - Extend existing Right Turn Lane to 500'

If changes are made to the proposed site driveways and/or use, the current trip distribution may need to be modified and would require a revised Traffic Impact Analysis to be submitted for review by the NCDOT, WMPO, and Pender County. This approval would become null and void.

The applicant is required to obtain all applicable Pender County and NCDOT permits for access to the road network. All applicable NCDOT and Pender County technical standards and policies shall apply.

Please contact me at 910-473-5130 with any questions regarding this approval.

Sincerely,

Amy L Kimes

Amy Kimes, PE
Project Manager
Wilmington Metropolitan Planning Organization

Cc: Patrick Riddle, District Engineer, NCDOT
Jessi Leonard, PE, Division Traffic Engineer, NCDOT
Stoney Mathis, PE, Deputy Traffic Engineer, NCDOT
Kyle Breuer, Planning Director, Pender County
Megan Crowe, Senior Planner, Pender County
Bill McDow, Transportation Planner, WMPO
Mike Kozlosky, Executive Director, WMPO

PENDER COUNTY UTILITIES
P.O. BOX 995
605 E. FREMONT STREET
BURGAW, NC 28425

May 23, 2017

River Rock Farms, LLC
2511 S. Canterbury Road
Wilmington, NC 28403

RE: Water Capacity
Lanes Ferry Landing

To Whom It May Concern:

Please find this letter as written confirmation that, at this time, Pender County Utilities has sufficient water capacity to provide water service for the Development known as Lanes Ferry Landing – Phase 1, to serve approximately 200 lots. Please note that capacity is allocated on a first come, first serve basis.

PCU must review preliminary design plans for the proposed waterline extensions required to serve this development, when they are complete and submitted for our review.

Please feel free to contact me should you have any questions pertaining to this matter.

Thank you,

Bryan McCabe, PE, Project Engineer
Pender County Utilities

PENDER COUNTY UTILITIES
PHONE: (910) 259-1570
FAX: (910) 259-1579

Attachment 4

Old North State Water Co.
An
Company

November 7, 2016

Via E-mail @ chtrask@ec.rr.com

Mr. Heide Trask
2511 Canterbury Road
Wilmington, NC 27403

Re: Memorandum of Understanding for the Wastewater Treatment Faculties to be constructed at Land's Ferry Landing Subdivision, Pender County,

Dear Mr. Trask:

At your request, Old North State Water Company, LLC (ONSWC) is providing you this Memorandum of Understanding between ONSWC and River Rock Farm, LLC (RRF) concerning the construction, ownership, and operations of the Wastewater Treatment Facilities consisting of a wastewater treatment (WWTP), a wastewater collection system (WWCS), High-rate Infiltration Basins (HRIB), and a Groundwater Lowering Discharge System (GWLS) to serve all connections to be constructed within Lane's Ferry Landing Subdivision in Pender County.

ONSWC shall be responsible for the design and permitting of the WWTP, the HRIB, and the GWLS. RRF shall be responsible for design and permitting of the WWCS.

It is anticipated that construction of the WWTP will be as follows: Phase 1 – approximately 62,000 GPD; Phase 2 – expand to approximately 122,000 GPD; Phase 3 – expand to approximately 250,000 GPD; Phase 4 – expand to approximately 500,000 GPD; and, if required, Phase 5 – expand to approximately 800,000 GPD. Construction of the each expansion will begin once actual flows exceed ninety percent (90%) of the existing capacity.

ONSWC will prepare the Asset Purchase Agreement (APA) and related documents reflecting its full understanding and containing such terms and conditions which are normal, usual and appropriate including the financial responsibility of each party, a listing of assets to be acquired and representations and warranties from RRF and ONSWC regarding due authorization, title to and condition of assets and regulatory compliance, as well as indemnification provisions and closing conditions. The APA will be subject to the mutual approval of the both RRF and ONSWC.

The APA will be subject to the receipt of all required approvals from regulatory agencies (including Pender County, the Division of Water Resources of the North Carolina Department of Environmental Quality, and the North Carolina Utilities Commission) to enable OWSWC and RRF to install the Wastewater Utility Facilities and for ONSWC to assume the ownership and operation of the Wastewater Utility Facilities and to provide wastewater utility service to the lots in the Subdivision.

I trust this information provides you with what you need to proceed with your plans.

If I can be of further assistance, you may contact me at 919-971-1926.

Sincerely,

Rudy Shaw

Rudy Shaw

BISSELL PROFESSIONAL GROUP

The Coastal Experts

August 18, 2017

Pender County Planning & Community Development
P. O. Box 5
Burgaw, NC 28425

RE: Lane's Ferry Wastewater Treatment & Disposal System
Pender County

Ladies & Gentlemen:

The purpose of this letter is to provide an overview of the wastewater treatment and disposal system that has been designed by this firm and permitted by the North Carolina Division of Environmental Quality. These comments are based on Permit No. WQ0033710 that was renewed on May 26, 2017, and the construction drawings, specifications and design data that were prepared in support of that permit.

We are providing an overview of the system, some information on the treatment method that is being employed and the expected reduction in waste strength, the effluent disposal methodology, and some information on backup provisions, safety, noise and odor considerations.

OVERVIEW OF TREATMENT & DISPOSAL:

The design for the wastewater treatment and disposal system to serve the Lane's Ferry community is sized based on using 120 gallons per day (gpd) per bedroom for residential development, and 880 gallons per day per acre for non-residential development, in accordance with criteria established by the Department of Environmental Quality.

The facility has been designed in a way that will enable it to be built in up to 4 phases. Phase 1 consists of a 100,000 gpd treatment train with high-rate infiltration basin and associated groundwater lowering system, system controls and operations building. Phase 2 consists of an additional 100,000 gpd treatment train and system controls. Phase 3 consists of a 400,000 gpd treatment train with high-rate infiltration basin, groundwater lowering system improvements, system controls and a blower operations building. The tankage installed from Phases 1 & 2 will be converted to flow equalization and sludge holding respectively. Phase 4 will consists of an additional 400,000 gpd treatment train with high-rate infiltration basin, groundwater lowering system improvements and system controls.

TREATMENT METHOD & EXPECTED RESULTS:

The approved design for the wastewater treatment plant serving the development is for an advanced wastewater treatment process using the Modified Ludzack-Ettinger (MLE) process for biological nutrient removal (BNR).

The plant will utilize an equalization basin to smooth out surges in the wastewater flow, followed by an anoxic denitrification zone, followed by extended aeration, clarifiers, and tertiary filtration. Chemical addition will be used as necessary for alkalinity and carbon supplementation as well as phosphorous reduction in the effluent stream. Ultraviolet disinfection is then employed prior

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to disposal of the effluent.

The MLE process removes biological nutrients by cycling the waste stream back and forth between the aerobic and anoxic areas of the treatment plant, whereby nitrification and denitrification occur, with the result being nitrogen removal from the waste stream prior to discharge into the infiltration ponds. The design is approved to effect the following reductions in the strength of the waste stream:

1. Biochemical Oxygen Demand:

   Reduction from 265 milligrams per liter to 10 milligrams per liter (96% reduction)

2. Total Suspended Solids:

   Reduction from 240 milligrams per liter to 5 milligrams per liter (98% reduction)

3. Ammonia Nitrogen:

   Reduction from 30 milligrams per liter to 2 milligrams per liter (93% reduction)

4. Total Nitrogen:

   Reduction from 50 milligrams per liter to 7 milligrams per liter (86% reduction)

In addition, Phosphorus will be reduced to a maximum of 3 milligrams per liter and fecal coliform will be reduced to 14 per 100 milliliters which meets North Carolina's standards for reclaimed water. The effluent at that point is clean enough to be used for the irrigation of public areas and other reuse type disposal methods.

DISPOSAL METHOD:

The high quality treated effluent will be conveyed from the wastewater treatment facility to infiltration basins, where water will be infiltrated into the ground and diluted by groundwater. Prior to entering the infiltration ponds, the effluent will meet the groundwater standards promulgated by the North Carolina Department of Environmental Quality.

The treated effluent is expected to be colorless and odorless. A hydrogeological investigation has been performed to make sure that the water discharged into the ponds will infiltrate at a rate that will keep the water level from rising to within 2 feet of the surface. That 2 foot minimum vertical buffer will be maintained at all times, with the clear effluent infiltrating continuously into the soil, which acts as an additional filter.

In order to control the level of groundwater on the site, a subsurface drainage system will be installed at a distance of approximately 100 feet from the infiltration basins. Under North Carolina rules affecting this type of disposal system, the water at the location of the collection system will be considered "groundwater" and will not be subject to further regulation, due to its quality meeting or exceeding the quality for groundwater prescribed by the DEQ.

The groundwater that is collected from the site will be pumped to existing and proposed lakes within the development, which will be used to attenuate the groundwater flow by providing temporary storage.

PROPOSED BACK-UP PROVISIONS, SAFETY, NOISE AND ODOR CONSIDERATIONS

Under North Carolina's Coastal Regulations, all necessary components of the wastewater treatment plant will be dualized. This dualization includes all pumps, blowers, motors, treatment components, and disinfection units, so that the plant can continue to function with the largest of any necessary treatment unit temporarily out of commission.

Also, all necessary pumps, blowers, motors, and disinfection units will be connected to an automatically-actuated stand-by power system that will continue to operate the facility during any power outages.

Odors associated with the treatment process are primarily in the equalization basin, where aeration occurs but otherwise the waste stream has not yet undergone treatment. The equalization tanks have been designed so that they can be covered if odors become problematic, allowing the addition of air scrubbers to eliminate any offensive odors.

We would typically expect odors to not be detectable beyond a distance of 500 feet. Since neighboring residences are beyond this distance, odor control has not been included in the original design; however, if odor is detected beyond the buffer area, the cover and air scrubber can be easily added.

In order to reduce noise, exterior blowers will be outfitted with silencers as well as being recessed for noise attenuation. The remaining plant blowers will be enclosed within a dedicated structure, with only the muffled exhaust discharging to atmosphere outside the building. There should be no odor emanating from the building, as it houses pumps, motors, controls, and chemical feed equipment.

The plant itself will be buffered by existing trees, and is also located several hundred feet from adjacent property lines; therefore, it is anticipated that noise will not be noticeable from adjacent properties. Also, additional vegetation can be planted to further buffer the facility, if the existing vegetated buffers are not sufficient.

Finally, monitoring wells will be installed in appropriate locations on the wastewater disposal site for the purpose of sampling and testing the groundwater quality, to demonstrate compliance with North Carolina's groundwater standards.

This is just a brief overview of the process; I am available to answer any questions you may have or provide additional information as you complete your review.

Sincerely,
Bissell Professional Group

Mark S. Bissell, P.E.

594-2017 Technical Review Committee (TRC) Responses

Floodplain Manager
Please show Special Flood Hazard Areas on each of the pages of the plans. It appears there is no area located in the SFHA in the Major Site Plan area for the wastewater site.

NC DOT Division of Highways
No comment.

Pender County Environmental Health
No comment.

Pender County Fire Marshal
No comment.

Pender County Parks and Recreation
No comment.

Pender County Soil and Water Conservation District
No comment.

Wilmington Metropolitan Planning Organization (WMPO)

1. *The property has a driveway off a street in the Lanes Ferry Subdivision that is designated as a public road. A NCDOT driveway permit may be required.*
2. *Please show the street corner radius and dimensions for the Waste Treatment Plant driveway.*
3. *Show the location of handicap signs for the proposed parking lot.*
4. *Provide information on the roadway and sidewalk connections to the Treatment and Infiltration Areas for this site.*

Recommendations:

1. *Provide curb and gutter for the proposed parking lot.*
2. *Provide bicycle parking for the site.*
3. *The length of the proposed driveway and parking lot are greater than 250', please show how Fire Engines will turn around on the property. A hard surface turn around near the Four Stage Treatment Plant may meet this need.*

PLANNING STAFF REPORT
CONDITIONAL ZONING MAP AMENDMENT
HARDISON NC HWY 210 TRACT

SUMMARY:

Hearing Date:	August 1, 2017 Planning Board, tabled September 6, 2017 Planning Board October 16, 2017 Board of Commissioners
Applicant:	Hardison Building Company
Property Owners:	Gerald D. Hardison
Case Number:	CZMA 585-2017

Rezoning Proposal: Hardison Building Company, applicant, on behalf of Gerald D. Hardison, owner, is requesting the approval of a Conditional Zoning Map Amendment for one (1) tract totaling approximately ±326.15 acres from RA, Rural Agricultural zoning district to RM-CD3, Residential Mixed Conditional zoning district 3, and an additional three (3) tracts as part an overall Master Development Plan for a total of ±347.23 acres. This request is to allow for single family and single family townhome residential units.

Property Record Number, Acreage, and Location: The subject properties are located along the south side of NC HWY 210 approximately ± 2,100 feet to the east of the intersection of NC HWY 210 and Island Creek Road (SR 1002) in the Topsail Township and may be further identified by Pender County PINs: 3273-50-0693-0000, 3273-71-1319-0000, 3273-61-9426-0000, and 3273-32-7562-0000.

RECOMMENDATION

Hardison Building Company, applicant, on behalf of Gerald D. Hardison, owner, is requesting the approval of a Conditional Zoning Map Amendment for one (1) tract totaling approximately ±326.15 acres from RA, Rural Agricultural zoning district to RM-CD3, Residential Mixed Conditional zoning district 3. This request is to allow for single family and single family townhome residential units. As submitted, the request appears to meet all criteria set forth in Section 3.4.4 Review Criteria for Rezoning of the Pender County Unified Development Ordinance. The proposed development is consistent with the 2010 Pender County Comprehensive Land Use Plan and with the Pender County Unified Development Ordinance. Therefore, the administrator respectfully recommends approval of the development as proposed with conditions.

DESCRIPTION

The proposed development consists of 157 single family residential lots and 405 townhomes, for a total of 562 single family residential units on ±326.15 acres of land. Access to the subject parcel is granted from NC HWY 210 through property under the same ownership submitted as part of the Master Development Plan submittal. The properties through which access is granted from NC HWY 210 are reserved for future development on the submitted Master Development Plan.

Proposed Uses

		Zoning Districts									
Use Type	Ref NAICS	RA	RP	RM	MH	PD	GB	OI	IT	GI	EC
MISCELLANEOUS USES											
SFD: Detached – Conventional		P	P	P	P	P					
SFD – Townhouse (5+ attached)				P		P					

The proposed uses within the RM, Residential Mixed conditional zoning district 3 are to include the use of single family residential detached conventional housing, as well as, single family townhomes. Both uses are permitted by-right in the RM, Residential Mixed zoning district.

All other uses or expansions will be prohibited unless an alteration is made to the approval. Any changes to the requested petition shall be processed in accordance with amendments to the zoning map and in accordance with Section 3.4 of the Pender County Unified Development Ordinance.

Density

The approved net density of the Master Development Plan is shown below. According to Section 4.8.1.D.1 the net density in the RM, Residential Mixed zoning district shall be a maximum of five (5) units per acre and is in compliance with the required density of the Unified Development Ordinance. This proposal is compliant with the Pender County Unified Development Ordinance.

Table 1

Total Acreage	347.23
Non-Residential Acreage	0
Wetlands Acreage	142
Right-of-Way Acreage	35.07
Open Space Acreage	54.79
Active	10.13
Passive	44.66
Total Units	562
Developable Land	204.69
Net Density	2.74

Setbacks

Per Section 4.14, Zoning District Dimensional Requirements, the setback requirements for the RM, Residential Mixed zoning district are to be specified on the Master Development Plan and subject to review and approval. The applicant has proposed the following dimensional requirements:

Table 2

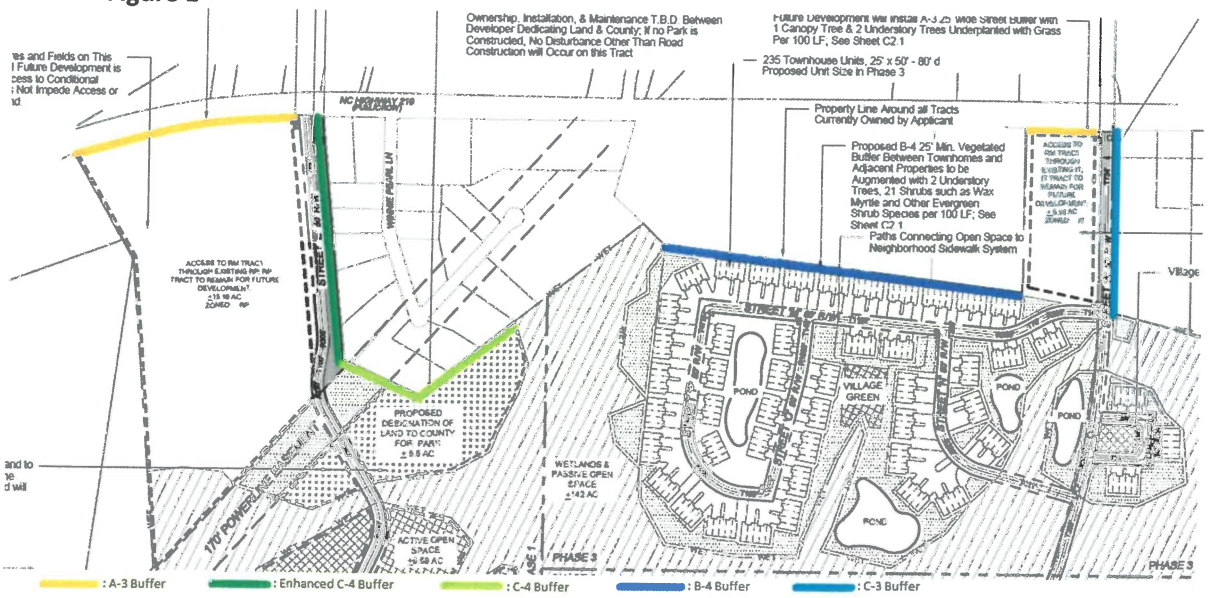
Proposed Dimensional Standards for RM-CD3 Zoning District	Single Family Conventional Lots	Single Family Townhomes
Minimum Lot Size (in sq. ft.)	5,000	1,250
Minimum Lot Width	20'	20'
Minimum Front Yard	5'	10'
Minimum Side Yard	5'	10'

Minimum Corner Yard	5′	10′
Minimum Rear Yard	10′	10′
Chord	15′	15′
Maximum Building Height	35′	35′

Landscaping and Buffers

The applicant has proposed a 25′ wide Type A-3 buffering on all road frontages on the exterior of the development. An enhanced 50′ Type C-4 buffering is provided along the eastern entrance of Street "E" adjacent to the residents living along Winnie Pearl Lane (private) based on comments received at the community meeting from adjacent property owners. The augmented 50′ Type C-4 Buffer will include a 6′ high wood opaque fence. A 25′ Type C-4 Buffer is provided along the southern and eastern boundaries of the residential lots along Winnie Pearl Lane (private). The neighborhood park shall remain undisturbed in its natural state until the County develops the property. A 20′ Type C-3 Buffer is provided along the entrance to Street "A" adjacent to the existing residential houses to the east of the entrance. A 25′ Type B-4 vegetated buffer is also provided along the townhomes and the properties along NC HWY 210. Buffering within the Duke Energy powerline easement is subject to review and approval by the utility. No additional buffering is required according to Section 8 of the Pender County Unified Development Ordinance. The applicant met with adjacent residents to discuss buffering concerns on August 25, 2017 and agreed upon the conditions outlined in this report. The applicant shall remove all trees along NC HWY 210 to the west of Street E's access to the development prior to preliminary plat approval for Phase I.

Figure 1



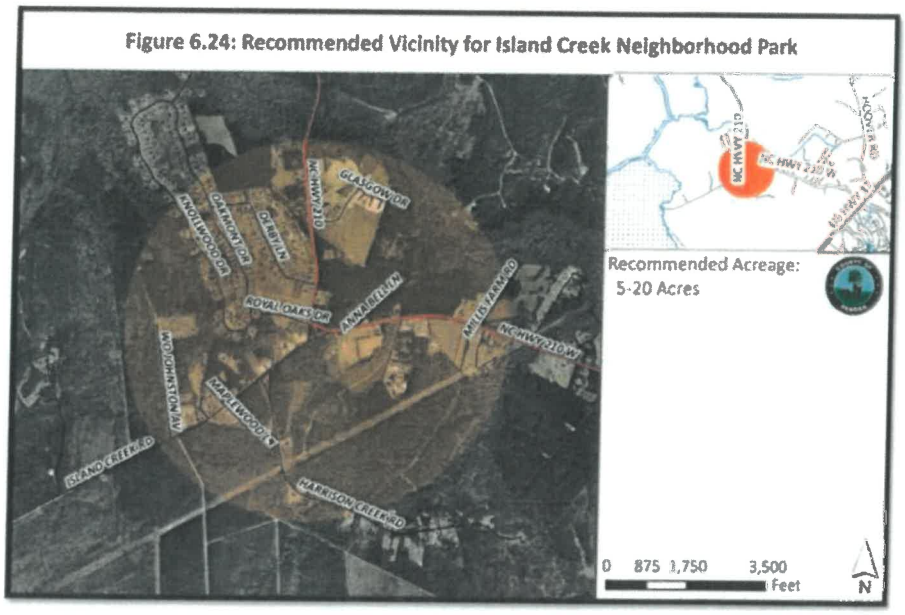
Recreational Units

According to the Pender County Comprehensive Parks and Recreation Master Plan, the site is located in an area identified for a recommended county-managed neighborhood park. A neighborhood park is suited for intense development, with easy access for bicycle, pedestrian, and neighborhood access. The desirable acreage is between 5-20 acres and facilities could include field games, court games, playground apparatus

areas, and picnicking. According to N.C.G.S. 153A-331, a subdivision control ordinance may provide for the orderly growth and development of the county for the dedication or reservation of recreation areas serving residents of the immediate neighborhood within the subdivision.

The applicant has reserved ±5.5 acres for this neighborhood park on the submitted site plan. Consistency with Pender County Parks and Recreation Comprehensive Master Plan is required in Section 7.6.1.E.9 of the Unified Development Ordinance. If any portion of any subdivision proposed for residential development lies within an area designated on the officially adopted Plan as a park, such area shall be included as part of the area set aside to satisfy the requirements of this Article up to the maximum requirement of open space calculations. This area shall be reserved for public use. The park is located along Street "E" which includes an 8' feet wide multi-use path connecting the park to NC HWY 210. Dedication of land shall be required prior to the zoning approval of any phase in the development. If the County does not accept the property, then the property will remain as community open space. The neighborhood park shall remain undisturbed in its natural state until the County develops the property at which time the County shall install and maintain specific buffers working with the community.

Figure 2



Source: Pender County Comprehensive Parks and Recreation Master Plan

For 562 single family lots, the applicant is required six (6) recreation units totaling a minimum of $60,000. The applicant has provided an amenity site featuring a clubhouse exceeding the required amount and has submitted the required documentation (Attachment 1).

Open Space

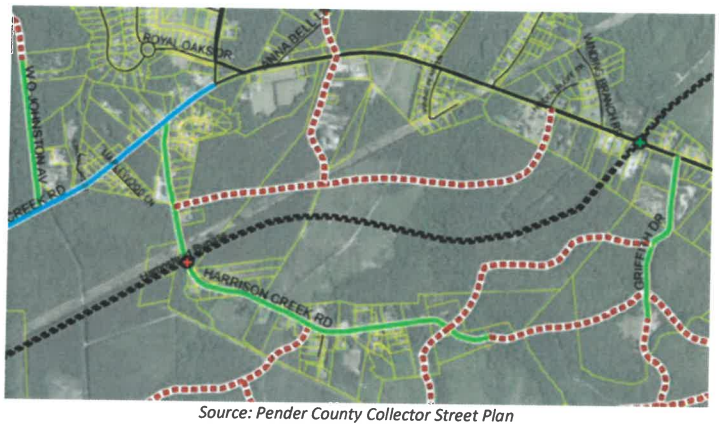
Based on 562 residential lots, 16.68 acres of open space is required. The applicant has provided 44.66 acres of passive open space and 10.13 acres of active open space, meeting Ordinance requirements. The applicant has provided unified open space to the extent possible, as required in Section 7.6.1.E.1 of the Unified Development Ordinance. Much of the passive open space is not accessible or is classified as wetlands. Active open space is provided near the recommended neighborhood park area in a unified and cohesive manner. Access to active open space is provided via Streets "A" and "E" which also provide sidewalk connections to the proposed active open space.

Roadways

Public Roadways

The applicant has submitted the following information regarding planned Collector Streets and public rights-of-ways. Streets "A", "B", "E", "F", and "I" are designated as public and are to be dedicated to NCDOT. All streets are in conformance with the County's Collector Street Plan.

Figure 3

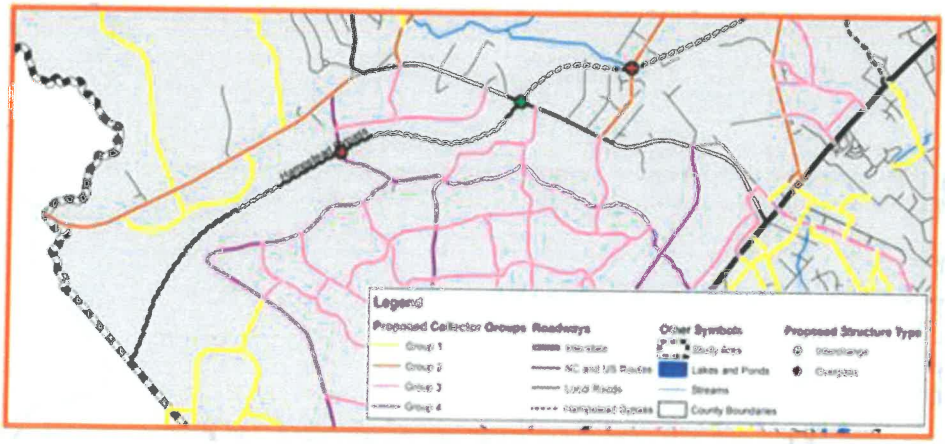


Source: Pender County Collector Street Plan

Three access points are provided for the development proposal. Two access points are to the north from NC HWY 210. Streets "A" and "E" provide a direct connection to NC HWY 210. Streets "E" and "I" provide a connection from US HWY 17 to Harrison Creek Road (SR 1573). Connections to adjacent parcels are provided through Streets "F" and "B". Based on comments received from the Fire Marshal at the Technical Review Committee (TRC) meeting, connectivity for fire access is required across the property from east to west. Two Collector Streets are identified on the subject parcel per the Pender County Collector Street Plan to provide connections to Harrison Creek Road (SR 1573) and Griffith Drive (private).

The required Collector Streets groupings are shown in Figure 2 below. All Collector Streets are identified as 'Group 3' roadways.

Figure 4



The applicant has not provided an additional connection towards Griffith Drive (private). According to Section 7.5.1.B, any deviation from the required spacing standards, width, grade, or character of the

streets may be granted based on the approval of the Administrator. Maximization of the number of lots or parcels in a land division is not a reason to allow a waiver or modification. Criteria for approval may include 401 or 404 Wetlands as depicted by USACE wetland verification or as presented in written or map form by a wetlands consultant or professional wetlands scientist that identifies wetlands present within the project area and alternative locations of collector streets cannot be achieved. Supplemental information has been provided (Attachment 2) exempting the eastern connection to Griffith Drive (private) as show above.

However, according to Section 7.5.3.C, private streets are required to built to public collector street standards when any of the following criteria are met:

1) When the subdivision contains streets that have any dimension of more than 5280 ft.,
2) When any street in the subdivision has the potential to serve more than 200 residential or commercial units,
3) When access to any lot or unit in the subdivision is more than 5280 ft. by a private street to a public street,
4) When existing public streets have been dedicated or constructed to the property line of the subdivision,
5) When access to adjacent properties will be hindered as a result of private streets being allowed in the subdivision.

All proposed public and private streets meet ordinance standards. Additional street information is shown below.

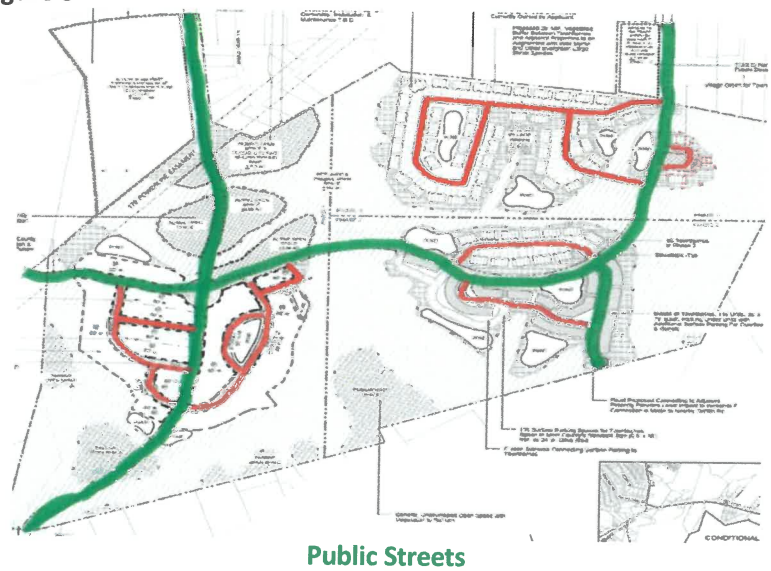
Figure 5

ROAD DESIGNATIONS

STREET	DESIGNATION	LENGTH	COLLECTOR RD.	COLLECTOR RD. TYPE	SIDEWALK/PATH
A	PUBLIC	5,098'	YES	LOCAL,GROUP 3	(1) 8' WIDE SIDEPATH
B	PUBLIC	1,028'	YES	LOCAL,GROUP 3	(2) 5' WIDE SIDEWALKS
C	PRIVATE	1,194'	NO		
D	PRIVATE	1,090'	NO		
E	PUBLIC	2,550'	NO		
F	PUBLIC	988'	YES		(1) 8' WIDE SIDEPATH
G	PRIVATE	1,165'	NO		
H	PRIVATE	582'	NO		
I	PUBLIC	2,607'	YES	LOCAL,GROUP 3	(1) 8' WIDE SIDEPATH
EAST J	PRIVATE	1,507'	NO		
WEST J	PRIVATE	502'	NO		
K	PRIVATE	732'	NO		
L	PRIVATE	598'	NO		
M	PRIVATE	1,645'	NO		
N	PRIVATE	1,054'	NO		
O	PRIVATE	735'	NO		
P	PRIVATE	976'	NO		

ALLEY	DESIGNATION	LENGTH	
1	PRIVATE	466'	NO

Figure 6



Public Streets
Private Streets

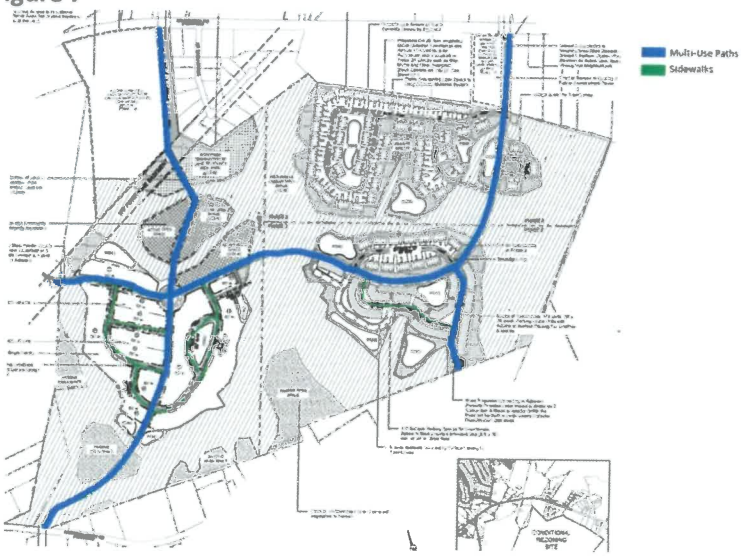
Private Roadways

Streets "A" and "F" are 50' right-of-way's with an eight (8') foot side path. Streets "C", "E", "G", "H", "I", and "J" are shown as 50' right-of-way's with a five (5') foot sidewalk on one side of each roadway. Street "B" provides a 5' sidewalk on each side of the roadway. Streets "D", "L", "M", "N", "O", and "P" are designated as private roadways in the townhome portion of the development. The applicant proposes an additional 20' wide alleyway that meets ordinance requirements.

Pedestrian Access

Per Section 4.8.1.E.2 pedestrian-oriented communities are encouraged to maximize opportunity for pedestrian activity and improve the quality of the pedestrian experience. The applicant has proposed sidewalks on the roadways internal to the subdivision. The applicant has proposed sidewalks be constructed throughout the community on the public and private roadways.

Figure 7



These sidewalks will create an opportunity for increased pedestrian activity. Proposed sidewalks provide pedestrian flow to each of the active open space areas providing a safe and usable pedestrian route. The applicant's submitted site plan shows Streets "A", "B", "E", "F" and "I" with an 8' wide multi-use path. Streets "C", "G", "H", "J", and "K" provide a 5' wide sidewalk on one side of the road. The submitted sidewalks are in compliance with the Unified Development Ordinance requirements.

Traffic

A Traffic Impact Analysis (TIA) scoping letter was approved by the Wilmington Metropolitan Planning Organization (WMPO) on June 18, 2017. The TIA scoping letter is available as Attachment 3. The following intersections were recommended for study in the TIA:

- NC HWY 210 and US HWY 17
- NC HWY 210 and Island Creek Road
- Island Creek Road and Dallie Futch Road
- NC HWY 210 and Royal Oak Drive
- Island Creek Road and Harrison Creek Road
- Island Creek Road and Site Access 2
- Island Creek Road and Site Access 3
- Harrison Creek Road and Access 1

Based on comments received from the Technical Review Committee (TRC), driveway permits will be required from NCDOT, along with possible roadway improvements. Public roads will need to be reviewed through the state's Hydro office for compliance.

Hampstead Bypass

The subject properties are located within the corridor for the NCDOT's R-3300A Hampstead Bypass project which is currently the unfunded segment of the roadway. Section 17(a) of HB 959 states that all restrictions imposed under Article 2E of the North Carolina General Statutes, "Transportation Corridor Official Map Act," are no longer applicable to properties designated under the rescinded maps. This would include prohibitions on the issuance of building permits and subdivisions of property. The local government cannot restrict the application for either activity, but can advise applicants of future planned transportation projects.

Utilities

According to the applicant's submitted narrative, the applicant intends to utilize an existing Pender County Utilities (PCU) water line along NC HWY 210. The applicant also intends to utilize a private regional wastewater system, Pluris Hampstead, LLC., for wastewater disposal and treatment (Attachment 4). The extension of the private wastewater utility, Pluris LLC., along NC HWY 210, allows for the density and type of development requested within this proposal. Without the extension of the wastewater line to the subject parcels, the densities requested may not be supported by the Comprehensive Land Use Plan.

Environmental Concerns

The subject parcel not located within a CAMA Area of Environmental Concern (AEC). The property is not located in the Special Flood Hazard Area and therefore no flood standards are required. According to the applicant's submitted site plan, wetlands are impacted by development on the subject parcel. No Jurisdictional Delineation has been submitted by the applicant and will be required prior to any approvals.

Any disturbance within these wetlands as proposed subject to review and approval by the U.S. Army Corps of Engineers.

Stormwater
The applicant proposes stormwater retention facilities to be located throughout the development. Each lot will be dedicated a maximum of 5,500 square feet of impervious surface coverage. The applicant is required to accommodate a ten year storm event according to Section 7.9.1 of the Pender County Unified Development Ordinance. All stormwater and drainage approvals are required prior to any zoning approvals.

Outdoor Lighting
Outdoor lighting is shown on the submitted site plans and is in compliance with Section 7.11 of the Pender County Unified Development Ordinance. The applicant met with adjacent residents to discuss lighting concerns on August 25, 2017 and agreed to minimize lighting impacts, especially near the Duke Energy transmission lines and has agreed to omit lighting within the powerline easement.

Signage
Proposed neighborhood signage is located along the entrances to the development along streets "E" and A". All signage shall meet the requirements of Section 9 of the Pender County Unified Development Ordinance.

Public Input Meeting
The public meeting was held on July 13, 2017 from 6pm-7pm in the Hampstead Annex auditorium. Approximately 15 to 20 residents of the surrounding community came to the open house style meeting to speak with the project engineer and developer. Concerns from citizens included schools, traffic, wetlands and drainage, buffering, the location of the Hampstead Bypass and the subject parcels, and the curve of NC HWY 210 at this location. A report from that meeting can be found in Attachment 5. The applicant met onsite with adjacent residents to discuss various concerns on August 25, 2017 and agreed upon the conditions outlined in this report. A report from that meeting can be found in Attachment 6. The comments received from that meeting are incorporated into the potential conditions seen below.

TECHNICAL REVIEW COMMITTEE (TRC) RESPONSES
Pender County's Technical Review Committee meeting was held on Tuesday, June 7, 2017 at 9 A.M. in the Board of County Commissioners meeting room, to review the proposal. The comments can be found in Attachment 7.

EVALUATION:

A. **Public Notifications:** Advertisements for the proposal have been placed in the Pender-Topsail Post & Voice. Adjacent property owners within five hundred feet (500') of the subject parcel were notified by first class mail; and a sign advertising the public hearing was placed on the subject properties.

B. **Existing Zoning in Area:** The subject property is currently zoned RA, Rural Agricultural zoning district. The subject properties are bordered by RP, Residential Performance zoning district properties to the west and south, with additional RP tracts located to the north along NS HWY 210. To the east and west are additional RA, Rural Agricultural zoning district tracts. IT, Industrial Transitional zoning district properties are located to the north of the subject properties along NC HWY 210, with a GB, General Business zoning district property to the northwest.

C. **Existing Land Use in Area:** The subject parcels are surrounded by low density residential to the north and south, with vacant land to the east. Adjacent to the western side of the site is the recently approved Harrison Cove residential subdivision. Light industrial and commercial uses are located to the north along NC HWY 210. Additional single-family residential subdivisions are located within the general vicinity of the subject parcels.

D. **2010 Comprehensive Land Use Plan Compliance:** The subject parcel is designated as Suburban Growth. The Suburban Growth land use classification identifies those areas of Pender County where significant residential growth is expected to occur within the planning horizon. Areas designated as Suburban Growth are located primarily adjacent to municipal planning jurisdictions and within or near high growth, unincorporated areas of the County, i.e., Hampstead/Scotts Hill, Rocky Point, and portions of US 421 South. Suburban Growth designates areas where public water and public sewer are available or are planned in the near future. Achievable residential densities would be dependent on the type and level of public services that are available. Higher density residential development would be supported where both public water and sewer are available, provided adequate buffers and design features can minimize impacts on neighboring lower density residential properties. The extension of the private wastewater utility, Pluris LLC., along NC HWY 210, allows for the density and type of development requested within this proposal. Without the extension of the wastewater line to the subject parcels, the densities requested may not be supported by the Comprehensive Land Use Plan. Based on the submitted documentation of public water and the proposed wastewater extension, the proposed development meets the requirements of the Comprehensive Land Use Plan.

Uses that would typically be allowed in Suburban Growth areas include medium-high density residential (single-family site-built and modular homes); limited non-residential uses - commercial, office, or public/institutional - meeting locational criteria. Locational criteria for non-residential uses include frontage and access to a major State highway or secondary road, location at a major intersection, proximity to similar uses, and spatial separation from non-compatible uses such as existing residential development.

The Conditional Zoning Map Amendment request is supported by seven (7) policies within the 2010 Comprehensive Land Use Plan and is in compliance with the Suburban Growth Land Use Classification:

Policy 1A.1.6 - Use conditional zoning process to enable developers to contribute to addressing the impact of developments on capital facilities and other resources; incorporate regulations into new Unified Development Ordinance to enable a small project to address specific impacts to an existing adjacent community

Policy 1A.1.2 - Encourage development in areas where the necessary infrastructure – roads, water, sewer, and schools - are available, planned or can be most cost effectively provided and extended to serve existing and future development.

Policy 2B.1.4 - Adopt regulations that require new developments and individual sites throughout the County to provide vehicular and pedestrian interconnectivity to existing or planned adjacent sites and adjoining developments.

Policy 2B.1.9 - As recommended in the Coastal Pender Collector Street Plan, all new streets that have the potential to connect to adjacent developments should be constructed to NCDOT secondary road standards and accepted for public maintenance to ensure future connectivity.

Policy 2E.1.2 -Ensure that streets and parking lots within new developments are designed and constructed to accommodate the turning radius and load bearing requirements for emergency services vehicles and equipment.

Policy 4A.1.2 - The preference is for larger-scale developments that plan for and provide public utilities that serve on a regional basis or that can be expanded to serve a regional purpose. Individual on-site well and septic systems and small package plants that provide water or sewer service on a small scale should not be permitted.
Policy 7B.1.3 - If practical, require development plans to arrange open space/amenities adjacent to other open space areas, county parks and recreation facilities, or state, federal, or other protected lands.

The request utilizes the Conditional Rezoning process to address concerns of the neighbors surrounding the development. Connectivity is provided to adjacent state maintained roads and with adjacent developments. These roads are to be dedicated public and turned over to NCDOT for maintenance. The proposed roads incorporate comments from the fire marshal regarding safety and access. The extension of the private wastewater utility, Pluris LLC., is required for approval of this development. The area is not intended to be served by on-site septic systems or private well water. Additionally, requirements of the Parks and Recreation Master Plan have been met, and the parks have been arranged in a way that allow for connectivity with open spaces and other bicycle and pedestrian facilities, allowing for ease of access and use.

The Conditional Zoning Map Amendment request conflicts with one (1) policy within the 2010 Comprehensive Land Use Plan.

Policy 1A.1.3 - The County shall actively direct growth towards suitable land areas and away from fragile natural resources areas, conservation areas, and hazardous areas.

The proposal impacts a large number of wetlands and could disturb fragile natural resources that have been identified on the subject parcel.

E. **Unified Development Ordinance Compliance:** Section 3.3 of the Unified Development Ordinance provides for standards that shall be followed by the Planning Board and Board of County Commissioners before a favorable recommendation of approval for a rezoning can be made. The RM, Residential Mixed zoning district is designed to allow for a variety of conventional built and multifamily housing types which can be accommodated dependent on necessary infrastructure including but not limited to community or regional utilities and infrastructure.

Utilities
Public water services are available for the subject properties through Pender County Utilities. Additionally, there are no public wastewater utilities located near the subject parcels. The applicant proposes to extend the private wastewater utility, Pluris Hampstead, LLC., to the subject parcel to service the development. Without the extension of the wastewater line to the subject parcels, the densities requested may not be supported by the Comprehensive Land Use Plan. Based on the submitted documentation of public water and the proposed wastewater extension, the proposed development meets the requirements of the Comprehensive Land Use Plan. Any final zoning approvals are contingent upon review and approval by Pender County Utilities, Environmental Health, and appropriate local and state agencies.

Traffic & Roadways
According to Section 6.1.3.A.7 of the Pender County Unified Development Ordinance, any Master Development Plan proposal in a Commercial district that proposes to generate more than 100 trips during the peak morning or evening hours, or 1,000 trips per day requires a Traffic Impact

Analysis, or TIA. Trip estimates must be based on the latest version of the Institute of Transportation Engineers Trip Generation Manual per Section 6.1.3.A.14. The applicant submitted an approved scoping letter from the Wilmington Metropolitan Planning Organization (WMPO) for 296 peak AM trips and 368 peak PM trips, with a total weekday trip number of 3,848 (Attachment 2). A Traffic Impact Analysis will be required for the proposed project. The project is located within the NCDOT's R-3300A Hampstead Bypass project corridor which is currently the unfunded segment of the Hampstead Bypass project.

Schools
With an additional 562 residential units, an impact to the school system should be anticipated. Pender County Schools attended the TRC meeting on June 7, 2017, but did not provide comments on the potential impacts of the proposed development to the school system and did not demonstrate future plans to accommodate the possible increase in school age children due to the size of the proposed development.

3.4.4 Review Criteria for Conditional Rezoning
When evaluating an application for the creation of a conditional zoning district, the Planning Board and Board of Commissioners shall consider the following:
1) The application's consistency to the general policies and objectives all adopted Land Use Plans and Unified Development Ordinance.
2) The potential impacts and/or benefits on the surrounding area, adjoining properties.
3) The report of results from the public input meeting.

F. Conditions for Approval of Petition
Section 3.4.5 Conditions of Approval of Petition gives the Pender County Planning Board and the Board of County Commissioners the ability to add reasonable and appropriate conditions based on mutually established goals with the Applicant and adjacent property owners. Potential conditions include:

1. The applicant shall dedicate the designated ±5.5 acre neighborhood park land to County for the future parks and recreation facilities as delineated on the master development plan along Street E. Dedication of land shall be required prior to the zoning approval of any phase in the development. If the County does not accept the property, then the property will remain as community open space.
2. A Type B-4 buffer shall be required along the project between the Phase II townhomes adjoining Street M.
3. An enhanced Type C-4 buffer to contain a 50' foot wide strip with an evergreen hedge that will provide a continuous screen at least 6' high within 4 years, 2 understory trees and a grass cover of at least 98 % coverage (except within 4 feet of the base of any tree), per 100 linear feet shall be required along the east side Street "E" to the existing powerline easement adjacent to the rear of the properties accessing Winnie Pearl Lane (private). This also includes a 6' tall opaque fence.
4. The neighborhood park shall remain undisturbed in its natural state until the County develops the property at which time the County shall install and maintain specific buffers working with the community.
5. Prior to any issuance of final zoning approval in Phase I the completed road network as shown on the submitted master development plan within Phase I must be constructed. This includes all adjacent roadway connections to Harrison Creek Road (SR 1573) and the connection of proposed Street F to the adjacent property to the west (to the approved residential subdivision known as Harrison Cove).
6. The applicant shall remove all trees along NC HWY 210 to the west of Street E's access to the development prior to preliminary plat approval for Phase I.

7. The applicant shall repair and regrade the existing ditch running north to south within the powerline easement prior to any final approvals for Phase I.
8. The applicant shall not place any street lighting within the powerline easement adjacent to Street E based on concerns from neighboring property owners.

RECOMMENDATION

Hardison Building Company, applicant, on behalf of Gerald D. Hardison, owner, is requesting the approval of a Conditional Zoning Map Amendment for one (1) tract totaling approximately ±326.15 acres from RA, Rural Agricultural zoning district to RM-CD3, Residential Mixed Conditional zoning district 3. This request is to allow for single family and single family townhome residential units. As submitted, the request appears to meet all criteria set forth in Section 3.4.4 Review Criteria for Rezoning of the Pender County Unified Development Ordinance. The proposed development is consistent with the 2010 Pender County Comprehensive Land Use Plan and the Pender County Unified Development Ordinance. Therefore, the administrator respectfully recommends approval of the development as proposed with conditions.

BOARD ACTION FOR CONDITIONAL ZONING MAP AMENDMENT REQUEST

Motion:_____ **Seconded:** _____

Approved: _____**Denied:** _____**Unanimous:** _____

Williams: ___ Fullerton: ____ Baker: ____ Carter: ____ Jordan: ____ McClammy: ____ Nalee: ____

APPLICATION FOR CONDITIONAL REZONING

THIS SECTION FOR OFFICE USE			
Application No.	ZMA-CD 585-2017	Date	5-22-17
Application Fee	$ 3,711.50	Receipt No.	Inv. 409
Pre-Application Conference	5-17-17	Hearing Date	PB: 7-5-17 BoC: 8-21-17

SECTION 1: APPLICANT INFORMATION

Applicant's Name:	HARDISON BUILDING COMPANY	Owner's Name:	GERALD D. HARDISON JR.
Applicant's Address:	PO BOX 809	Owner's Address:	SAME
City, State, & Zip	WRIGHTSVILLE BEACH, NC 28480	City, State, & Zip	
Phone Number:	910.794.1501	Phone Number:	
Email Address:	CONTACT: DEAN HARDISON dean@hardisonbuilding.com	Email Address:	

Legal relationship of applicant to land owner: SAME

SECTION 2: PROJECT INFORMATION

Property Identification Number (PIN):	REZONING: 3273-50-0693-0000 (NOT REZONED) ACCESS RD: PARCELS: 3273-32-7562-0000, 3273-71-1319-0000	Total property acreage:	326.15 AC
Current Zoning District:	RA	Proposed Zoning District:	RM-CD
Project Address or Location:	LOCATED BEHIND BUSINESSES ON HWY 210 NEAR GRIFFITH RD.		

Proposed Uses to be Considered (Include NAICS Code):

236115 SINGLE FAMILY HOUSE & HOUSE FOR SALE 236117, 236116 MULTIFAMILY, 236117, 236118

Proposed Uses to be Eliminated from Consideration (Include NAICS Code):

ALL OTHER USES UNRELATED TO SINGLE FAMILY, MULTIFAMILY, TOWNHOMES & ANY AMENITIES ASSOCIATED WITH THEM

SECTION 3: SIGNATURES

Applicant's Signature	[signature]	Date:	5-18-17
Owner's Signature	[signature]	Date:	5-18-17

NOTICE TO APPLICANT

1. Applicant must also submit the information described on the Rezoning Checklist.
2. Applicant or agent authorized in writing must attend the public hearing.
3. Once the public hearing has been advertised, the case will be heard unless the applicant withdraws the application or unless the Planning Board or other authorized person agrees to table or delay the hearing.
4. All fees are non-refundable
5. A complete application packet must be submitted prior to the deadline in order to be placed on the next Planning Board Agenda

RECEIVED
MAY 19 2017
TENDER PLANNING DEPT

PARAMOUNTE
ENGINEERING, INC.

Hwy 210 Tract Project Narrative:

The proposed development consists of PIN 3273-50-0693-0000 (326.15 acres) which is the parcel to be rezoned from RA to a conditional RM-CD district. Access will be through parcels 3273-71-1319-0000, 3273-61-9426-0000 and 3273-32-7562-0000 that are zoned IT, and RP respectively. The entire group of parcels will most likely be recombined during the zoning approval process, and that entire project acreage is 347.23 acres. However, this rezoning request focuses on a conditional rezoning request inside the 326.15 acre parcel boundary. The total unit count which consists of 562 units, has an overall density of 2.7 units to the acre based on the Pender County UDO method of calculation as shown on the conditional rezoning site plan. The breakdown of unit types are the following: 157 single family lots (40-50' wide x 120' deep, zero lot line homes, 117 single family detached, traditional homes at 60'wide x 150' deep. The project proposes 405 attached townhomes with 110 units at 30' wide x 75' deep and 295-townhomes at 25' wide x 50' deep. The three residential construction types (traditional single family detached homes, zero lot line single family homes, and townhomes) are the only uses considered in this conditional rezoning plan. The corresponding NAICS codes for the conditional uses are as follows: 236115 – single family residential, 236117 – new housing for sale builders. All of other uses that would otherwise be allowed in an RM zoning district are excluded from this request for the 326.15 acre tract.

This zoning district change was determined at the pre-application meeting. The RM-CD3 was chosen as the preferred district based on the future land use plan of suburban growth in this area of the county. This future land use supports a mixture of residential uses, which meets the applicant's end use for this project. The development will be served by a PLURIS wastewater extension along Hwy 210 to the site (if approved by the Pender County Boards). However, if the board chooses not to allow the PLURIS extension to the site, an on-site wastewater facility will be provided.

Water will be provided by Pender County utilities, with the developer constructing the necessary infrastructure to tie into the current system along Hwy 210. The property will be accessed through easements and/or rights of way for access to Hwy 210 as indicated on the site plan. The proper driveway permits and traffic impact analysis has been initially started will determine the phasing and extent of any off-site improvements generated by our development traffic. Two collector roads are on the property site based on the Pender County Collector Road Plan, which are shown on our proposed plan. The proposed development will employ regional type stormwater facilities to capture runoff from the proposed impervious area as required by state and county regulations and good engineering practice.

Further project specific information is located in our set of plans.

122 CINEMA DRIVE WILMINGTON, NC 28403
PH: (910) 791-6707 FAX: (910) 791-6760

Hwy 210 Tract Project Revised Narrative Responding to Planning Board Comments; Resubmitted August 8, 2017:

The adjacent neighbors expressed concerns over buffer distances. The applicant has agreed to increased buffers as noted on the plans. Buffers exceed the requirements of Pender County's Zoning Ordinance. The applicant will reach out to neighbors prior to the September Planning Board meeting to assure these plans sufficiently address their concerns on buffers. The applicant is in discussions with planning staff as updates on these negotiations occur. At date of this submittal, all agreements have been captured.

The applicant agrees to dedicate the approximately 5.5 acres of land to the County for a park. The details of this dedication are in discussion with the County, but the applicant has set the land aside for a County Park at this time. If the County chooses not to accept the land, the 5.5 acres will remain undeveloped passive open space.

The sidewalk and sidepath network was updated to be sure all active open spaces are accessible by some type of pedestrian walk system.

APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT ORDINANCE ADMINISTRATOR.
SIGNATURE: _____
DATE: _____
SITE PLAN VALID FOR TWO YEARS FROM APPROVAL DATE.

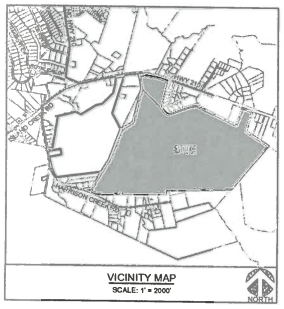
HWY 210 TRACT

HIGHWAY 210 IN TOPSAIL TOWNSHIP
PENDER COUNTY, NORTH CAROLINA

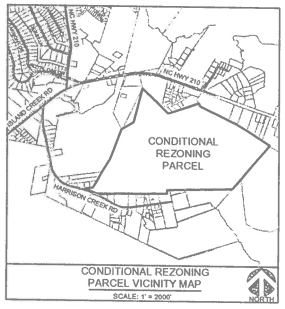
CONDITIONAL REZONING/ MDP SUBMITTAL
MAY 2017

REVISED FOR TRC COMMENTS JUNE 2017
REVISED FOR ADDITIONAL STAFF COMMENTS JULY 2017
REVISED FOR PLANNING BOARD COMMENTS AUGUST 2017

FOR:
HARDISON BUILDING COMPANY
P.O. BOX 809
WRIGHTSVILLE BEACH, NC 28480



VICINITY MAP
SCALE: 1" = 2000'



CONDITIONAL REZONING
PARCEL VICINITY MAP
SCALE: 1" = 2000'

NOTICE REQUIRED

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION

CONTACT "CAROLINA ONE CALL" AT
1-800-632-4949

CONTACT THESE UTILITIES

PENDER COUNTY PLANNING AND COMMUNITY DEVELOPMENT
ATTN: PAT O'MAHONY
PH: 910-520-1302

PIEDMONT NATURAL GAS
ATTN: CARL PAQUET
PH: 910-520-3002

EMERGENCY DIAL 911 POLICE - FIRE - RESCUE

NCDOT
ATTN: PATRICK NICOLE
PH: 910-343-3949

PENDER COUNTY UTILITIES (WATER)
ATTN: BRYAN McCABE, PE
PH: 910-259-5212

PLURIS HAMPSTEAD LLC (SEWER)
ATTN: RANDY HOPPER
EMAIL: RHOPPER@PLURISUSA.COM

DUKE ENERGY
ATTN: KEVIN LEATHERWOOD
PH: 910-602-1204

AT&T
ATTN: STEVE DAYVAULT
PH: 910-343-3844

TIME WARNER CABLE
PH: 910-715-4009

ENGINEER (CIVIL)/LAND PLANNER/LANDSCAPE ARCHITECT:
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
ATTN: TIM CLINGSCALES, PE; ALLISON ENGEBRETSON, RLA

SURVEYOR:
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
ATTN: CHRIS GAGNE, PLS. (910) 791-6707

SHEET INDEX

SHEET NUMBER	SHEET TITLE
C-0.0	COVER SHEET
EX-1	PROPERTY SURVEY EXHIBIT
EX-2	RECOMBINATION BOUNDARY & TOPOGRAPHY EXHIBIT
C-2.0	CONDITIONAL REZONING MDP SITE PLAN
C-2.1	CONDITIONAL REZONING MDP DETAILS

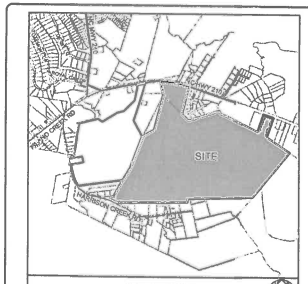
05/08/17

PREPARED BY:

PARAMOUNTE
ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (C) (910) 791-6760 (F)
NC License #: C-2846

PROJECT # 17223.PE

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION



VICINITY MAP
SCALE: 1" = 2000'

NORTH

SITE INFORMATION

APPLICANT INFORMATION:	HARDISON BUILDING COMPANY, LLC
CURRENT LAND USE:	VACANT LAND MIXED WITH FARM AND TIMBER LAND
CURRENT ZONING:	RA
PROPOSED ZONING:	RA-CD3
FUTURE LAND USE:	SUBURBAN GROWTH
PIN #:	3273-50-0863-0000 (REZONING TRACT), 3273-71-1319-0000, 3273-81-0428-0000, 3273-32-7987-0000 (SITE ACCESS PARCELS),
PROPOSED USE:	RESIDENTIAL MIXED USE, DETACHED SINGLE FAMILY, DETACHED SINGLE FAMILY ZERO LOT LINE, ATTACHED TOWNHOMES
TOTAL SITE AREA (INCLUDING AREA NOT REQUESTING REZONING):	±347.23 ACRES
TOTAL SITE AREA IN REZONING PARCEL:	±328.18 ACRES

DIMENSION REQUIREMENTS
MINIMUM POINT (UNCLASSIFIED CONDITIONAL)

MINIMUM LOT SIZE :	4,500 SF
LOT WIDTH:	20' W. MINIMUM
FRONTYARD SETBACK:	5' MINIMUM
SIDEYARD SETBACK:	5' MINIMUM
CORNER SIDEYARD SETBACK:	5' MINIMUM
REAR SETBACK:	10' MINIMUM
CHORD:	15' MINIMUM
MAXIMUM HEIGHT:	36'

SINGLE FAMILY (ZERO LOT LINE)

MINIMUM LOT SIZE :	4,500 SF
LOT WIDTH:	20' W. MINIMUM
FRONTYARD SETBACK:	5' MINIMUM
SIDEYARD SETBACK:	5' MINIMUM
CORNER SIDEYARD SETBACK:	5' MINIMUM
REAR SETBACK:	10' MINIMUM
EASEMENT ON LOT:	ON THE SIDE OPPOSITE THE ZERO LOT LINE AN 8-10' EASEMENT REQUIRED PER COUNTY ORDINANCE; SEE TYPICAL SINGLE FAMILY SETBACKS DETAIL THIS SHEET
CHORD:	15' MINIMUM
MAXIMUM HEIGHT:	36'

TOWNHOMES

MINIMUM LOT SIZE :	1,000 SF
LOT WIDTH:	20' W. MINIMUM
FRONTYARD SETBACK:	10' MINIMUM
SIDEYARD SETBACK:	10' MINIMUM
CORNER SIDEYARD SETBACK:	10' MINIMUM
REAR SETBACK:	10' MINIMUM
BUILDING SEPARATION:	20' MIN. BETWEEN TOWNHOUSE BLDGS
CHORD:	15' MINIMUM
MAXIMUM HEIGHT:	36'

HOMEOWNERS ASSOCIATION
1. PER PENDER COUNTY UDO 7.3, HOMEOWNERS ABSOCIATIONS SHALL BE REQUIRED FOR ALL DEVELOPMENTS WITH DEDICATED IMPROVEMENTS SUCH AS PRIVATELY MAINTAINED STREETS AND/OR OPEN SPACE DEDICATIONS AND MUST BE RECORDED ALONG WITH THE FIRST PHASE OF A FINAL PLAT TO ENCOMPASS THE ENTIRE DEVELOPMENT WITH AN OUTLINE OF AMENITIES&LAND TRANSFERRED TO THE SAID HOA AT OR BEFORE 25% OF ALL UNITS ARE CONSTRUCTED.

PHASING (SEE PHASING MAP, THIS SHEET)
1. THE NEIGHBORHOOD IS PLANNED TO HAVE 3 PHASES. PHASING NUMBER DOES NOT NECESSARILY CORRESPONO TO ORDER OF CONSTRUCTION & MAY BE BUILT SEPARATELY OR CONCURRENTLY WITH OTHER PHASES
2. ALL PONDS TO BE CONSTRUCTED AS NEEDED WITH EACH PHASE.
3. ALL AMENITIES WILL BE CONSTRUCTED WITH THE RESPECTIVE PHASE IN WHICH THEY ARE PLANNED. THE SINGLE FAMILY AMENITY CLUBHOUSE IS PLANNED FOR PHASE 1 INITIAL PHASE OF NEIGHBORHOOD DEVELOPMENT.
4. DEVELOPER MAY ULTIMATELY DIVIDE PROJECT INTO ALTERNATE PHASES, PENDING MARKET CONDITIONS
5. PHASE 1 TOTAL:

WETLAND DELINEATION NOTES
1. ADDITIONAL FIELD MAPPING AND COORDINATION WITH USACE AND JURIDICTIONAL DETERMINATION IS PENDING AT THIS TIME.

RECREATION UNIT NOTES
1. 562 LOTS REQUIRE 6 RECREATION UNIT TOTALING $90,000 MIN. INSTALLATION OF THE PROPOSED ACTIVE RECREATION AREAS WILL MEET OR EXCEED THE $90,000, 6 UNIT REQUIREMENT. AMENITY SITE WILL FEATURE COMMUNITY CLUSHOUSE EXCEEDING THE $90,000 MIN. ALLOCATION REQUIRED FOR RECREATION UNITS.

NUMBER OF DWELLING UNITS (DENSITY)
FROM PENDER COUNTY DEVELOPABLE AREA FORMULA PER SECTION 4.6.1.C

Density Calculations for Conditional Rezoning Parcel

Grand Unit Total	562
Total Single Family Detached Units	157
Total Townhouse/Brownstone Units	405
Total Site Acreage (approx.)	347.23
Total Open Space Acreage Required (Number of Lots x 0.03)	16.86
Areas to Subtract From Site Acreage	
Non-Residential/ Commercial Area	0.00
ROW and Parking	35.07
Wetlands In Lots	0.00
142 ac Wetlands Outside of Lots - 44.66 ac dedicated passive open space	97.34
Total Active Open Space	10.13
Total Developable Land Acreage	204.69
Max. Allowable Density Units/ Acre (max. 5du/ac allowed)	1023.45
Total Proposed Density Units/ Acre	2.7

LEGEND

BOUNDARY LINE	WETLANDS / PASSIVE OPEN SPACE
ADJOINING BOUNDARY LINE	PASSIVE OPEN SPACE
RIGHT OF WAY	ACTIVE OPEN SPACE
MULTI-USE PATH	PROPOSED LAND DEDICATED TO COUNTY FOR PARK
	STREETLIGHT

TRAFFIC IMPACTS (Section 6.1.2.A.15)
1. PER PENDER COUNTY UDO SECTION 6.1.2.A.15, A TRAFFIC IMPACT ANALYSIS IS NOT REQUIRED FOR THIS PROJECT
2. SEE BELOW FOR TRIP GENERATION CALCULATIONS

Trip Generation			Weekday AM Peak Hour (vph)		Weekday PM Peak Hour (vph)	
ITE Land Use Code	Units	Avg. Daily Traffic (vpd)	Enter	Exit	Enter	Exit
Single Family Residential (157)	157	1500	30	89	99	58
Townhomes	405	2360	30	149	141	70
Total Trips	562	3860	60	236	240	128

BOUNDARY
1. SURVEY IS COMPLETE & TITLE SEARCH FOR EXISTING EASEMENTS IS UNDERWAY. FINAL PLAT WILL REFLECT ANY EASEMENT.

FLOODPLAIN NOTES
1. PORTION OF THIS TRACT LAYS WITHIN DESIGNATED FLOOD ZONE X (MINIMAL FLOOD RISK) PER FEMA FIRM MAP 3720327200J AND 3720327300J WITH AN EFFECTIVE DATE OF FEBRUARY 16, 2007.

UTILITIES
1. ALL WATER UTILITIES WILL BE COORDINATED WITH PENDER COUNTY ENGINEERING AND PROVIDED BY PENDER COUNTY UTILITIES.
2. SEWER UTILITIES WILL BE COORDINATED WITH PLURIS OR OTHER PRIVATE OR SITE WASTEWATER COMPANY AS DETERMINED BY OWNER/ COUNTY.
3. HYDRANTS PER PENDER COUNTY EMERGENCY MANAGEMENT REQUIREMENTS.

LANDSCAPING
1. ALL LANDSCAPE PLANTINGS TO COMPLY WITH PENDER COUNTY UDO STANDARDS LISTED IN ARTICLE 8

BUFFER NOTES
1. ALL BUFFERS TO COMPLY WITH OR EXCEED PENDER COUNTY UDO ARTICLE 8. SEE SHEET C2.1 FOR DETAILS
2. MAINTENANCE OF BUFFER AREAS SHALL BE PERFORMED AS OUTLINED IN NEIGHBORHOOD COVENANTS.

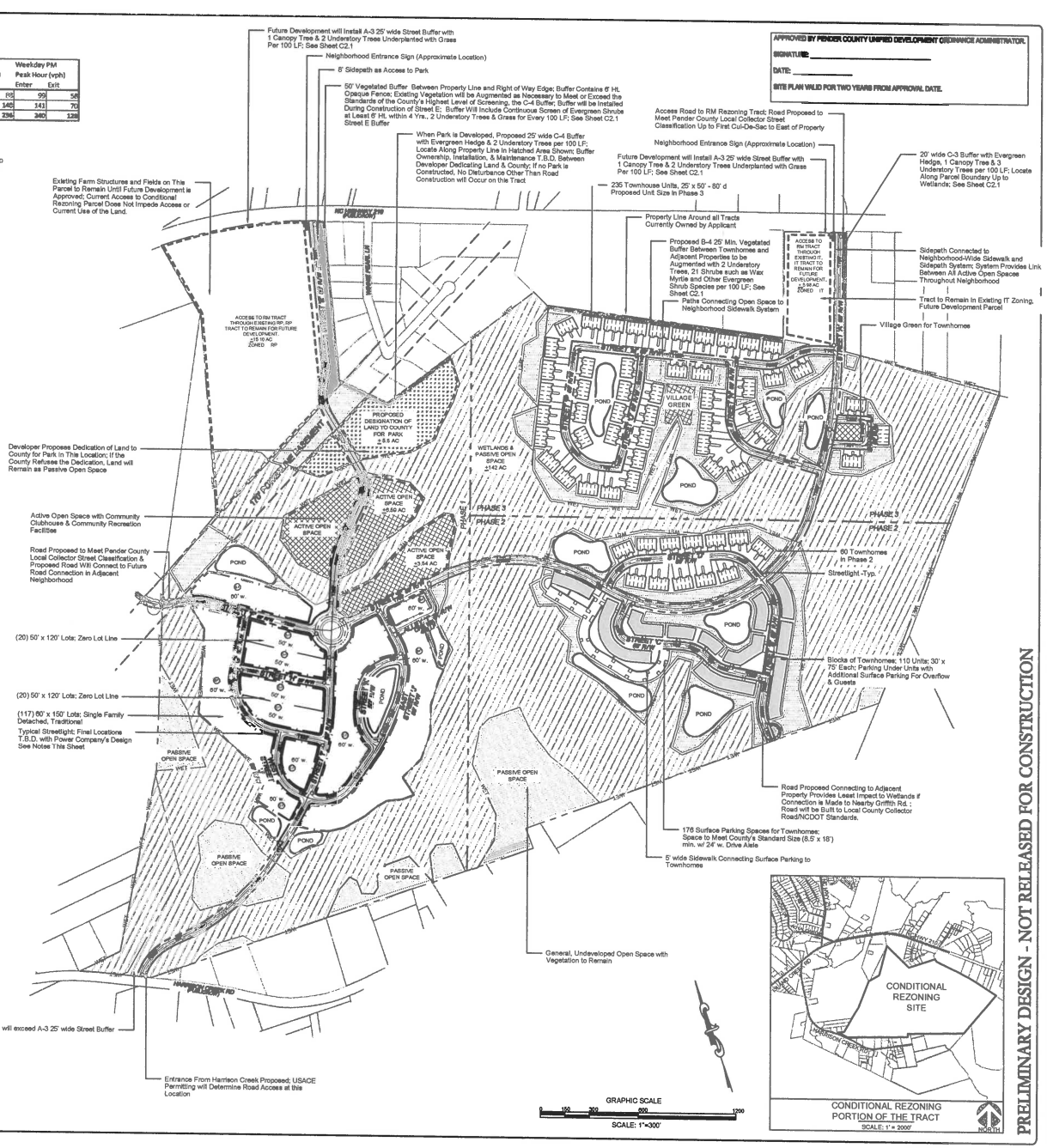
STREETLIGHT NOTES
1. STREETLIGHT LOCATIONS ARE TO BE LOCATED PER PENDER COUNTY UDO. FINAL LOCATIONS, QUANTITIES AND CALCULATIONS WILL BE PROVIDED BY DUKE ENERGY.

HISTORICAL & ARCHAEOLOGY NOTES
1. NO KNOWN HISTORIC OR ARCHEOLOGICAL SITES EXIST.

PROJECT ROAD NOTES
1. ALL COLLECTOR ROADS WILL BE PUBLIC WITH PUBLIC RIGHT OF WAYS CONSTRUCTED TO NCDOT SUBDIVISION ROADS MINIMUM CONSTRUCTION STANDARDS. PUBLIC ROADS WILL BE DEDICATED TO NCDOT.
2. ALL OTHER ROADS WILL BE PRIVATE RIGHT OF WAY OPEN TO PUBLIC USE, CONSTRUCTED TO NCDOT SUBDIVISION ROADS MINIMUM CONSTRUCTION STANDARDS AND BE MAINTAINED BY COMMUNITY HOA.
3. ALL PROPOSED INTERNAL ROADWAY INTERSECTIONS AND CONNECTIONS TO EXISTING ROADWAYS & PROJECT COLLECTOR ROADS WILL HAVE A 30' RADIUS MINIMUM. ALL OTHER RADII ON THE PROJECT WILL BE 20' MIN.
4. SIDEWALKS WILL BE LOCATED ON ONE SIDE OF ALL ROADS EXCEPT THE COLLECTOR ROADS AS INDICATED. SIDEWALKS SHALL MEET ALL APPLICABLE ADA REQUIREMENTS.
5. ALL ROADS WILL COMPLY WITH SECTION 7.5.3 OF THE PENDER COUNTY UDO.

PROJECT SIGNAGE NOTES
1. STREET NAME SIGNS SHALL BE INSTALLED AS SOON AS ROADWAYS ARE ACCESSIBLE BY VEHICLE TRAFFIC DURING CONSTRUCTION AND MEET PENDER COUNTY STREET SIGN SPECIFICATIONS.
2. ALL STREET SIGNS TO MEET MUTCD STANDARDS.
3. NEIGHBORHOOD SUBDIVISION SIGNS WILL BE DESIGNED IN ACCORDANCE WITH PENDER COUNTY SIGNAGE ORDINANCES. PLACEMENT WILL BE DETERMINED PRIOR TO FINAL PLAT

STORMWATER
1. STORMWATER DESIGN SHALL BE COMPLIANT WITH PENDER COUNTY UDO
2. THE PLAN AND FACILITIES SHALL PROVIDE FOR A DRAINAGE SYSTEM FOR THESE AREAS THAT WILL ACCOMMODATE THE TEN-YEAR STORM EVENT WITHOUT FLOODING OR SUBSTANTIAL PONDING OF WATER IN THE AREAS INCLUDED IN THE PLAN.
3. FULL PERMIT APPROVALS TO BE PROVIDED TO COUNTY WHEN RECEIVED
4. STORMWATER WILL BE HANDLED ON SITE IN COMPLIANCE WITH ALL STATE AND COUNTY STORMWATER STANDARDS. EACH LOT WILL BE ALLOCATED 5,500 SF OF IMPERVIOUS COVERAGE, WITH THE EXCEPTION OF LOT 30 WHICH WILL BE ALLOCATED 8,500 SF.
5. PER PENDER COUNTY UDO, SECTION 6.4.C.4.H:
A DRAINAGE PLAN THAT WILL INCLUDE ALL PORTIONS OF THE DEVELOPMENT SHALL BE SUBMITTED. THIS PLAN SHALL BE PREPARED AND SEALED BY A REGISTERED ENGINEER. THE PLAN AND FACILITIES SHALL PROVIDE FOR A DRAINAGE SYSTEM FOR THESE AREAS THAT WILL ACCOMMODATE THE TEN-YEAR STORM EVENT WITHOUT FLOODING OR SUBSTANTIAL PONDING OF WATER IN THE AREAS INCLUDED IN THE PLAN. THE PLAN MUST ALSO ACCOMMODATE ANY DISCHARGE FROM PROPERTIES IN UPLAND PORTIONS OF THE DRAINAGE BASIN THAT FLOWS THROUGH THE PROPERTY FOR THE SAME STORM EVENT FOR THE TYPE DEVELOPMENT FOR WHICH THAT PROPERTY IS ZONED. THE BOUNDARY OF ANY DRAINAGE AREA ON A PORTION OF THE SITE AND/OR UPLAND FROM THE SITE AND DRAINAGE AREAS BETWEEN STORMWATER DISCHARGE POINTS FROM THE SITE TO THE RECIPIENT PERENNIAL STREAM SHALL BE SHOWN ON A MAP (COPY OF 7.5 MIN. USGS QUAD OR SIMILAR MAP). ANY DRAINAGE FACILITY RECEIVING STORMWATER DISCHARGE FROM THE DEVELOPMENT SHALL HAVE THE CAPACITY TO CARRY THE ANTICIPATED STORMWATER FLOW FROM AREAS THAT DISCHARGE THROUGH THEM FOR THE 10 YEAR STORM EVENT FROM THE POINT OF DISCHARGE AT THE DEVELOPMENT TO THE RECIPIENT PERENNIAL STREAM WITHOUT OVER FLOWING THEIR BANKS. THE LOCATION, SIZE AND/OR CAPACITY OF ALL STRUCTURES INCLUDED IN THE DRAINAGE SYSTEM AND RECEIVING DISCHARGE FROM THE DEVELOPMENT TO THE RECIPIENT PERENNIAL STREAM SHALL BE SHOWN ON THE PLAN AND CALCULATIONS USED IN DESIGNING THE DRAINAGE SYSTEM SHALL BE SUBMITTED IN A LEGIBLE FORMAT. THIS PLAN MAY BE INCLUDED IN THE STREET AND DRAINAGE PLAN, STORMWATER MANAGEMENT PLAN OR ON THE PRELIMINARY PLAT, AS LONG AS THE DESIGN PROFESSIONAL CERTIFIES THAT THE SPECIFIC DRAINAGE PLAN SUBMITTED COMPLIES WITH THESE REQUIREMENTS AND THE INFORMATION REQUIRED IS SHOWN OR SUBMITTED.



APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT ORDINANCE ADMINISTRATOR.
SIGNATURE: _____
DATE: _____
SITE PLAN VALID FOR TWO YEARS FROM APPROVAL DATE.

CONDITIONAL REZONING
PORTION OF THE TRACT
SCALE: 1" = 2000'

NORTH

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS:
1. REVISIONS PER TRC COMMENTS — 08.15.17
2. REVISIONS PER PLANNING BOARD COMMENTS/ UPDATE — 07.05.17
3. REVISIONS PER PLANNING BOARD COMMENTS/ UPDATE — 08.08.17

CLIENT INFORMATION:
Hardison Building Company
P.O. BOX 809
Wrightsville Beach, NC 28480

PARAMOUNTE ENGINEERING, INC.
122 Greene Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

CONDITIONAL REZONING MDP SITE PLAN

HWY 210 TRACT
TOPSAIL TOWNSHIP
PENDER COUNTY, NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL LAYOUT
PRELIMINARY LAYOUT
FINAL DESIGN
RELEASED FOR CONST.

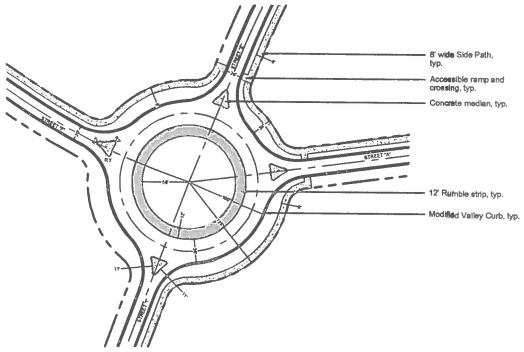
DRAWING INFORMATION
DATE: 09/19/17
SCALE: 1" = 300'
DESIGNED: AME
DRAWN: AME
CHECKED:

SEAL: PARAMOUNTE ENGINEERING, INC. PROFESSIONAL ENGINEER 120947 ANDREW E. ELMORE 09/19/17

C-2.0

PEI JOB#: 17223.PE

VICINITY MAP
SCALE: 1" = 2000'



ROUNDABOUT DETAIL
NOT TO SCALE

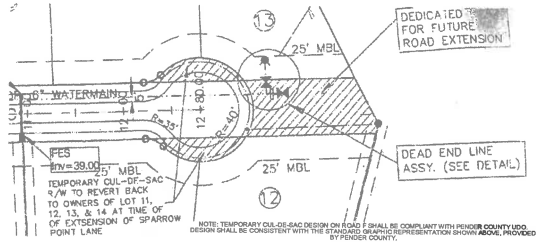
ROAD DESIGNATIONS					
STREET	DESIGNATION	LENGTH	COLLECTOR RD.	COLLECTOR RD. TYPE	SIDEWALK/PATH
A	PUBLIC	5,098'	YES	LOCAL,GROUP 3	(1) 8' WIDE SIDEPATH
B	PUBLIC	1,028'	YES	LOCAL,GROUP 3	(2) 5' WIDE SIDEWALKS
C	PRIVATE	1,194'	NO		
D	PRIVATE	1,090'	NO		
E	PUBLIC	2,550'	NO		
F	PUBLIC	988'	YES		(1) 8' WIDE SIDEPATH
G	PRIVATE	1,165'	NO		
H	PRIVATE	582'	NO		
I	PUBLIC	2,607'	YES	LOCAL,GROUP 3	(1) 8' WIDE SIDEPATH
EAST J	PRIVATE	1,507'	NO		
WEST J	PRIVATE	502'	NO		
K	PRIVATE	732'	NO		
L	PRIVATE	598'	NO		
M	PRIVATE	1,645'	NO		
N	PRIVATE	1,054'	NO		
O	PRIVATE	735'	NO		
P	PRIVATE	976'	NO		
ALLEY	DESIGNATION	LENGTH			
1	PRIVATE	488'	NO		

APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT ORDINANCE ADMINISTRATOR.

SIGNATURE: _____

DATE: _____

SITE PLAN VALID FOR TWO YEARS FROM APPROVAL DATE.



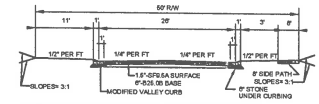
NOTE: TEMPORARY CUL-DE-SAC DESIGN ON ROAD F SHALL BE COMPLIANT WITH PENDER COUNTY UDO. DESIGN SHALL BE CONSISTENT WITH THE STANDARD GRAPHIC REPRESENTATION SHOWN ABOVE, PROVIDED BY PENDER COUNTY.

TYPICAL TEMPORARY CUL-DE-SAC DETAIL
NOT TO SCALE

PAVING NOTE: ALL PAVING THICKNESS WILL BE DETERMINED BASED ON SOILS DATA. NO TESTING HAS BEEN COMPLETED AT THIS TIME, SO A MINIMUM PAVING SECTION HAS BEEN PROVIDED AND WILL BE FURTHER EVALUATED WITH THE AVAILABILITY OF SOILS DATA.

REFERENCE PROJECT ROAD NOTES THIS SHEET FOR ADDITIONAL INFORMATION

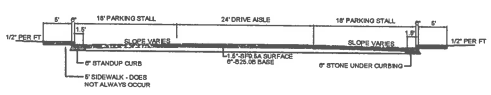
TYPICAL TOWNHOME ROAD AND DRIVEWAY CROSS SECTION
NOT TO SCALE
Section Applies to all Streets D,L,M,N,O,P



PAVING NOTE: ALL PAVING THICKNESS WILL BE DETERMINED BASED ON SOILS DATA. NO TESTING HAS BEEN COMPLETED AT THIS TIME, SO A MINIMUM PAVING SECTION HAS BEEN PROVIDED AND WILL BE FURTHER EVALUATED WITH THE AVAILABILITY OF SOILS DATA.

REFERENCE PROJECT ROAD NOTES THIS SHEET FOR ADDITIONAL INFORMATION.

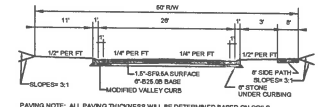
TYPICAL 50' PUBLIC ROAD CROSS SECTION W/ SIDEPATH
NOT TO SCALE
Section Applies to Street E



PAVING NOTE: ALL PAVING THICKNESS WILL BE DETERMINED BASED ON SOILS DATA. NO TESTING HAS BEEN COMPLETED AT THIS TIME, SO A MINIMUM PAVING SECTION HAS BEEN PROVIDED AND WILL BE FURTHER EVALUATED WITH THE AVAILABILITY OF SOILS DATA.

REFERENCE PROJECT ROAD NOTES THIS SHEET FOR ADDITIONAL INFORMATION.

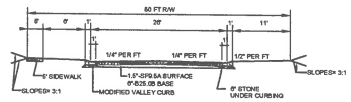
TYPICAL SURFACE PARKING CROSS SECTION
NOT TO SCALE



PAVING NOTE: ALL PAVING THICKNESS WILL BE DETERMINED BASED ON SOILS DATA. NO TESTING HAS BEEN COMPLETED AT THIS TIME, SO A MINIMUM PAVING SECTION HAS BEEN PROVIDED AND WILL BE FURTHER EVALUATED WITH THE AVAILABILITY OF SOILS DATA.

REFERENCE PROJECT ROAD NOTES THIS SHEET FOR ADDITIONAL INFORMATION.

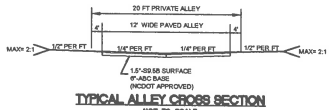
TYPICAL 50' PUBLIC ROAD CROSS SECTION W/ SIDEPATH
NOT TO SCALE
Section Applies to Streets B



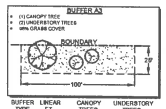
PAVING NOTE: ALL PAVING THICKNESS WILL BE DETERMINED BASED ON SOILS DATA. NO TESTING HAS BEEN COMPLETED AT THIS TIME, SO A MINIMUM PAVING SECTION HAS BEEN PROVIDED AND WILL BE FURTHER EVALUATED WITH THE AVAILABILITY OF SOILS DATA.

REFERENCE PROJECT ROAD NOTES THIS SHEET FOR ADDITIONAL INFORMATION.

TYPICAL 50' PUBLIC ROAD CROSS SECTION W/ SIDEPATH
NOT TO SCALE
Section Applies to Streets A, F, AND I

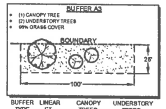


TYPICAL ALLEY CROSS SECTION
NOT TO SCALE



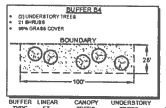
BUFFER TYPE	LINEAR FT	CANOPY TREES	UNDERSTORY TREES
A3	910'	12 REQ.	24 REQ.

NORTHEAST HWY 210 STREET YARD BUFFER



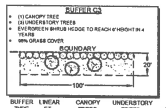
BUFFER TYPE	LINEAR FT	CANOPY TREES	UNDERSTORY TREES
A3	910'	12 REQ.	24 REQ.

NORTH HWY 210 STREET YARD BUFFER



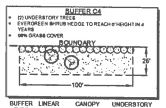
BUFFER TYPE	LINEAR FT	CANOPY TREES	UNDERSTORY TREES	SHRUBS
B4	1,460'	0 REQ.	29 REQ.	367 REQ.

TOWNHOME BUFFER
NORTH HWY 210



BUFFER TYPE	LINEAR FT	CANOPY TREES	UNDERSTORY TREES	SHRUBS
C3	730'	0 REQ.	22 REQ.	121 REQ. AT 6' O.C.

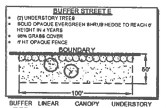
STREET A BUFFER



BUFFER TYPE	LINEAR FT	CANOPY TREES	UNDERSTORY TREES	SHRUBS
C4	787'	0 REQ.	18 REQ.	131 REQ. AT 6' O.C.

PARK AREA & POWERLINE EASEMENT BUFFER

Powerline easement note: all plant material must be approved by power company and in compliance with easement approved guidelines, exact buffer 13.4 by power company approval



BUFFER TYPE	LINEAR FT	CANOPY TREES	UNDERSTORY TREES	SHRUBS
C4	1,004'	0 REQ.	20 REQ.	167 REQ. AT 6' O.C.

TYPICAL BUFFER SCHEDULES
NOT TO SCALE

PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS:
1. REVISIONS PER TRC COMMENTS — 05.18.17
2. REVISIONS PER PLANNING BOARD COMMENT UPDATE — 07.13.17
3. REVISIONS PER PLANNING BOARD — 08.18.17

CLIENT INFORMATION:
Hardison Building Company
P.O. BOX 809
Wrightsville Beach, NC 28480

PARAMOUNTE ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-5707 (O) (910) 791-5760 (F)
NC License #: C-2846

CONDITIONAL REZONING
MDP DETAILS
HWY 210 TRACT
TOPSAIL TOWNSHIP
PENDER COUNTY, NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL & FOTO: PRELIMINARY LAYOUT: PRELIMINARY PLAT: RELEASED FOR CONST.

DRAWING INFORMATION
DATE: 09/14/17
SCALE: 1" = 20'
DESIGNED: ARE
DRAWN: ARE
CHECKED:

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026947 ENGINEER
JOHN C. CLEMENTS
09/14/17

C-2.1

PEI JOB#: 17223.PE

VICINITY MAP
SCALE: 1" = 2000'

NORTH

LEGEND:

- IRON PIPE FOUND
- IRON ROD FOUND
- IRON ROD SET
- PK NAIL FOUND
- PK NAIL SET
- CONCRETE MONUMENT FOUND
- COMPUTED POINT
- BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- RIGHT OF WAY
- 100-YR FLOOD LINE

NC HWY 210

HARRISON CREEK RD

GERALD D HARDISON JR ET AL
3273-50-0693-0000
ZONED RA

OVERALL PARCEL AREA=
14,206,995 SF ±
326.15 AC ±

S 88°23'00" W 2487.72

S 88°40'00" W 2306.47

LINE	BEARING	DISTANCE
L1	N 88°23'00" E	19.33
L2	N 88°23'00" E	40.14
L3	N 88°23'00" E	20.67
L4	N 88°23'00" E	20.67
L5	N 88°23'00" E	20.67
L6	N 88°23'00" E	20.67
L7	N 88°23'00" E	20.67
L8	N 88°23'00" E	20.67
L9	N 88°23'00" E	20.67
L10	N 88°23'00" E	20.67
L11	N 88°23'00" E	20.67
L12	N 88°23'00" E	20.67
L13	N 88°23'00" E	20.67
L14	N 88°23'00" E	20.67
L15	N 88°23'00" E	20.67
L16	N 88°23'00" E	20.67
L17	N 88°23'00" E	20.67
L18	N 88°23'00" E	20.67
L19	N 88°23'00" E	20.67
L20	N 88°23'00" E	20.67
L21	N 88°23'00" E	20.67
L22	N 88°23'00" E	20.67
L23	N 88°23'00" E	20.67
L24	N 88°23'00" E	20.67
L25	N 88°23'00" E	20.67
L26	N 88°23'00" E	20.67
L27	N 88°23'00" E	20.67
L28	N 88°23'00" E	20.67
L29	N 88°23'00" E	20.67
L30	N 88°23'00" E	20.67
L31	N 88°23'00" E	20.67
L32	N 88°23'00" E	20.67
L33	N 88°23'00" E	20.67
L34	N 88°23'00" E	20.67
L35	N 88°23'00" E	20.67
L36	N 88°23'00" E	20.67
L37	N 88°23'00" E	20.67
L38	N 88°23'00" E	20.67
L39	N 88°23'00" E	20.67
L40	N 88°23'00" E	20.67
L41	N 88°23'00" E	20.67
L42	N 88°23'00" E	20.67
L43	N 88°23'00" E	20.67
L44	N 88°23'00" E	20.67
L45	N 88°23'00" E	20.67
L46	N 88°23'00" E	20.67
L47	N 88°23'00" E	20.67
L48	N 88°23'00" E	20.67
L49	N 88°23'00" E	20.67
L50	N 88°23'00" E	20.67
L51	N 88°23'00" E	20.67
L52	N 88°23'00" E	20.67
L53	N 88°23'00" E	20.67
L54	N 88°23'00" E	20.67
L55	N 88°23'00" E	20.67
L56	N 88°23'00" E	20.67
L57	N 88°23'00" E	20.67
L58	N 88°23'00" E	20.67
L59	N 88°23'00" E	20.67
L60	N 88°23'00" E	20.67
L61	N 88°23'00" E	20.67
L62	N 88°23'00" E	20.67
L63	N 88°23'00" E	20.67
L64	N 88°23'00" E	20.67
L65	N 88°23'00" E	20.67
L66	N 88°23'00" E	20.67
L67	N 88°23'00" E	20.67
L68	N 88°23'00" E	20.67
L69	N 88°23'00" E	20.67
L70	N 88°23'00" E	20.67
L71	N 88°23'00" E	20.67
L72	N 88°23'00" E	20.67
L73	N 88°23'00" E	20.67
L74	N 88°23'00" E	20.67
L75	N 88°23'00" E	20.67
L76	N 88°23'00" E	20.67
L77	N 88°23'00" E	20.67
L78	N 88°23'00" E	20.67
L79	N 88°23'00" E	20.67
L80	N 88°23'00" E	20.67
L81	N 88°23'00" E	20.67
L82	N 88°23'00" E	20.67
L83	N 88°23'00" E	20.67
L84	N 88°23'00" E	20.67
L85	N 88°23'00" E	20.67
L86	N 88°23'00" E	20.67
L87	N 88°23'00" E	20.67
L88	N 88°23'00" E	20.67
L89	N 88°23'00" E	20.67
L90	N 88°23'00" E	20.67
L91	N 88°23'00" E	20.67
L92	N 88°23'00" E	20.67
L93	N 88°23'00" E	20.67
L94	N 88°23'00" E	20.67
L95	N 88°23'00" E	20.67
L96	N 88°23'00" E	20.67
L97	N 88°23'00" E	20.67
L98	N 88°23'00" E	20.67
L99	N 88°23'00" E	20.67
L100	N 88°23'00" E	20.67

SCALE: 1"=300'

0 150 300 600 900 1200

REVISIONS:

CLIENT INFORMATION:

HARDISON BUILDING COMPANY
P.O. BOX 809
WRIGHTSVILLE BEACH NC 28480

PARAMOUNTE ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)

REZONING BOUNDARY EXHIBIT
HWY 210 TRACT

TOPSAIL TOWNSHIP
PENDER COUNTY, NC

PROJECT STATUS
CONCEPTUAL LAYOUT
PRELIMINARY LAYOUT
RELEASED FOR REVIEW
RELEASED FOR CONST.

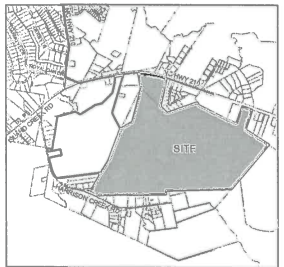
DRAWING INFORMATION
DATE: 6/9/17
SCALE: 1"=300'
DESIGNED: GBD
DRAWN: TDC
CHECKED:

SEAL

PRELIMINARY DRAWING
DO NOT USE FOR CONSTRUCTION, RECORDATION, CONVEYANCES, OR SALES.

EX-1

PEI JOB#: 17223.PE



VICINITY MAP
SCALE: 1" = 2000'

NORTH

LEGEND:

- IRON PIPE FOUND
- IRON ROD FOUND
- IRON ROD SET
- PK NAIL FOUND
- PK NAIL SET
- CONCRETE MONUMENT FOUND
- COMPUTED POINT
- BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- RIGHT OF WAY

GERALD D HARDISON JR ET AL
3273-50-0893-0000
ZONED RA

OVERALL RECOMBINED PARCEL AREA=
15,125,539 SF ±
347.23 AC ±

LINE	BEARING	DISTANCE
L1	S 37°47'48" E	40.18'
L2	S 25°00'00" E	116.73'
L4	S 01°30'00" E	120.52'
L5	N 85°00'00" W	263.94'
L6	N 85°00'00" W	98.75'
L7	N 51°37'00" W	91.67'
L8	N 82°00'00" E	217.52'

CURVE	RADIUS	ARC LENGTH	CHORD BEARING	CHORD DISTANCE
C1	1,932.00'	372.91'	S 51°41'00" E	372.04'

SCALE: 1"=300'

0 150 300 600 900 1200

REVISIONS:

CLIENT INFORMATION:

HARDISON BUILDING COMPANY
P.O. BOX 809
WRIGHTSVILLE BEACH NC 28480

PARAMOUNTE
ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-5707 (C) (910) 791-5760 (F)

RECOMBINATION BOUNDARY & TOPOGRAPHY EXHIBIT
HWY 210 TRACT

TOPSAIL TOWNSHIP
PENDER COUNTY, NC

PROJECT STATUS:
CONCEPTUAL LAYOUT:
PRELIMINARY DESIGN:
FINAL DESIGN:
FINAL RECORD (CONST):

DRAWING INFORMATION:
DATE: 09/01/17
SCALE: 1"= 300'
DRAWN: CDG
CHECKED: DBG

SEAL

PRELIMINARY DRAWING
DO NOT USE FOR CONSTRUCTION, RECORDATION, CONVEYANCES, OR SALES.

EX-2

PEI JOB#: 17223.PE

Date: June 15, 2017

Hwy 210 Tract - Pender County Recreation Units

Preliminary Order of Magnitude Phasing Cost Estimate

This estimate is based on the MDP site plans dated May 25, 2017 and is provided to prove the project will comply with **the required 6 recreation units totaling at least $60,000.**

This estimate reflects our current understanding of construction cost and is the result of prices included in recent bids received by this office and in discussions with contractors and product representatives. Prices may vary somewhat from this estimate at the time the bids are let due to design development and revision of the design, material availability, contractor workload and site conditions. Actual quantities shown below may vary upon completion of construction documentation. This estimate is based on current 2016-2017 dollars and recent construction costs received or researched in this office and does not take into account the cost of financing and/or interest expense. All quantities are preliminary. If necessary, plans should be reviewed by the any boards or regulatory authorities for approval and/or permitting prior to bidding.

Open Space Active Amenities

Item	Qty.	Unit	Unit Price	Total
Amenity site w/ community club house		total	ls	$60,000
			Total Estimate	$60,000

General Notes:

1. Unless otherwise noted, no plans have been completed for these areas beyond preliminary plat plans. Developer and builder may change components of recreation units, but cost of provided recreation units will not be less than the Pender County required recreation units.

NORTH CAROLINA
PROFESSIONAL
SEAL
TIMOTHY C. STANKSCALES
6/14/17

Attachment 2

Southern Environmental Group, Inc.
5315 South College Road, Suite E Wilmington, NC 28412
Phone: 910.452.2711 Fax: 910.452.2899 Email: office@segi.us

July 12, 2017

RECEIVED
JUL 13 2017
PENDER PLANNING DEPT.

Mr. Dean Hardison
PO Box 809
Wrightsville Beach, NC 28451
dean@hardisonbuilding.com

Re: Hampstead Collector Road Plan, Hardison Property and Griffith Drive Collector Road Wetlands and Permitting

Dear Mr. Hardison:

Southern Environmental Group, Inc. (SEGi) reviewed the feasibility of constructing 3 separate collector streets from NC210The first crosses your property on the north side, to connect to Harrison Creek Road, second, from Griffith Drive off of NC210, crossing others property, then your property, to connect to Harrison Creek Road, and lastly from another point on Griffith Drive, connecting to the end of Harrison Creek Road. This project is located in Hampstead, Pender County, North Carolina. Specifically, we examined the areas in regard to the constraints you may encounter due to wetlands (on-site and adjacent) and subsequent wetland permitting.

Based on the Pender County Collector Street Plan (CSP) the access roads will require a USACE wetland permit or the construction of pile supported bridges. It is my understanding that the size and construction of bridges in these locations is not economically practical and traditional earthen filled wetland crossings would be more suitable. The impact for the collector street on the north side of you property would impact approximately 4.21 acres of wetlands. The wetland impact areas for the collector streets originating on the Griffith Drive property, going 2 different directions, would be approximately 4.55 acres. These are significant impacts for road crossings and would require adequate justification. (See Exhibit)

The USACE requirements for these types of road crossings require a purpose and need for the impacts that are clearly definable and defendable. After reviewing the Pender Street Collector Plan, the proposed access roads would provide access to residents which already access Harrison Creek Road from Holly Shelter Road, which questions the need for additional access. The size of these impacts alone is unusual for simple collector streets. The USACE would require a traffic study be done to show that the flow through the Harrison Creek Road/Holly Shelter Road areas is such that it would require additional alternate accesses.

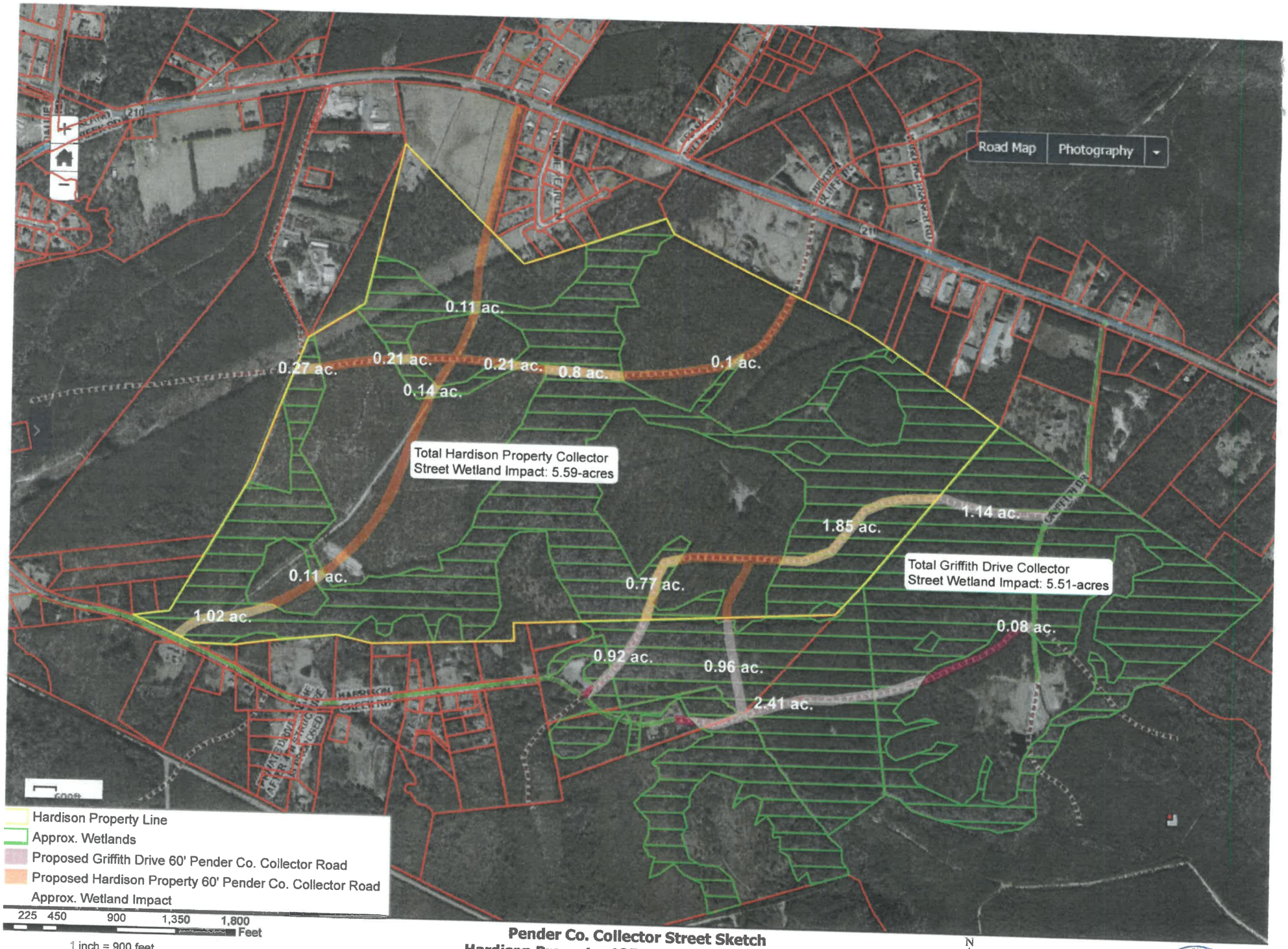
In summary, due to the significant size of the proposed impacts and unclear need for additional accesses to existing and future residents; it is my opinion that the USACE would not issue a permit for the access roads as proposed.

It is SEGi's hope the information found within and attached are adequate to address your questions regarding the access road feasibility. However, should you have questions or need additional information, please feel free to contact me at 910.452.2711.

Sincerely,

David Satterlee

Senior Consultant



Map source: NCOneMap Orthoimagery

Pender Co. Collector Street Sketch
Hardison Property, 125 Griffith Drive Property
Hampstead, Pender County, NC

N
W E

Attachment 3

WMPO

305 Chestnut Street
PO Box 1810
Wilmington, NC 28402
Ph: (910) 341-3258
Fax: (910) 341-7801
www.wmpo.org

June 19, 2017

Nate Bouquin, EI
Ramey Kemp & Associates
5808 Farringdon Place, Suite 100
Raleigh, North Carolina 27690

RE: Approved Scope for the Traffic Impact Analysis (TIA) associated with the proposed **NC 210 Tract**
Pender County, NC

Dear Mr. Bouquin:

Based on the information provided, and conversations held to date, it is our understanding that the proposed development will consist of:

- 157 Single Family Homes
- 405 Townhomes

This development is located south of NC 210 and east of Harrison Creek Road in Topsail Township, Pender County, North Carolina.

The site plan provided proposes access at the following points:

- Harrison Creek Road and Site Access 1
- NC 210 and Site Access 2
- NC 210 And site Access 3

Below please find the scope to be used for the Traffic Impact Analysis:

1. **Data Collection - Analysis Parameters:**
   a. <u>Existing Conditions</u>

I. Turning movement counts weekday(T,W,TH) while school is in session AM (6:30 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods, Signal Timing (if applicable) and Lane Geometry;

- NC 210 and US 17
- NC 210 and Island Creek Road
- Island Creek Road and Dallie Futch Road
- NC 210 and Royal Oak Drive
- Island Creek Road and Harrison Creek Road
- Island Creek Road and Access 2
- Island Creek Road and Access 3
- Harrison Creek Road and Access 1

i. Signal plans may be acquired by sending an email request to NCDOT Traffic Services: Ross Kimbro, rkimbro@ncdot.gov or by calling (910) 341-0300

ii. For existing signals, the size and position for the detector loops as set in Synchro must match the existing signal plans.

iii. For proposed signals, size and place the detector loops in Synchro according to Part 1, Section 4 of the NCDOT Signal Design Manual.

b. <u>Site Trip Generation, Site Trip Distribution and Background Traffic Assumptions</u>

I. Site Trip Generation Estimate

Land Use	ADT	Weekday AM Peak Hour Trips		Weekday PM Peak Hour Trips	
		Enter	Exit	Enter	Exit
157 Single Family Homes	1495	30	88	99	58
405 Condos/ Townhomes	2353	30	148	141	70

II. Site Trip Distribution

- To be determined based on collected traffic count data. Both trip distribution and pass by trips (if applicable) shall be submitted for approval prior to use in the TIA.

III. Volume Balancing:

- Any proposed volume balancing shall be submitted and approved prior to use in the TIA and shall include a clear description of how the volumes were adjusted at each intersection

IV. Adjacent Development (approved (but as of yet to be built)) development including but limited to;

- Lane's Ferry

V. Planned Roadway Improvements

- U-5732

VI. Background Traffic Assumptions

- Horizon year – 2025
- Growth rate – 0.5% per year

VII. Other Information

2. **Capacity Analysis: Week day AM & PM Peak Hour (as listed and for locations per 1.a.i)**
   a. Existing – 2017
   b. 2025 Future No-Build Conditions
      [existing +1% background growth]
   c. 2025 Full Build Conditions
      [existing +1% background growth + site trips]

3. **Levels of Service and Delay Chart:**
   i. **The final TIA shall include a chart that shows the "Level of Service" and "Delay" for each movement, approach, and overall intersection for every access alternative and build scenario."**

4. **Final Report Submittal:**
   a. Completed TIA Application
   b. Signed and sealed by a Professional Engineer
   c. Four bound copies
   d. Four Electronic copies to include PDF of TIA and Synchro files and Synchro analysis files in digital format

5. **Notes:**

i. TIA's shall be prepared according to NCDOT Congestion Management Guidelines. Any deviations from such shall be approved **prior** to preparation of the TIA.
ii. This scope shall remain valid for three months from the date of this letter.
iii. Please note that if any changes occur (including but not limited to; land use, intensity, phasing, and/or site access) additional analysis may be required.

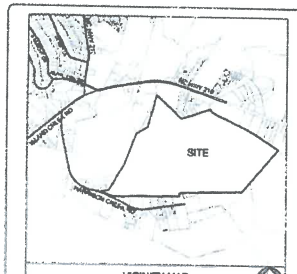
Please contact me at 910-473-5130 with any questions regarding this scope.

Sincerely,

Amy Kimes, PE
Project Manager
Wilmington Metropolitan Planning Organization

Attachments: Site Map (provided by Ramey Kemp & Associates)

Cc: Patrick Riddle, District Engineer, NCDOT
Doug Racine, NCDOT
Jessi Leonard, PE, Division Traffic Engineer, NCDOT
Stoney Mathis, PE, Deputy Traffic Engineer, NCDOT
Kyle Breuer, Planning Director, Pender County
Megan Crowe, Senior Planner, Pender County
Bill McDow, Transportation Planner, WMPO
Mike Kozlosky, Executive Director, WMPO



VICINITY MAP
SCALE 1" = 2000'

NORTH

SITE INFORMATION
CURRENT ZONING: VACANT LAND
PROPOSED ZONING: N/A
PROPOSED USE: MIX ED
PARKING LANDUSE: SUBURBAN CLEARING
TOTAL SITE AREA: 37.73 +/- ACRES
APPLICANT INFORMATION: HARRISON BUILDING COMPANY, LLC

DIMENSIONAL REQUIREMENTS
MINIMUM LOT SIZE: 10,000 SF
MINIMUM LOT WIDTH: 100' SF MINIMUM
FRONT YARD SETBACK: 5' MINIMUM
SIDE YARD SETBACK: 5' MINIMUM
CORNER SIDE YARD SETBACK: 5' MINIMUM
REAR SETBACK: 10' MINIMUM
ALLOWED BUILDING HEIGHT: ALLOWED BUILDINGS WILL BE IN COMPLIANCE WITH COUNTY REQUIRED LANDSCAPE BUFFER 20' MIN BETWEEN TOWNHOUSE BLOCKS & MULTI-FAMILY BLOCKS
CHOKO: 10' MINIMUM
MAXIMUM HEIGHT: 35'

BOUNDARY
SURVEY REQUIREMENTS & TITLE REQUIREMENTS
BOUNDARY FINAL PLAT WILL BE SUBJECT ANY LEGAL ISSUES

FLOODPLAIN NOTES
1. THERE IS NO FLOODPLAIN WITHIN THE SUBJECT PROPERTY

UTILITIES
1. ALL WATER & SEWER WILL BE CONSTRUCTED WITH PENDER COUNTY UTILITIES AND APPROVED BY PENDER COUNTY UTILITIES
2. ELECTRICAL SERVICE WILL BE CONSTRUCTED BY THE PLANS ON DRIVE
3. TELEPHONE, CATV, WIRELESS, AND COMPANY AS DETERMINED BY CENTURY LINK
4. TELEPHONE & CABLE PENDER COUNTY ZONING/UTILITY MANAGEMENT

STORMWATER
1. STORMWATER CALCULATION SHALL BE COMPLIANT WITH PENDER COUNTY UDO
2. PENDER STORMWATER SYSTEM WILL BE PROVIDED TO COUNTY WITH PENDER LID
3. STORMWATER WILL BE PROVIDED ON SITE, PRECONSTRUCTED WITH ALL STATE STORMWATER REQUIREMENTS

LANDSCAPING
1. ALL LANDSCAPE PLANTINGS TO COMPLY WITH PENDER COUNTY UDO

BUFFER NOTES
1. ALL BUFFERS TO COMPLY WITH PENDER COUNTY UDO ARTICLE 9
2. MAINTENANCE OF BUFFER AREAS SHALL BE PERFORMED BY INDIVIDUAL OR HOMEOWNERS COVENANTS

STREETLIGHT NOTES
1. STREETLIGHT LOCATIONS TO BE LOCATED PER PENDER COUNTY UDO PRIOR LOCATIONS, QUANTITIES AND CALCULATIONS WILL BE PROVIDED BY DUKE ENERGY

HISTORICAL & ARCHAEOLOGY NOTES
1. NO KNOWN HISTORICAL ARCHEOLOGICAL SITES EXIST

PROJECT ROAD NOTES
1. ALL COLLECTOR ROADS WILL BE PUBLIC WITH PUBLIC RIGHT OF WAY CONSTRUCTED TO NCDOT SUBDIVISION ROADS MINIMUM CONSTRUCTION STANDARDS. PUBLIC ROADS WILL BE DEDICATED TO NCDOT
2. ALL OTHER ROADS WILL BE PRIVATE RIGHT OF WAY OPEN TO PUBLIC USE, CONSTRUCTED TO NCDOT SUBDIVISION ROADS MINIMUM CONSTRUCTION STANDARDS AND BE MAINTAINED BY COMPANY HOA
3. ALL PROPOSED STREET NAMES, NUMBERING AND DIRECTIONS AND CONSTRUCTIONS TO MATCH NUMBERING & PROJECT COLLECTOR ROADS WILL HAVE A 30' MINIMUM MINIMUM ALL OTHER ROADS ON THE PROJECT WILL BE 28' MIN
4. STREET NAME SIGNS SHALL BE PRE INSTALLED AS SOON AS ROADWAYS ARE ACCESSIBLE BY VEHICLES DURING CONSTRUCTION AND MUST PENDER COUNTY STANDARDS AND SPECIFICATIONS
5. SIDEWALKS WILL BE LOCATED ON ONE SIDE OF ALL ROADS EXCEPT THE COLLECTOR ROADS AS PLACED. SIDEWALKS SHALL MEET ALL APPLICABLE ADA REQUIREMENTS
6. ALL ROADS WILL COMPLY WITH SECTION 7.9.3 OF THE PENDER COUNTY UDO

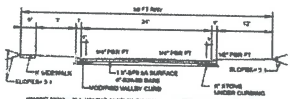
NUMBER OF DWELLING UNITS (DENSITY)
PENDER COUNTY UDO VIA UPDATED AREA PENDER PLAN SECTION 4.8.2

Density Calculations for Conditional Rezoning Parcel	
Grand Unit Total	363
Total Single Family Units	157
Total Townhouse Units	206
Total Site Acreage (approx.)	126.19
Total Wetland Acreage (approx.)	14.69
Total Open Space Acreage Required (Number of Lots x 0.03)	36.06
Areas to Subtract From Site Acreage	
Commercial Area	0.00
ROW and Parking	36.07
wetlands in Lots	0.00
Total Active Open Space	36.13
Total Passive Open Space (all wetlands, including 0.4ac developed passive open space)	14.69
Total Area Subtracted from Total Site Acreage Land Acreage	87.38
Total Developable Land Acreage	38.81
Max. Allowable Density Units/ Acre (Max. 3du/ac allowed)	9.36
Total Proposed Density Units/ Acre	4.0

OPEN SPACE REQUIREMENTS
REQUIRED: 0.03 ACRES X 363 UNITS = 10.89 ACRES
PROVIDED: 11.31 ACRES INCLUDING
ACTIVE SPACE: 7.31 ACRES
PASSIVE SPACE: 3.69 ACRES

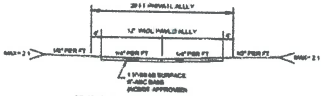
RECREATION UNIT NOTES
1. TO COVER REQUIRED RECREATION UNIT FOR PENDER COUNTY UDO PRIOR TO THE PROVIDED ACTIVE RECREATION AREAS WILL BE LOCATED ON LOCALE THE SEWER & UNIT REQUIRED BUILDING AND WILL BE PLATTED COMMUNITY CLUBHOUSE, LOCALLOCATED THE SECTION 9.4 ALLOCATION REQUIRED FOR RECREATION UNITS

MATCH LEGEND
MIX PLANNED - PARKING OPEN SPACE
ACTIVE OPEN SPACE



TYPICAL 50' ROW ROAD CROSS SECTION
NOT TO SCALE

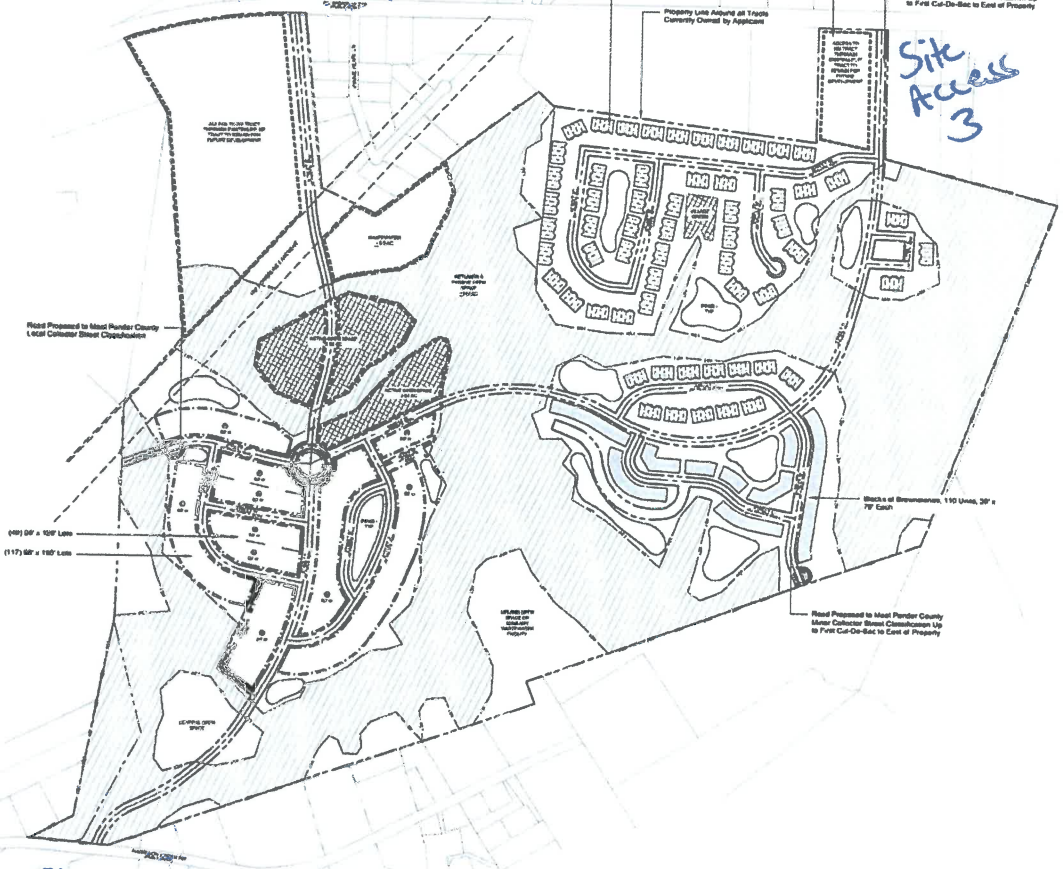
TYPICAL COLLECTOR ROAD CROSS SECTION
NOT TO SCALE



TYPICAL ALLEY CROSS SECTION
NOT TO SCALE

TYPICAL MULTI-FAMILY PARKING CROSS SECTION
NOT TO SCALE

APPROVED BY PENDER COUNTY UNIFIED DEVELOPMENT ADMINISTRATOR
SIGNATURE: _____
DATE: _____
SITE PLAN VALID FOR TWO YEARS FROM APPROVAL DATE



PRELIMINARY DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS

CLIENT INFORMATION
Hardison Building Company
P.O. BOX 869
Wrightsville Beach, NC 28480

PARAMOUNTE
123 Greens Drive
Wilmington, North Carolina 28403
(910) 799-0747 (O) Site Plan No. 32
NC License # C-2441

CONDITIONAL REZONING
MDP SITE PLAN
HWY 210 TRACT
ROCKY POINT, TOPSAIL TOWNSHIP
PENDER COUNTY, NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL DRAFT
DESIGN DEVELOPMENT
PRELIMINARY
TRACING OF CONCEPT

DRAWING RECORDATION
SCALE: 1" = 30'
DATE: 06/15/
DRAWN: MC
DESIGN: MC
CHECKED: MC

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026667 ENGINEER THOMAS C. MCPHERSON

C-2.0

PSI JOB# 17323 PE

Attachment 4

PLURIS

July 5, 2017

Hardison Building Company
Attn: Dean Hardison
PO Box 809
Wrightsville Beach, NC 28480

RE: Hwy 210 Tract Project, revised

Mr. Hardison,

Pluris Hampstead, LLC ("Pluris") is providing this letter as formal notice that Pluris has wastewater treatment capacity for the development described within the Hwy 210 Tract Project Narrative. Per the current project narrative, the Hwy 210 Tract Project will consist of 562 units – both single and multi-family residences. The entire project acreage is 347.23 acres. Pluris is authorized by the Country of Pender in its Special Use Permit to provide wastewater service within the Hampstead Service area.

The developer will be required to enter into a developer agreement with Pluris, which will serve as the binding agreement between Pluris and the developer. Additional information will be provided to the Developer including fees and the developer will be required to provide additional details in preparation of the developer agreement.

We look forward to working with you on the project and do not hesitate to contact me directly. My email address is rhoffer@plurisusa.com and my cell number is (910) 852-0630.

Best regards,

Randy Hoffer

Attachment 5

PARAMOUNTE
ENGINEERING, INC.

July 13, 2017

Pender County Planning
Attn: Pat O'Mahony
805 South Walker Street
Burgaw, NC 28425

RE: Community Meeting Notes – HWY 210 Tract

A community meeting for the proposed conditional rezoning of the Hwy. 210 tract was held on Thursday, July 13, 2017 in the Hampstead Annex Auditorium from 6:00PM – 7:00 PM. This was an open house style meeting with twelve people attending according to the meeting's sign in sheet. General aerial and street maps and the proposed conditional zoning master development plan were on display and discussed with attendees during the meeting.

Generally, attendees were interested in understanding the exact location of project entrances, location of the property in relation to other properties, what would happen to the wetlands on the property, the location of NCDOT corridor, and how or if their respective properties were affected. Many questions were asked about traffic improvements and the amount of traffic this development will produce. Both the Paramounte Engineering (PEI) representative and the applicant explained the project's required traffic impact analysis will be coordinated with NCDOT, WMPO, the developer, and Pender County. The result will tell us all what improvements can alleviate traffic congestion and improve circulation in the area. The development has 4 proposed outlets to adjacent proposed or existing roads and 1 stub to an adjacent property. These factors combined with installation of two Pender County required collector roads will alleviate many of the concerns expressed at the meeting.

Proposed project entrances and buffers were identified for many of the adjacent property owners, and some requested alternate or additional buffers. PEI made the additional buffer changes and provided these revisions to the County and planning board for review.

Once PEI explained the location of the wetlands was indicated on the plan and that the development was planned on uplands only (excluding road crossings), attendees seemed less concerned about the impact of the project.

Attendees were given the date and time of the Planning Board meeting to provide additional comments.

122 CINEMA DRIVE, WILMINGTON, NC 28403
PH: (910) 791-6707 FAX: (910) 791-6760

PARAMOUNTE
ENGINEERING, INC.

August 28, 2017

Pender County Planning
Attn: Pat O'Mahony
805 South Walker Street
Burgaw, NC 28425

RE: Site Meeting w/ Concerned Neighbors – HWY 210 Tract

The applicant/ developer, Dean Hardison, held a meeting on the Hwy. 210 tract site on Friday, August 25, 2017 at 5:30PM. Seven neighbors of the project and a Paramounte Engineering representative attended the meeting. The meeting offered the opportunity to the developer to hear the concerns of the neighbors and for the neighbors to reach a resolution to many of their questions and concerns. During the meeting, the applicant pointed out items he had already agreed to with the last plan revisions submitted to the Planning Board OR agreed to additional items as indicated herein.

Line of Sight

There was discussion about the lack of sight line around the curve on Hwy 210. The applicant has a tall, dense row of vegetation along the road buffering his farm from Hwy 210. He agreed to remove this buffer with the beginning of grading/construction activity on site. All agreed that this will help the line of sight for the neighbors as well as the new residents of the proposed Hwy 210 development.

Buffer

There were many questions about what the material and size of the proposed buffer along the HWY 210 entrance road near Winnie Pearl Ln. The majority of residents in attendance were from these neighboring properties, so the primary focus of the meeting was at areas abutting their properties. In preparation for the meeting, the applicant and Paramounte Engineering compiled a few representative images of the proposed 50' wide buffer along the entrance road. (See attached example images for buffer plant and fence materials presented to the neighbors). The images were presented to show the type of screening opacity proposed and the current thought on plant material. While plant selection may differ slightly in the installed application, the same screening coverage will be achieved. After discussion with the neighbors, we agreed to keep the 50' wide buffer as shown on the most recent plans sent to Planning Board. We will also keep the opaque, 6' height wood fence with solid evergreen hedge (in 4 years) and 2 understory trees per 100 LF. The developer will most likely install something even more dense than this as depicted in the bottom picture of the "Understory Tree Examples" page attached. One neighbor wanted to be sure we understood there is a required water source near the buffers. The applicant understands and disclosed that he plans to irrigate the buffers. The neighbors agreed to the plan as noted and indicated here.

122 CINEMA DRIVE, WILMINGTON, NC 28403
PH: (910) 791-6707 FAX: (910) 791-6760

Buffer Under Powerlines

Some neighbors had concerns about the open powerline easement, but we reached an agreement on the treatment of this area. As indicated on the most recent plans, the developer will submit a landscape plan to the power company for approval, and will install the buffer as approved by the power company. We cannot predict exactly what they will approve in this location, but the applicant and Paramounte Engineering will follow the most current version of the power company's applicable guidelines, "Duke Energy Electric Transmission Right-of-Way Guidelines/Restrictions Valid for North Carolina and South Carolina". These guidelines dictate height and placement of plant material and fencing within the powerline easement. The types of plants typically allowed by Duke Energy should allow the applicant to maintain a C-4 Buffer for most of the width of the easement. Duke will have access requirement that will be reviewed/imposed on the applicant when plans are submitted to them. Duke will also have to approve/deny the ability to place a fence in their easement. If it is allowed, the developer will install the fence and plant material as approved by Duke and the County.

Ditch Under Powerlines

There is an existing ditch under the powerlines. This ditch has some eroded banks visible at the powerlines. The applicant and affected neighbors looked at the area of concern and discussed possible solutions. The developer is committed to repairing the grade of the ditch within his property to stop erosion. The design of this repair will be done in conjunction with the neighborhood construction of the entrance road. This ditch banks will be pulled back so they are not as steep, possibly causing the developer to reroute the ditch to keep it on his property. This will have to be coordinated with Duke Energy in the power easement and will also be part of an overall erosion control permit process. Once approved, the developer will repair the ditch.

Project Lighting Under the Powerlines

The applicant was asked by the neighbors to minimize all streetlighting within the open powerline area. It is unlikely that Duke will allow streetlights under the powerlines, but the applicant agreed to minimize streetlights in this location.

Project Entrance Road at Harrison Creek Road

Three neighbors from Harrison Creek Road attended to ask questions about the road entrance proposed at Harrison Creek Road. One neighbor wants to build a home on her property next to the entrance and feels this road location will diminish the value of her land. She asked the developer if he would buy her property. This road crosses an extensive amount of wetlands, but the road connection is required by Pender County's UDO. There is no alternate location within the project boundary that allows the connection to Harrison Creek Road and lessens wetland impact. Because of this, the road location will remain as proposed, but must be reviewed by the Army Corps of Engineers and design will be dictated by the pending Traffic Impact Analysis process. The proposed road location does accomplish everything we currently understand to govern location and design of the road. The developer will be required to show avoidance of wetlands to the greatest extent possible and the road is required to be built to NCDOT construction standards. This current location and design accomplishes

both to the greatest extent possible. Ultimately, the Corps will either grant approval or denial of the road location based on the amount of wetland impacts required to build this road. It is unlikely that the Corps will grant this extensive impact, but that will not be known until the developer is much further along in the design and permitting process. Considering all of this, the developer agreed to discuss the potential of purchasing the neighbor's land when he knows if the Corps will allow him to build the road. If the agency does allow construction, the developer will discuss the adjacent land with the owner at that time.

We left the meeting with the three neighbors along Harrison Creek Rd. saying they needed to discuss the project with their attorneys. We exchanged contact information and agreed to continue answering any questions these neighbors or their attorneys may have.

Other than these three neighbors unhappy about a road connecting to Harrison Creek Rd., the neighbors agreed that the meeting and the developer's proposed plans and concessions during this meeting adequately addressed their concerns. We present these notes as additional information to be considered by the Planning Board during the project review at the September 6, 2017 Planning Board meeting.

In summary, the all concessions noted here are either already noted on the current plans submitted to the Planning Board, or are in compliance with plans as presented. The Board may choose to mandate conditions as agreed to with the neighbors, but the developer has agreed to all items as listed above and intends to bring them all to fruition during permitting and construction of the project as indicated herein.

Evergreen Hedge - Wax Myrtle

Approximate Install Size

Approximate Height in 4 Years

Approximate Mature Height

These plants are a graphic representation and should be utilized for discussion purposes only. These images approximate existing conditions relating to proposed privacy screening and are presented as examples of what the screening may look like. For discussion purposes only.

Understory Tree Examples

Example Understory Tree - Approx. Mature Height

Understory Tree Planting 4 Year Grow-in

These images are a graphic representation and should be utilized for discussion purposes only. These images approximate existing conditions relating to proposed privacy screening and are presented as examples of what the screening may look like. For discussion purposes only.

6' Ht. Wood Privacy Fence

Example Wood Fence W/ Evergreen Hedge Behind

Example Wood Fence w/ Treeform Plant Material
(style of pruning not proposed here)

These images are a graphic representation and should be utilized for discussion purposes only. These images approximate existing conditions relating to proposed privacy screening and are presented as examples of what the screening may look like. For discussion purposes only.

Technical Review Committee (TRC) Responses

Floodplain Manager
The subject properties are not located within a regulatory Special Flood Hazard Area.

Cape Fear Council of Governments RPO
No response.

Four County Electric Company
No response.

NC DENR Division of Coastal Management
No response.

NC DENR Division of Forestry
No response.

NC DENR Division of Land Resources
No response.

NC DENR Division of Waste Management
No response.

NC DENR Division of Water Quality
If the rezoning is approved, the development of the project will require stormwater permitting.

NC DOT Division of Highways
Driveway permit will be required. Roadway improvements will be required. Will need to be reviewed by Hydro for roads that are public.

NC DOT Transportation Planning Branch
No response.

NC Office of State Archaeology
No response.

NC Wildlife Resources Commission
No response.

Pender County Addressing
Nothing at this stage -Jan Dawson

Pender County Building Inspections
No comment.

Pender County Emergency Management
No response.

Pender County Environmental Health
No comment.

Pender County Fire Marshal

- Street N is a most for connectivity from west to east traffic on the tract.
    - *Street N must be passable during large rain event to allow travel of all vehicles (Crosses a large creek bottom). If this roadway is not built above a large rain flooding event, this would require vehicles of 405 units to use Street A to NC Hwy 210.*
- Neighborhood area off Street M, N & O needs a 2nd in and out due to 295 Townhouse Units using only Street N.
    - *Connection from Street P or O needs to connect to NC Hwy 210 or Street A if built so it is passable during a large rain event/flooding*
- Alleys need to meet Pender County UDO.
- Cul-de-sac plans not noted on drawing.
    - *40 ft min radius for cul-de-sac*
- Fire Hydrants not noted.
    - *Show Hydrants and meet PCU standards*
- Around about detail not noted on plans.
    - *Detail to meet NCDOT standards*
- Setbacks and detail for homes not noted.
    - *Fire access and building construction may change with locations and setbacks*
- Roadway detail needed for roadway off Street C and turn around needed.
    - *Road way named, size and approved turnaround needed*
- Street B has no turn around shown.
    - *Approved turn around and roadway access of 20'*
- Dry hydrant requirement on Street A from pond at Intersection with Street D
    - *Due to the large amount of wood frame construction of multifamily unit a dry hydrant is going to be required off Street A and the intersection with Street D*
- Custer Mail boxes not noted on plans
    - *Can't block fire access road or traffic flow*
- Gates?
    - *If this is a gated community, siren activated gates will be required.*
- Commercial Sites will be required to have Knox Box
    - *Knox Box required at building final*

Pender County Parks and Recreation
No comment.

Pender County Public Library
No response.

Pender County Public Utilities

- *Utility plans are not required at this stage of design.*
- *A public water extension will be required from Harrison Creek Rd. with interconnections with the water main in NC Hwy 210.*

- *PCU standard specifications and details can be found on the PCU web page.*

Pender County Schools
No comment.

Pender County Sheriff's Department
No response.

Pender County Soil and Water Conservation District
No response.

Progress Energy Corporation
No response.

US Army Corps of Engineers
No response.

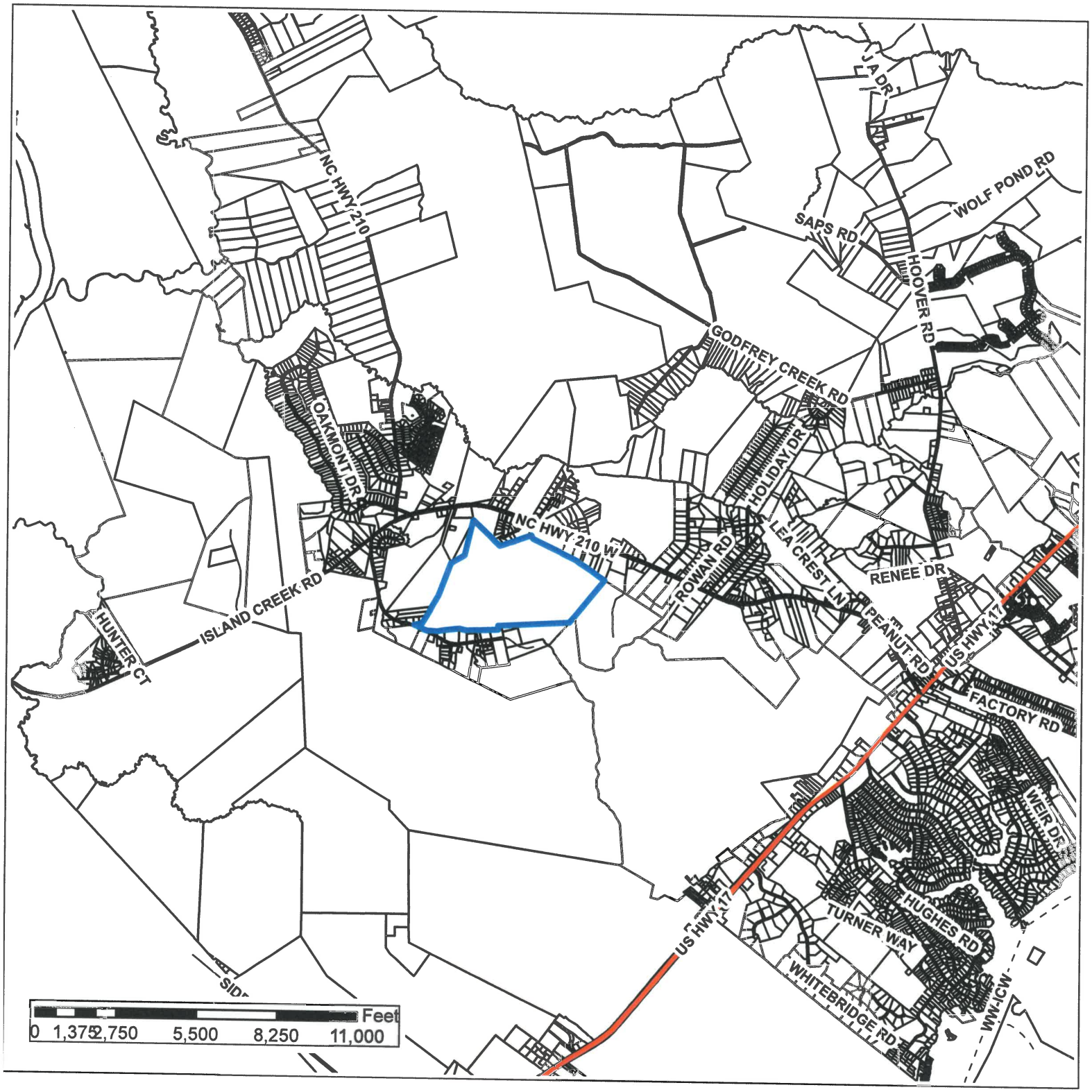
Wilmington Metropolitan Planning Organization

1. *The proposed project is located in the Transportation Corridor for the Hampstead Bypass. Please show the location of the Hampstead Bypass in relation to this project.*
2. *The project has 157 SF homes and 405 Townhouses and Brownstones. This project will require a Traffic Impact Analysis. Please provide the proposed usage and trip generation numbers for the project.*
3. *The proposed HWY 210 Tract MDP plan does not have street names. Provide street names for Street A through Street P, and Alley A and Alley B.*
4. *Coordinate with NCDOT to determine if a Driveway permit will be required for this site.*
5. *The site plans proposes both public and private streets for this subdivision. Please ensure that all streets are constructed to public streets standards.*
6. *The proposed private streets do not appear to be designed to meet minimum NCDOT Subdivision Roads Minimum Construction Standards for Driveway Angle and Horizontal Centerline Curb Radius.*
7. *The northern connections to the subdivision are from adjacent property connections. Please provide a public street that connects the development from Hwy 210.*
8. *The Horizontal Centerline Curb radius must meet the R230' minimum radius required for a local residential street. Please show the horizontal centerline curb radius for each street.*
9. *The proposed pavement type for the street cross section for asphalt and base materials may not meet the requirements for streets built on poor soils. Provide soils data on the streets and increase the pavement cross section of the proposed streets. Additional asphalt and base stone will be required if the soils data does not show excellent soils.*
10. *Provide street cross sections for the proposed Cul-De-Sacs in the subdivision.*
11. *Provide street cross sections for the proposed roundabout in the subdivision.*
12. *The proposed Street A, Street I and Street F appear to be collector streets. Please show the streets as public and add sidewalk to the streets.*
13. *The Private Alley street cross section does not meet the minimum 40' ROW for a local residential street as shown in the NCDOT Subdivision Roads Minimum Construction Standards.*
14. *Please provide additional information, such as details and sidewalk connections for the Townhouses.*

15. *The site plan does not show the proposed location of any turn lanes and traffic signals for this project.*
16. *Please provide driveway connections, and parking locations for the Townhouses.*
17. *Please provide the location of crosswalks, Traffic Control Devices, Stop Bars, and Stop Signs for the development.*

Recommendations:

1. *Show proposed street lighting plans.*
2. *Provide the location of utilities and fire hydrants on the site plan.*
3. *Show the location of proposed Wheel Chair Ramps on the site plan.*
4. *Show the location of pedestrian access to open areas.*
5. *Please consider moving the Townhouses along Street L forward of the street to set up a Village Green area.*



COUNTY OF PENDER

Applicant:
Hardison Building Company

Owner:
Gerald D. Hardison, Jr.

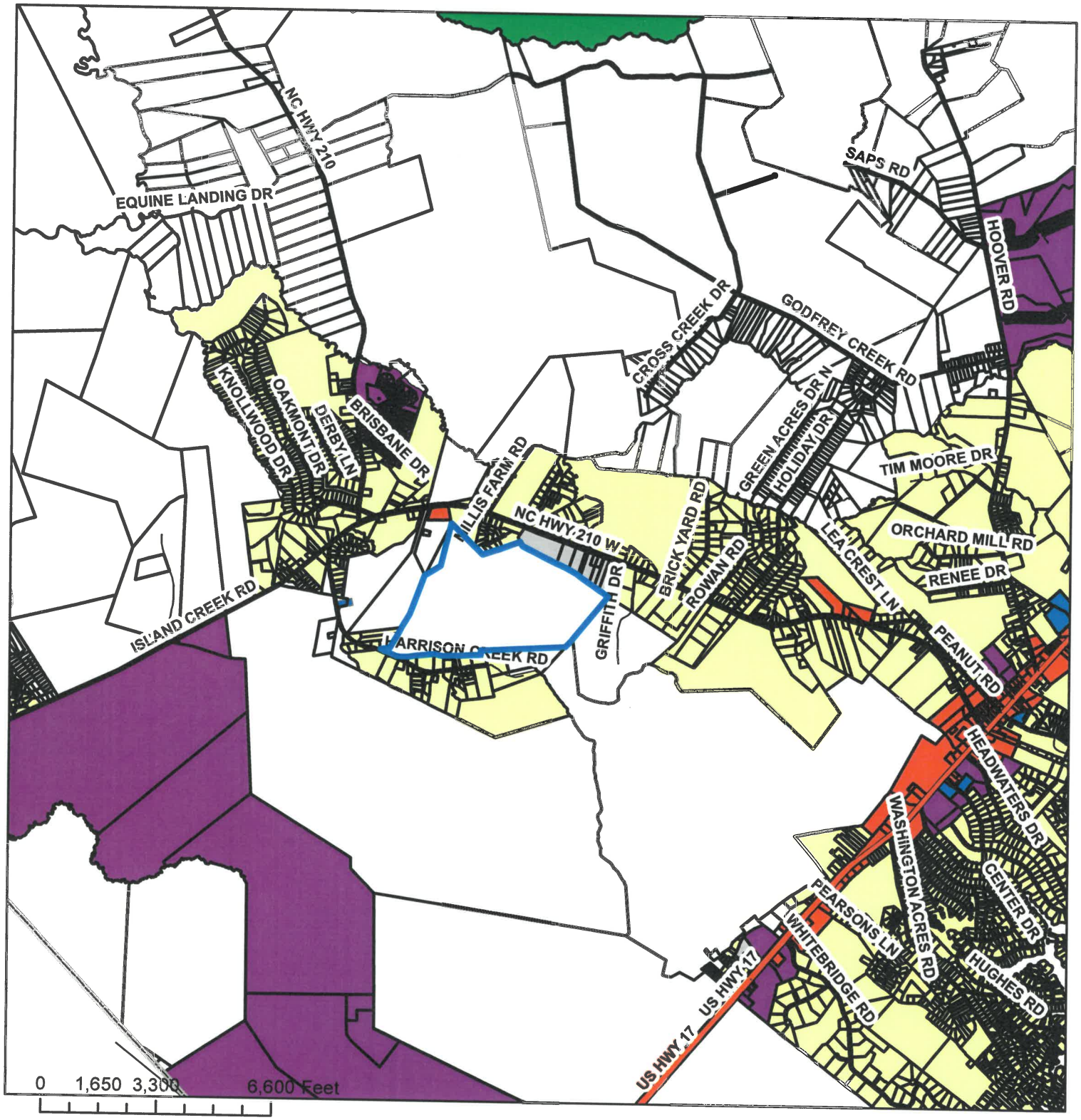
Conditional Use Rezoning
585-2017

Legend

Subject Properties

N

Vicinity



Applicant:
Hardison Building Company

Owner:
Gerald D. Hardison, Jr.

Conditional Use Rezoning
585-2017

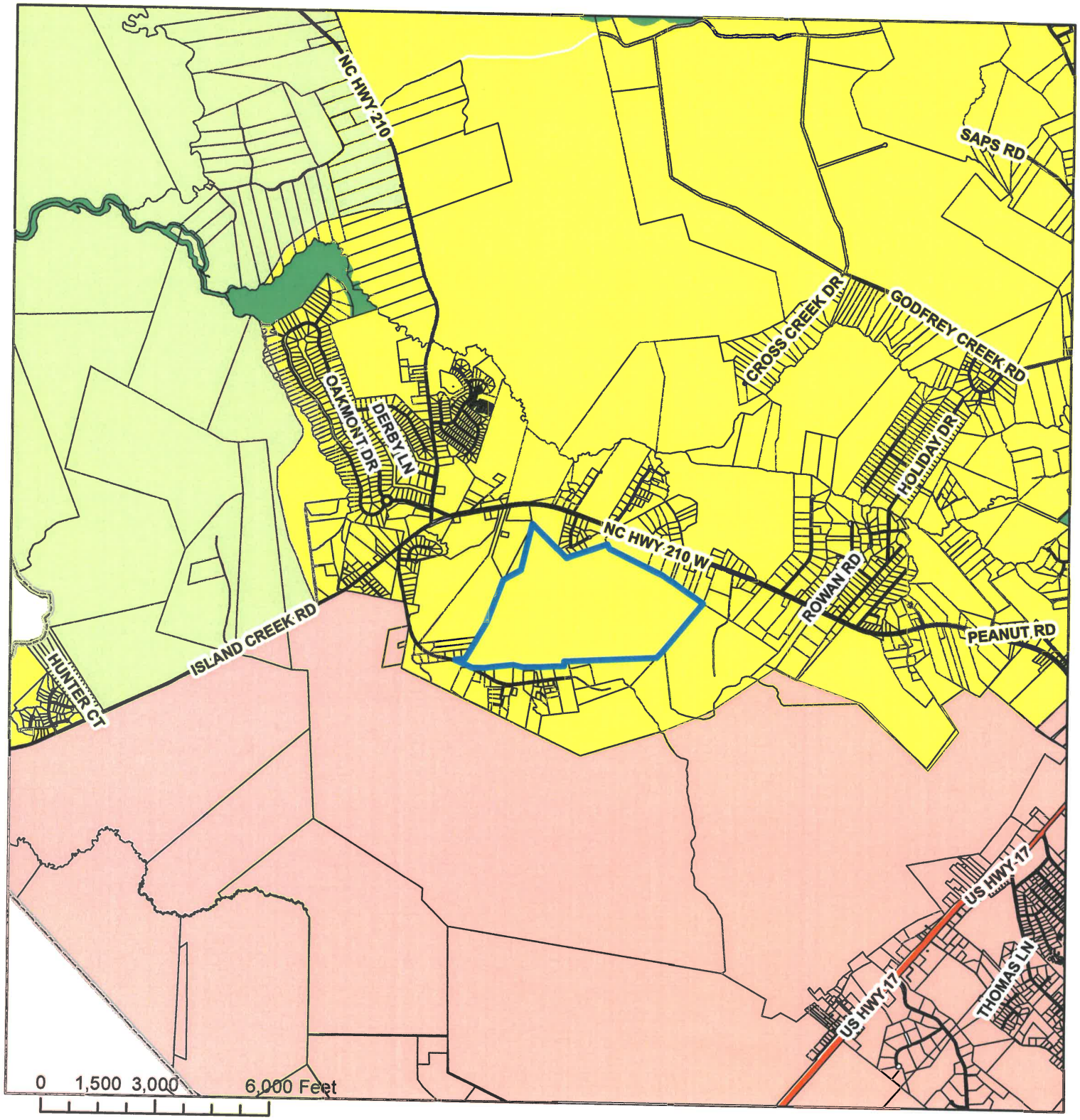
Legend

Zoning Districts

- EC, Environmental Conservation
- GB, General Business
- IT, Industrial Transition
- O&I, Office & Institutional
- PD, Planned Development
- RA, Rural Agricultural
- RP, Residential Performance

N

Current Zoning



Applicant:
Hardison Building Company

Owner:
Gerald D. Hardison, Jr.

Conditional Use Rezoning
585-2017

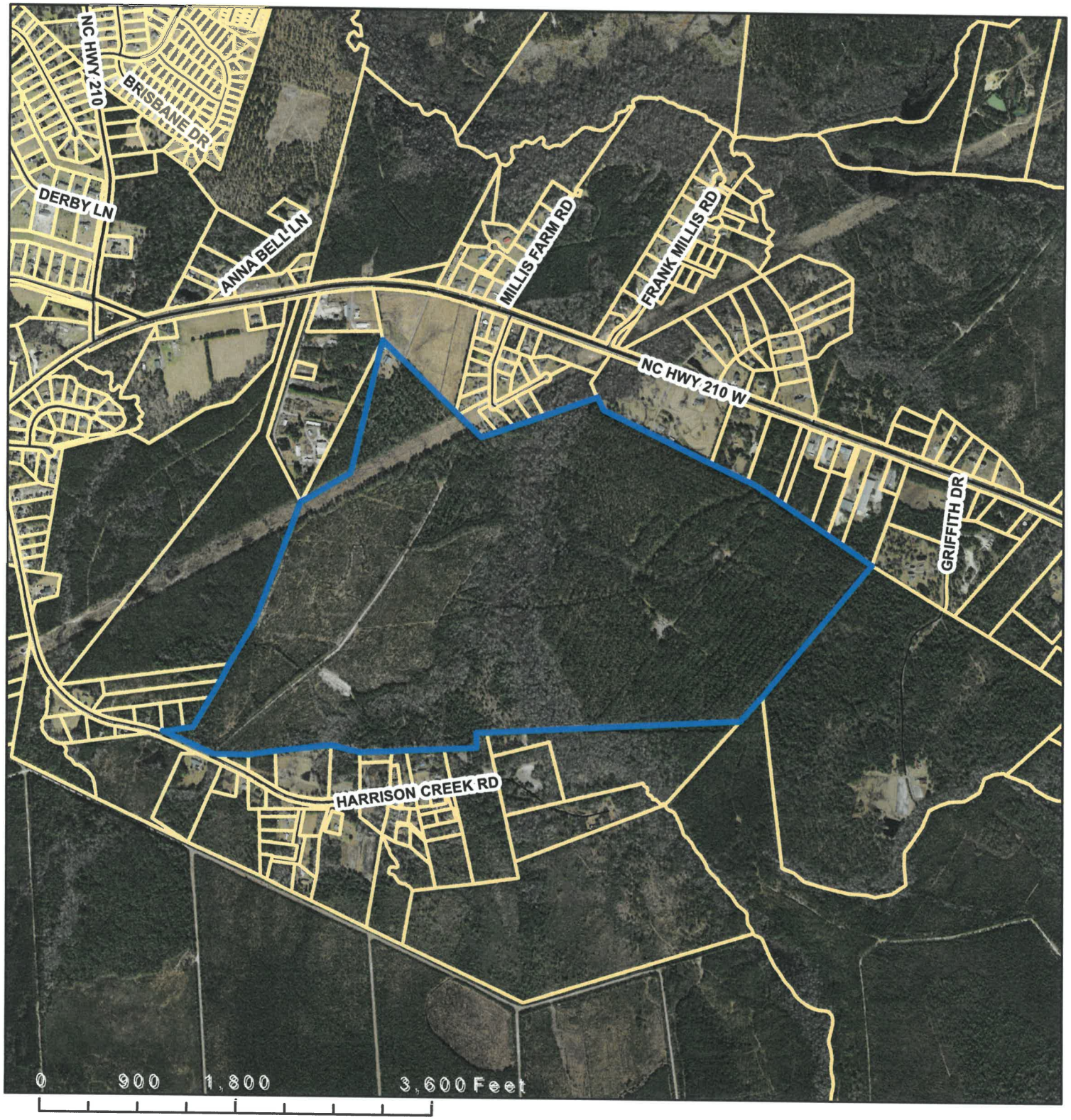
Legend

Future Land Use

- Conservation
- Industrial
- Mixed Use
- Office, Institutional, Commercial
- Rural Growth
- Suburban Growth
- Subject Parcels

N

Future Land Use



Applicant:
Hardison Building Company

Owner:
Gerald D. Hardison, Jr.

Conditional Use Rezoning
585-2017

Legend

Subject Properties

N

2016 Aerial

PLANNING STAFF REPORT
ZONING TEXT AMENDMENT

SUMMARY:

Hearing Date:	August 1, 2017 Planning Board (tabled) September 6, 2017 Planning Board
Applicant:	Pender County
Case Number:	ZTA 385-2016

Text Amendment Proposal: Pender County, is requesting the approval of a Zoning Text Amendment to the Pender County Unified Development Ordinance. Specifically, the request is to amend the density calculation and provide clearer standards for how to obtain density bonuses for mixed-use development in the RM, Residential Mixed and PD, Planned Development zoning districts. Specifically, Section 4.8.1.C shall be moved to Section 4.6.7 with further clarification of superior design elements for additional densities.

RECOMMENDATION

The Administrator respectfully recommends approval of the Zoning Text Amendment to the Unified Development Ordinance as described in this report, as it is consistent with the Unified Development Ordinance, the Pender County Collector Street Plan and two (2) goals and eleven (11) policies within the 2010 Pender County Comprehensive Land Use Plan. There are no known conflicts with any adopted plan.

Additional density bonuses are permissible in the existing Unified Development Ordinance text, however, the standards for applying the allowance is not clear. The applicant's submittal was aimed at clarifying how to achieve additional densities through superior design.

This recommendation for additional density bonuses is also accompanied by the potential impacts a specific project may have on the community. Any addition to density for a specific project must consider the impacts to traffic, schools, existing or potential water, wastewater and roadway capacity. All projects which may be applicable under this zoning text amendment are reviewed by the Planning Board, through Master Development Plan in the PD, Planned Development zoning district or Planning Board for recommendation and Board of County Commissioners for approval of Conditional Zoning Map Amendments.

HISTORY

This amendment originally came before the Planning Board in public hearing November 1, 2016. Following the Board hearing, it was deemed appropriate for the Zoning Text Amendment Subcommittee of the Planning Board to review and modify the proposal to ensure compliance with the 2010 Comprehensive Land Use Plan. The ZTA Subcommittee met routinely to discuss this item; November 9, 2016, November 18, 2016, December 6, 2016, January 19, 2017 and February 17, 2017. The Planning Board also heard updates regarding the proposed density text amendment at their meetings on; December 6, 2016, January 4, 2017, February 7, 2017, June 6, 2017 and July 5, 2017 at their work sessions.

The applicant withdrew the request for Zoning Text Amendment on April 6, 2017. The Zoning Text Amendment (ZTA) Subcommittee met on May 18, 2017 to address the applicant's withdrawal of the zoning text amendment regarding density. As the case was withdrawn by the applicant, the Planning Board has the decision as to proceed with the amendment in full or partially to the Unified Development Ordinance. The ZTA Subcommittee decided to proceed with the ZTA as previously discussed for the only for the portions which could be supported by the 2010 Comprehensive Land Use Plan.

On June 6, 2017 at their Work Session, the Planning Board recommended additional clarifications to the recommended Ordinance text and requested information regarding NOAA recorded storm events about resilient stormwater design. Staff met with officials from NOAA and included additional precipitation information to examine historic trends and occurrences.

Planning Board then discussed this item at their July 5, 2017 meeting. Further clarification regarding workforce housing was discussed and additional language regarding specific items to collect at Final Plat recordation was added to the Workforce Housing density bonus.

AMENDMENT DESCRIPTION

The Pender County Unified Development Ordinance specifies density standards for mixed-use zoning districts (PD, Planned Development, and RM, Residential Mixed zoning districts) in Section 4.8.1.C. as seen below;

C. Number of Dwelling Units (Density) 1) *Determination - The number of dwelling units in a project utilizing the PD development standards shall be a maximum of five (5) units per net density. The density is calculated as total tract acreage subtracting the following:* a) *Areas reserved as non-residential development* b) *Total wetland calculations* c) *Rights of way and parking areas* d) *Active and passive open space* *i) Passive open space may be subtracted from the total wetland delineation in the Master Development Plan if it is calculated to be less than the total wetland area.* 2) *In effort to encourage quality urban design and environmentally sensitive development, an increase in density may be allowed by the Planning Board when such an increase can be justified by superior design or the provision of additional amenities such as public and/or private open space.*

Table 1 - Density Calculation

Calculation Amendment

The net density calculation currently is represented above in Table 1. Density is calculated first by subtracting out all elements included in a) – d) as listed from the <u>total tract acreage</u> to determine <u>developable area</u>. The calculated developable area is then divided by the number of units proposed to determine net density. The calculation, as written, may be further simplified in wording in the Unified Development Ordinance.

In determining Net Density, Active and Passive Open Space is deducted from the total tract acreage. It is not clear as to whether the <u>required</u> amount of open space should be used or the <u>provided</u> open space for the overall project. Regularly, an applicant is providing more than required and should not be penalized for doing such in the density calculation. This may deter applicants from providing more than the minimum required and it is recommended that this portion of the overall calculation be amended to utilize required open spaces as the figure for Net Density.

Sample density tables (Table 2 & 3) illustrate calculation given amendments to the formula to calculate density. The first scenario demonstrates the difference in calculation with the required vs. provided density figures by keeping the unit yield the same and amending the developable land area only.

	Current	Proposed	Calculation
Total Tract Acreage	100	100	
Total Wetlands on Subject Tract(s)	10	10 (7)	Subtract from Total Tract Acreage (TTA)
Rights of Way Area	5	5	Subtract from TTA
Parking Area	1	1	Subtract from TTA
Non-Residential Areas (Commercial)	3	3	Subtract from TTA
Active and Passive Open Space (0.03 ac/unit)	15	6	
Active Open Space	3	3	Subtract from TTA
Passive Open Space	12	3	Take difference b/w wetlands and Passive Open Space, then subtract from TTA
Total Developable Land Area	75	81	
Residential Units Proposed	200	200	Divide the Developable Land Area by Residential Units Proposed
Density	2.67	2.47	

Table 2 Net Density Calculation to Amend Open Space and Keep Units the Same - *All figures depicted by acres

	Current	Proposed	Calculation
Total Tract Acreage	100	100	
Total Wetlands on Subject Tract(s)	10	10 (7)	Subtract from Total Tract Acreage (TTA)
Rights of Way Area	5	5	Subtract from TTA
Parking Area	1	1	Subtract from TTA
Non-Residential Areas (Commercial)	3	3	Subtract from TTA
Active and Passive Open Space (0.03 ac/unit)	15	6	
Active Open Space	3	3	Subtract from TTA
Passive Open Space	12	3	Take difference b/w wetlands and Passive Open Space, then subtract from TTA
Total Developable Land Area	75	81	
Residential Units Proposed	375	400	Divide the Developable Land Area by Residential Units Proposed
Density	5	4.92	

Table 3 Net Density Calculation to Amend Open Space and Amend Units Yielded from Property - *All figures depicted by acres

Superior Design Provision

The second part of the density Section 4.8.1.C.2 provides for additional density to be granted given the applicant provides *superior design or the provision of additional amenities such as public and/or private open space*. This is additional to the five (5) units per acre as allowable in the net density calculation. The Comprehensive Land Use Plan further refines the allowable densities per land use classification and shows acceptable densities of 8 units per acre in the Mixed-Use zoning districts (**Attachment 1**). The applicant's submittal was aimed at clarifying how to achieve additional densities through superior design. Additional density bonuses are permissible in the existing Unified Development Ordinance text, however, the standards for applying the allowance is not clear.

The following criteria were examined and are recommended by the ZTA Subcommittee as part of the additional density credits because there are corresponding policies in the Comprehensive Land Use Plan in support:

1. Workforce Housing
2. Low Impact Development
3. Collector Street Provided
4. Open Space
5. Resilient Stormwater Design

Workforce Housing

Providing affordable housing throughout mixed-use developments is an inclusionary planning tool for all different income levels. As identified in the Comprehensive Land Use Plan;

Policy 5A.1.5 Pender County could provide incentives such as density bonuses to developers that offer established affordable/workforce housing programs through community land trusts such as the Cape Fear Housing Community Land Trust.

The following is recommended to be incorporated into Unified Development Ordinance text;

A. At least 15% of the units shall have payments affordable to persons and families with annual incomes at or below 60% of the Area Median Income, per the target income limits set by HUD for Pender County
B. Workforce units shall be incorporated throughout the project, and shall not be distinguishable from market-rate units through location, grouping, design or other physical characteristics
C. Affordability in for- sale units shall be required to be adhered to only in the initial sale.
D. Compliance measures may be required at the time of approval, including but not limited to; restrictive covenants and deed restrictions.

Utilizing the formula above for Pender County with the 2016 data from the Department of Housing and Urban Development (HUD)[1]:

Area Median Income (AMI)	**$ 55,200**
60% of Area Median Income (AMI)	$ 33,120

(1) huduser.gov/portal/datasets

For example, to calculate, the Federal Housing Administration (FHA) uses more than 30% of annual gross income goes to housing is a cost burden to the owner. This would be $9,936 annually or $828 per month on a mortgage (not to include utilities, taxes or insurance).

Low Impact Development

When considering higher density developments, improved stormwater quantity regulations should be considered, due to the topography of Pender County and the soils which are being developed. The Low Impact Development Certification (LID) generally mimics a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source. The stormwater management should not be treated in large drainage areas rather, LID addresses stormwater through small, cost-effective landscape features located on a smaller area. LID certification is contained in the Unified Development Ordinance Section 7.14.

Low Impact Development (LID) is a certification comprised of technical and policy-oriented courses pertaining to low impact development. The curriculum is developed jointly by NC State University and NC Department of Environmental Quality, Division of Water Quality.

Current density incentives for LID are outlined in the Unified Development Ordinance Section 7.14. Incentives offered include variation in dimensional standards and buffering. For instance, reduced lot sizes are available in the RP, Residential Performance and RA, Rural Agricultural zoning districts. These incentives are rarely used by developers.

To award additional density credits based on a certified LID design, the following is contained in the Comprehensive Land Use Plan Section II-19; *In developing stormwater management goals and policies, the Business Alliance for a Sound Economy (BASE) and the North Carolina Coastal Federation jointly recommended that the County consider*:

1. *Developing policies and techniques that encourage the use of voluntary low impact development standards that can be applied to projects at the individual lot level or to major residential or commercial developments to mimic natural features and pre-development hydrology.*
2. *Developing policies and techniques that incorporate voluntary low impact development practices. The County should adhere to the guidance set forth from the Division of Water Quality for details on how to design, construct and maintain LID practices.*
3. *Implementing fee-based as well as land-based incentive packages for developers that utilize low-impact development (LID) techniques to manage the potential impacts of stormwater runoff within the County.*

Policies in support of additional LID criteria are below from the 2010 Comprehensive Land Use Plan;

Goal 3A.1 Develop a preferred growth pattern that includes traditional suburban communities but also allows for higher density residential development and for innovative mixed-use developments to encourage more compact, sustainable growth patterns

The following is recommended to be incorporated into Unified Development Ordinance text for LID criteria;

A. Documentation of certification from the appropriate professional form shall be submitted as part of the application package. An example form can be found in Appendix D- Typical Forms and Surveyor Notes.
B. The LID Project must comply with the requirements for stormwater management as set forth in 15A NCAC 02H.1005.
C. All provisions of Section 7.14, as applicable, must be met before LID certification can be granted for density bonus.

Major or Minor Collector Street Provided

As Pender County recently adopted a Collector Street Plan for the Wilmington Metropolitan Planning Organization (WMPO) area, development proposals may be required to provide roadways in accordance with the plan recommendations as outlined in Section 7.5.1.A *Layout of streets as to arrangement, width, grade, character, and location shall conform to the following: Pender County Collector Street Plan, Pender County Transportation Plan or other approved State of Federal Transportation Improvement Plan.*

If the project bounds include a major or minor collector street, then this area can be excluded from the density calculation. For instance, if the area for collector street right of way equals one (1) acre, this shall not be subtracted from the Total Developable Land Area using the Net Density Calculation.

The following Comprehensive Land Use Plan goals and policies support amending the density calculation given a major or minor collector street is identified within the project bounds;

Transportation Goal 2B.1 Manage the timing, location and intensity of growth by coordinating transportation improvements in accordance with the Comprehensive Land Use Plan and the Pender County Collector Street Plan.
Policy 7B.1.1 The County should utilize and promote a hierarchical, functional transportation system, that prioritizes needs improvements, and promotes the proper arrangement of land use patterns to ensure and determine the proper levels of service (LOS) to reduce any associated negative impacts to the overall transportation network.

Specific Unified Development Ordinance recommended language is below;

A. Only applicable if the collector street identified within the project bounds is classified as a major or minor collector street per the Pender County Collector Street Plan, Pender County Transportation Plan or other approved State or Federal Transportation Improvement Plan.
B. The density calculation does not require the collector street to be removed from developable area
C. Any deviations or adjustments to the density calculation shall be approved by the Administrator based on the proposed collector streets,

Open Space

Additional Open Space may be demonstrated as a criterion that could warrant additional density allowances. It is recommended that this strategy utilize the "conservation" or "cluster" subdivision approach which would require at minimum, half of the overall project area to be reserved as active or passive open space. This concept limits infrastructure needs and preserves important environmental features that may be impacted through a more traditional subdivision design.

Table 3 is a depiction from the 2010 Comprehensive Land Use Plan showing a conventional subdivision versus a conservation subdivision with additional open spaces.

Figure II-1 Conventional vs. Conservation Subdivision
from "Conservation Design for Subdivisions" by Randall G. Arendt

Additionally, a Military Growth Task Force study was completed in 2010 demonstrating the multiple benefits of designing and constructing a conservation subdivision with additional open spaces to the County, developer and environmental benefit.

The 2010 Comprehensive Land Use Plan policies to support the provision of more than half of the parcel being dedicated as open spaces can be seen below;

Table 4: Conventional versus conservation subdivisions

Growth Management Goal 1A.1 Manage the physical growth and development of Pender County by promoting more intensive land uses in key locations identified for such growth while preserving and protecting the unique physical character and social assets of the predominant rural lifestyle and coastal environment that makes the County a unique place to live.
Policy 2B.2.1 Incorporate cluster development standards in the Unified Development Ordinance.
Policy 2B.2.2 Consider providing incentives to encourage use of the cluster development option to preserve environmentally sensitive areas and upland sites as open space to protect community character.
Policy 7B.1.6 Ensure UDO regulations include clearly defined open space standards, which include reasonable and quantifiable areas of open space to be provided outside of wetlands, stormwater ponds, and clustered or community sewage disposal areas.

The 2010 Comprehensive Land Use Plan outlines Smart Growth principles specifically focused on the provision of additional open spaces and conservation subdivisions;

2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
6. Preserve open space, farmland, natural beauty, and critical environmental areas.

If more than half of the parcel is provided as open space provided, then the additional density credit shall be allocated, per the recommendation of the ZTA Subcommittee. Applicants should not be penalized if they provide additional open space beyond the County's requirement of 0.03 acres of open space per unit (per Section 7.6.1.C). This provision would be applicable if the applicant provided more than half of the property as open space.

Specific Unified Development Ordinance recommended language is below;

A. Only applicable if the open space provided is more than half of the total tract acreage.

Resilient Stormwater Design

The final item for additional density bonus as proposed by the applicant and recommended by the ZTA Subcommittee is the design of resilient stormwater facilities beyond the County's current quantity standard for a 10-year storm event as outlined in Section 7.9.1.B for pre-development and post-development conditions.

The County can recommend a greater storm event be submitted for Stormwater design, beyond the 10-year quantity currently enforced for new development in Section 7.9.1 of the Unified Development Ordinance. The Zoning Ordinance (1988) included a certification form for Licensed Professional Certification for Drainage, Commercial Sites with Less than One Acre Developed or Disturbed to a ten-year frequency event. Major Subdivisions included a 10-year storm event water discharge certification as well. The 10-year storm provision has been included in the zoning regulations of Pender County as part of the Zoning Ordinance (amended).

A 10-year storm event equates to a specific amount of rain over a 24-hour period (in inches) without creating any significant ponding or overflow of drainage facility banks. NOAA is the resource for these figures which change periodically and through geographic locations. Addressing future growth and weather patterns, consideration should be given to address higher rain amounts and frequency of events. **Attachment** 2, is produced by NOAA and demonstrates the relationship between average recurrence interval (in years) throughout a specific duration to determine point precipitation frequency estimates.

The following policies from the 2010 Comprehensive Land Use Plan support amending the resiliency of stormwater planning in higher density projects;

Policy 3G.1.3 Pender County will consider developing policies and techniques that encourage the use of voluntary low impact development standards that can be applied to projects at the individual lot level or to major residential or commercial developments to mimic natural features and predevelopment hydrology.
Policy 1A.1.4 The County should develop and utilize innovative and flexible land planning techniques that encourage developments to efficiently use land resources that result in more compact urban areas, infill development, redevelopment , and the adaptive re-use of existing buildings.
Policy 2G.1.5 Consider implementing fee-based as well as land-based incentive packages for developers that utilize low impact development (LID) techniques to manage the potential impacts of stormwater runoff.

Potential Unified Development Ordinance text can be seen below;

Project is designed and certified beyond the next average recurrence interval above current Unified Development Ordinance standards for quantity for stormwater design.

EVALUATION

As prescribed in the Pender County Unified Development Ordinance Section 3.18.5, in evaluating any proposed Ordinance text amendment, the Planning Board and the County Commissioners shall consider the following:

1) The extent to which the proposed text amendment is consistent with the remainder of the Ordinance, including, specifically, any purpose and intent statements;
2) The extent to which the proposed text amendment represents a new idea not considered in the existing Ordinance, or represents a revision necessitated by changing circumstances over time;
3) Whether or not the proposed text amendment corrects an error in the Ordinance; and
4) Whether or not the proposed text amendment revises the Ordinance to comply with state or federal statutes or case law.

In deciding whether to adopt a proposed Ordinance text amendment, the central issue before the Planning Board and County Commissioners is whether the proposed amendment advances the public health, safety or welfare and is consistent with any adopted County Land Use Plan documents and the specific intent of this Ordinance.

Utilities

Public water and wastewater services must be available for projects with a density over 5, per Section 7.8.1.B;

1) *In the Planned Development (PD) District and Residential Mixed (RM) District, lots ranging from 12,000 square feet to 14,999 square feet must provide at least one of the following:*
   a) *Community or Public waste water disposal or,*
   b) *Community or Public water service.*
2) *All dimensional lots under 12,000 square feet shall require community or public waste water disposal and water service.*

Any property which would utilize a density bonus must comply with the Unified Development Ordinance requirements. Any final zoning approvals are contingent upon review and approval by Pender County Utilities, Environmental Health, and appropriate local and state agencies.

Traffic & Roadways

Per various Sections of the Pender County Unified Development Ordinance, any proposal that generates more than 100 trips during the peak morning or evening hours, or 1,000 trips per day requires a Traffic Impact Analysis (TIA). Trip estimates must be based on the latest version of the Institute of Transportation Engineers Trip Generation Manual. A Traffic Impact Analysis provides the recommendations which NCDOT enforces through a Driveway Permit(s) for the proposed project. TIA improvements are specific roadway improvements such as; turning lanes, traffic signals, striping changes in direct relation to the impacts of the proposed development. All requirements are approved through coordination with NCDOT, the WMPO and Pender County staff.

Finally, the level of service of specific intersections can be part of the analysis when the development proposal is submitted. Specifically, level of service details how specific intersections are performing. The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions. Tools such as level of service analysis could allow the applicable Board to make a

more informed decision regarding the land use proposal. Information regarding level of service can be seen in **Attachment 3**.

Schools
The analysis of school capacity could be obtained by working with the Pender County Schools representative on the Technical Review Committee, TRC. Staff coordinates with the School district representative in review of the layout of the development plan, as well as, forecasting for capital investments. When new development plans are reviewed, reservation of lands could occur for new school sites. Any reservation would require the review and approval of the Pender County Board of Commissioners and Board of Education. A tool that can be utilized by counties is for land reservation through a development project in which the Board of Education can purchase property within 18-mopnths of the reservation (NCGS 153A-331(f)). Again, it's important that coordination takes place so that entities are prepared for this potential action.

2010 Comprehensive Land Use Plan Compliance
This Zoning Text Amendment request is consistent with three (3) goals and eight (8) policies of the 2010 Comprehensive Land Use Plan. There are numerous policies within the Comprehensive Land Use Plan which encourage clustering development and higher density as incorporated throughout this report. Many of the density incentives recommended in the plan include innovative and compact mixed-use design, bonuses for public facilities, bonuses for workforce housing and the encouragement of clustering in neighborhoods. The density recommendation is to include higher density projects in the Scotts Hill area and the southeastern portion of Pender County, as well as, growth in and around the I-40 / US 117 and NC 210 intersections in Rocky Point.

The 2010 Comprehensive Land Use Plan chart which identifies 8 as a maximum density may be seen in **Attachment 1**. The allowable density in the Unified Development Ordinance can be increased to 8, otherwise re-certification through the Coastal Resources Commission is required to achieve compliance.

The request is consistent two (2) goals and eleven (11) policies within the 2010 Pender County Comprehensive Land Use Plan;

Policy 5A.1.5 Pender County could provide incentives such as density bonuses to developers that offer established affordable/workforce housing programs through community land trusts such as the Cape Fear Housing Community Land Trust.
Policy 2G.1.3 Pender County will consider developing policies and techniques that encourage the use of voluntary low impact development standards that can be applied to projects at the individual lot level or to major residential or commercial developments to mimic natural features and predevelopment hydrology.
Policy 2G.1.4 When considering developing policies and techniques that incorporate low impact development practices Pender County should adhere to the guidance set forth from the Division of Water Quality for details on how to design, construct and maintain LID practices.
Policy 2G.1.5 Consider implementing fee-based as well as land-based incentive packages for developers that utilize low-impact development (LID) techniques to manage the potential impacts of stormwater runoff.
Transportation Goal 2B.1 Manage the timing, location and intensity of growth by coordinating transportation improvements in accordance with the Comprehensive Land Use Plan and the Pender County Collector Street Plan.
Policy 7B.1.1 The County should utilize and promote a hierarchical, functional transportation system, that prioritizes needs improvements, and promotes the proper arrangement of land use patterns to

ensure and determine the proper levels of service (LOS) to reduce any associated negative impacts to the overall transportation network.

Growth Management Goal 1A.1 Manage the physical growth and development of Pender County by promoting more intensive land uses in key locations identified for such growth while preserving and protecting the unique physical character and social assets of the predominant rural lifestyle and coastal environment that makes the County a unique place to live.

Policy 2B.2.1 Incorporate cluster development standards in the Unified Development Ordinance.

Policy 2B.2.2 Consider providing incentives to encourage use of the cluster development option to preserve environmentally sensitive areas and upland sites as open space to protect community character.

Policy 7B.1.6 Ensure UDO regulations include clearly defined open space standards, which include reasonable and quantifiable areas of open space to be provided outside of wetlands, stormwater ponds, and clustered or community sewage disposal areas.

Policy 3G.1.3 Pender County will consider developing policies and techniques that encourage the use of voluntary low impact development standards that can be applied to projects at the individual lot level or to major residential or commercial developments to mimic natural features and predevelopment hydrology.

Policy 1A.1.4 The County should develop and utilize innovative and flexible land planning techniques that encourage developments to efficiently use land resources that result in more compact urban areas, infill development, redevelopment, and the adaptive re-use of existing buildings.

Policy 2G.1.5 Consider implementing fee-based as well as land-based incentive packages for developers that utilize low impact development (LID) techniques to manage the potential impacts of stormwater runoff.

RECOMMENDATION

The Administrator respectfully recommends approval of the Zoning Text Amendment to the Unified Development Ordinance as described in this report, as it is consistent with the Unified Development Ordinance, the Pender County Collector Street Plan and two (2) goals and eleven (11) policies within the 2010 Pender County Comprehensive Land Use Plan. There are no known conflicts with any adopted plan.

Any addition to density for a specific project must consider the impacts to traffic, schools, existing or potential water, wastewater and roadway capacity. All projects which may be applicable under this zoning text amendment are reviewed by the Planning Board, through Master Development Plan in the PD, Planned Development zoning district or Planning Board for recommendation and Board of County Commissioners for approval of Conditional Zoning Map Amendments.

BOARD ACTION FOR ZONING TEXT AMENDMENT

Motion:_____ **Seconded:** _____

Approved: _____**Denied:** _____**Unanimous:** _____

Williams: ___ Fullerton: __ Baker: ____Jordan: ___ McClammy: ___ Nalee: __

APPLICATION FOR TEXT AMENDMENT

THIS SECTION FOR OFFICE USE			
Application No.	ZTA 385-2016	Date	6/16/2017
Application Fee	$ NA	Receipt No.	NA
Pre-Application Conference	NA	Hearing Date	August 1, 2017 PB September 18, 2017 BOC

SECTION 1: APPLICANT INFORMATION	
Applicant's Name:	Pender County Staff
Applicant's Address:	805 S. Walker St.
City, State, & Zip	Burgaw NC 28425
Phone Number:	910 259 1202
Email Address:	

SECTION 2: UDO TEXT TO BE AMENDED

Current Text to be Amended (Please site accurate Article number referenced):

Section 4.6.7 & 4.8.1.C see staff report

Proposed Text to be added: see staff report

SECTION 3: SIGNATURE

Applicant's Signature	Megan Crowe	Date:	6/16/2017

NOTICE TO APPLICANT

If the applicant makes significant changes to the application for a text amendment after the Planning Board has made its recommendation, the Administrator may refer the modified request back to the Planning Board for an additional public hearing.

TEXT AMENDMENT CHECKLIST

☑	Signed application form
NA ☐	Application fee
report ☑	A letter describing, in detail the intent and purpose of the amendment presented, meeting the approval criteria set forth in Section 3.18.5 of the Pender County UDO (shown on page 1 of this application

Office Use Only

☐ ZTA Fees: $250 NA		Total Fee Calculation: NA	
Payment Method: NA	Cash : ☐ $_____	Credit Card: ☐ Master Card ☐ Visa	Check: ☐ Check # _____
Application Received By:	CMC	Date:	6/16/2017
Application completeness approved by:	CMC	Date:	6/16/2017
Dates Scheduled for Public Hearings:	☑ Planning Board: Aug 1, 2017	☑ BOC: Sept 18, 2017	

4.6.7 Density

A. RA, Rural Agricultural, and RP, Residential Performance zoning districts shall adhere to the Zoning District Dimensional Requirements as outlined in Section 4.14

B. PD, Planned Development and RM, Residential Mixed zoning districts

1. Calculation: shall be computed by subtracting items a-e from total parcel acreage to determine developable land area. Next, divide the number of residential units proposed by the developable land area to determine density.
    a) Total wetlands acreage on subject tract
    b) Rights of way area (in acres)
    c) Parking areas (in acres)
    d) Non-residential acreage (commercial)
    e) The total required open space per Section 7.6.1.C (shall utilize the minimum active and minimum passive open spaces)
2. A maximum of five (5) units per acre is allowable
3. Additional density allowances may be granted by the governing board, for each item provided from below (4.6.7.B.3.a-e). Each item provided shall be worth one (1) additional density credit, with a maximum obtainable density of eight (8) units per acre.

    a. Workforce Housing
        1. At least 15% of the units shall have payments affordable to persons and families with annual incomes at or below 60% of the area median income, per the target income limits set by HUD for Pender County
        2. Workforce units shall be incorporated throughout the project, and shall not be distinguishable from market-rate units through location, grouping, design or other physical characteristics
        3. Affordability in for- sale units shall be required to be adhered to only in the initial sale.
        4. Compliance measures may be required at the time of approval, including but not limited to; restrictive covenants and deed restrictions.

    b. Low Impact Development
        1. Documentation of certification from the appropriate professional form shall be submitted as part of the application package. An example form can be found in Appendix D- Typical Forms and Surveyor Notes.
        2. The LID Project must comply with the requirements for stormwater management as set forth in 15A NCAC 02H.1005.
        3. All provisions of Section 7.14, as applicable, must be met before LID certification can be granted for density bonus.

    c. Collector Street Provided
        1. Only applicable if the collector street identified within the project bounds is classified as a major or minor collector street per the Pender County Collector Street Plan, Pender County Transportation Plan or other approved State or Federal Transportation Improvement Plan.

2. The density calculation does not require the collector street to be removed from developable area
3. Any deviations or adjustments to the density calculation shall be approved by the Administrator based on the proposed collector streets

d. Open Space: Only applicable if the density provided is more than half of the total tract acreage.
e. Resilient Stormwater: Project is designed and certified beyond the next average recurrence interval beyond current Unified Development Ordinance standards for quantity for stormwater design.

3. Density Transfer - In any instance where a particular development is located in more than one district the density shall be separately computed for each district and no density may be transferred between districts.

4.7.3 RM: Residential Mixed

The Residential Mixed (RM) District is designed to allow for a variety of conventional built and multifamily housing types which can be accommodated dependent on necessary infrastructure including but not limited to community or regional utilities and infrastructure. A variety of housing types as referenced within the Table of Permitted Uses shall be allowable, however only one housing type is required for development. The type of development should be compatible with surrounding land uses and consistent with the goals and policies of the Comprehensive Land Use Plan. The density development standards shall be calculated ~~similar to the Planned Development (PD) District (4.8.1.D.1).~~ per Section 4.6.7

4.8.1. C Number of Dwelling Units (Density)

~~1) Determination - The number of dwelling units in a project utilizing the PD development standards shall be a maximum of five (5) units per net density. The density is calculated as total tract acreage subtracting the following:~~

~~a) Areas reserved as non-residential development~~

~~b) Total wetland calculations~~

~~c) Rights of way and parking areas~~

~~d) Active and passive open space~~

~~i) Passive open space may be subtracted from the total wetland delineation in the Master Development Plan if it is calculated to be less than the total wetland area.~~

~~2) In effort to encourage quality urban design and environmentally sensitive development, an increase in density may be allowed by the Planning Board when such an increase can be justified by superior design or the provision of additional amenities such as public and/or private open space.~~

4.8.1.C Number of Dwelling Units (Density)

1.) The density development standards shall be calculated per Section 4.6.7

Future Land Use Classification Areas from the 2010 Comprehensive Land Use Plan

Attachment 1

Classification Area	Total Acres in Classification Area	Compatible Corresponding Zoning Districts	Permitted Uses Allowed	Minimum Lot Size/Units per acre	Residential Structure Types Allowed	Maximum Structure Height	Percent of Lot Footprint Within Setback Area
Conservation	158,696.64 Acres	Environmental Conservation	Open Space and water dependent uses	1 Acre	No residential uses allowed	N/A	N/A
TOTAL Conservation	158,696.64 Acres						
Rural Growth	236,095.60 Acres	Rural Agricultural, Manufactured Home	Low density residential, agricultural, very limited office, institutional and commercial	1 acre	Single family	35'	40% of minimum lot size
Suburban Growth	97,878.57 Acres	Residential Performance, Residential Mixed, General Business	Medium to high density residential, limited office, institutional and commerical	15,000 SF	Single family	35'	39-49% of minimum lot size
Mixed Use	36,912.33 Acres	Planned Development	High density residential, high impact office, institutional and commercial	8 dwelling units/acre	Single and multi-family	40'	Dependent upon approved setbacks at Master Plan stage
TOTAL Residential	370,886.5 Acres						
Mixed Use	36,912.33 Acres	Planned Development	High density residential, high impact office, institutional and commercial	8 dwelling units/acre	Single and multi-family	40'	Dependent upon approved setbacks at Master Plan stage
Office/Institutional/Commercial	1,573.47 Acres	Office and Institutional, General Business, Planned Development	Small to large scale commercial, office and institutional, higher density residential	15,000 SF	Apartment/condominium over commercial/office	40'	39% of minimum lot size
TOTAL Non-Residential	38,485.8 Acres						
Industrial	10,339.79 Acres	Industrial Transition, General Industrial	Major industrial, wholesale, office and institutional, limited commercial	1 Acre	No residential uses allowed	50'	57.5% - 58.6% of minimum lot size
Total Industrial	10,339.79 Acres						

*Acreage totals in this table include rights-of-way and water features and therefore differ from the totals in Tables D-1 and D-2.

Attachment 2

NOAA Atlas 14, Volume 2, Version 3
Location name: Burgaw, North Carolina, USA*
Latitude: 34.5442°, Longitude: -77.916°
Elevation: 50.16 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.493 (0.457-0.535)	0.586 (0.542-0.635)	0.685 (0.633-0.742)	0.762 (0.702-0.825)	0.860 (0.789-0.929)	0.934 (0.853-1.01)	1.01 (0.916-1.09)	1.08 (0.978-1.17)	1.18 (1.06-1.28)	1.26 (1.12-1.37)
10-min	0.788 (0.730-0.855)	0.937 (0.867-1.02)	1.10 (1.01-1.19)	1.22 (1.12-1.32)	1.37 (1.26-1.48)	1.49 (1.36-1.61)	1.61 (1.46-1.73)	1.72 (1.55-1.86)	1.87 (1.67-2.03)	1.99 (1.76-2.16)
15-min	0.985 (0.913-1.07)	1.18 (1.09-1.28)	1.39 (1.28-1.50)	1.54 (1.42-1.67)	1.74 (1.59-1.88)	1.88 (1.72-2.03)	2.03 (1.84-2.19)	2.17 (1.96-2.34)	2.35 (2.10-2.55)	2.49 (2.21-2.71)
30-min	1.35 (1.25-1.46)	1.63 (1.51-1.77)	1.97 (1.82-2.14)	2.23 (2.06-2.42)	2.57 (2.36-2.78)	2.84 (2.59-3.06)	3.11 (2.82-3.35)	3.38 (3.04-3.65)	3.74 (3.34-4.06)	4.04 (3.58-4.38)
60-min	1.68 (1.56-1.83)	2.04 (1.89-2.21)	2.53 (2.34-2.74)	2.91 (2.68-3.15)	3.43 (3.14-3.70)	3.85 (3.51-4.15)	4.28 (3.88-4.62)	4.73 (4.27-5.12)	5.37 (4.80-5.82)	5.90 (5.22-6.40)
2-hr	2.01 (1.84-2.20)	2.45 (2.25-2.68)	3.11 (2.86-3.41)	3.66 (3.35-4.00)	4.45 (4.04-4.86)	5.11 (4.63-5.58)	5.83 (5.25-6.36)	6.62 (5.91-7.21)	7.77 (6.86-8.47)	8.75 (7.67-9.57)
3-hr	2.15 (1.97-2.37)	2.62 (2.40-2.89)	3.35 (3.06-3.69)	3.97 (3.62-4.37)	4.88 (4.42-5.36)	5.68 (5.11-6.22)	6.55 (5.85-7.18)	7.52 (6.66-8.23)	8.98 (7.86-9.84)	10.2 (8.87-11.2)
6-hr	2.62 (2.40-2.90)	3.20 (2.92-3.54)	4.09 (3.73-4.52)	4.86 (4.41-5.36)	6.00 (5.41-6.61)	6.99 (6.26-7.69)	8.09 (7.19-8.89)	9.33 (8.20-10.2)	11.2 (9.71-12.3)	12.8 (11.0-14.1)
12-hr	3.08 (2.79-3.45)	3.76 (3.40-4.20)	4.84 (4.37-5.40)	5.78 (5.19-6.44)	7.18 (6.40-7.98)	8.42 (7.45-9.34)	9.81 (8.61-10.9)	11.4 (9.88-12.6)	13.8 (11.8-15.3)	15.9 (13.4-17.6)
24-hr	3.52 (3.22-3.89)	4.27 (3.92-4.72)	5.52 (5.05-6.09)	6.62 (6.04-7.30)	8.31 (7.50-9.14)	9.80 (8.76-10.8)	11.5 (10.2-12.7)	13.4 (11.7-14.8)	16.4 (14.0-18.2)	19.0 (15.9-21.2)
2-day	4.11 (3.78-4.52)	4.97 (4.57-5.47)	6.38 (5.85-7.01)	7.60 (6.94-8.35)	9.46 (8.56-10.4)	11.1 (9.95-12.2)	12.9 (11.5-14.3)	15.0 (13.1-16.6)	18.2 (15.5-20.3)	20.9 (17.6-23.5)
3-day	4.37 (4.03-4.80)	5.28 (4.86-5.80)	6.73 (6.18-7.38)	7.97 (7.30-8.74)	9.85 (8.94-10.8)	11.5 (10.3-12.6)	13.3 (11.8-14.6)	15.3 (13.5-17.0)	18.4 (15.9-20.5)	21.1 (17.9-23.7)
4-day	4.63 (4.27-5.07)	5.59 (5.15-6.12)	7.08 (6.51-7.75)	8.35 (7.65-9.13)	10.2 (9.31-11.2)	11.9 (10.7-13.0)	13.7 (12.2-15.0)	15.7 (13.8-17.3)	18.7 (16.2-20.8)	21.3 (18.1-23.9)
7-day	5.40 (5.00-5.87)	6.50 (6.03-7.07)	8.17 (7.56-8.88)	9.57 (8.82-10.4)	11.6 (10.6-12.6)	13.3 (12.1-14.5)	15.2 (13.7-16.6)	17.2 (15.3-18.8)	20.2 (17.7-22.2)	22.7 (19.6-25.2)
10-day	6.09 (5.67-6.59)	7.30 (6.79-7.90)	9.04 (8.38-9.78)	10.5 (9.71-11.4)	12.6 (11.6-13.6)	14.4 (13.1-15.6)	16.3 (14.8-17.7)	18.3 (16.5-20.0)	21.3 (18.8-23.4)	23.8 (20.7-26.4)
20-day	8.20 (7.67-8.80)	9.77 (9.15-10.5)	11.9 (11.1-12.8)	13.7 (12.8-14.6)	16.2 (15.0-17.4)	18.2 (16.8-19.6)	20.4 (18.7-22.0)	22.7 (20.6-24.6)	26.0 (23.3-28.4)	28.7 (25.4-31.6)
30-day	10.1 (9.56-10.8)	12.1 (11.4-12.9)	14.5 (13.6-15.4)	16.4 (15.4-17.5)	19.2 (17.9-20.4)	21.3 (19.8-22.8)	23.6 (21.8-25.3)	25.9 (23.8-27.8)	29.1 (26.4-31.5)	31.6 (28.4-34.4)
45-day	12.7 (12.0-13.5)	15.0 (14.2-16.0)	17.9 (16.9-19.0)	20.1 (19.0-21.4)	23.3 (21.8-24.8)	25.8 (24.1-27.5)	28.3 (26.3-30.3)	31.0 (28.5-33.2)	34.6 (31.5-37.2)	37.4 (33.8-40.5)
60-day	15.3 (14.5-16.2)	18.1 (17.1-19.1)	21.1 (20.0-22.4)	23.6 (22.3-24.9)	26.9 (25.3-28.4)	29.5 (27.7-31.2)	32.0 (29.9-34.0)	34.6 (32.1-36.8)	38.0 (35.0-40.7)	40.6 (37.2-43.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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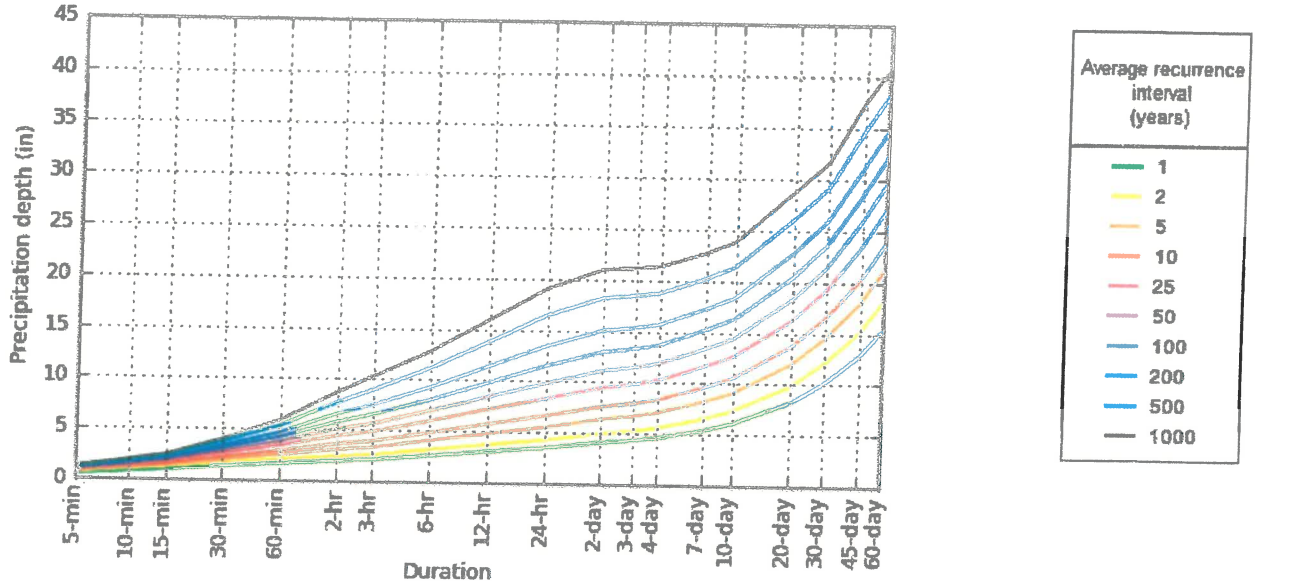
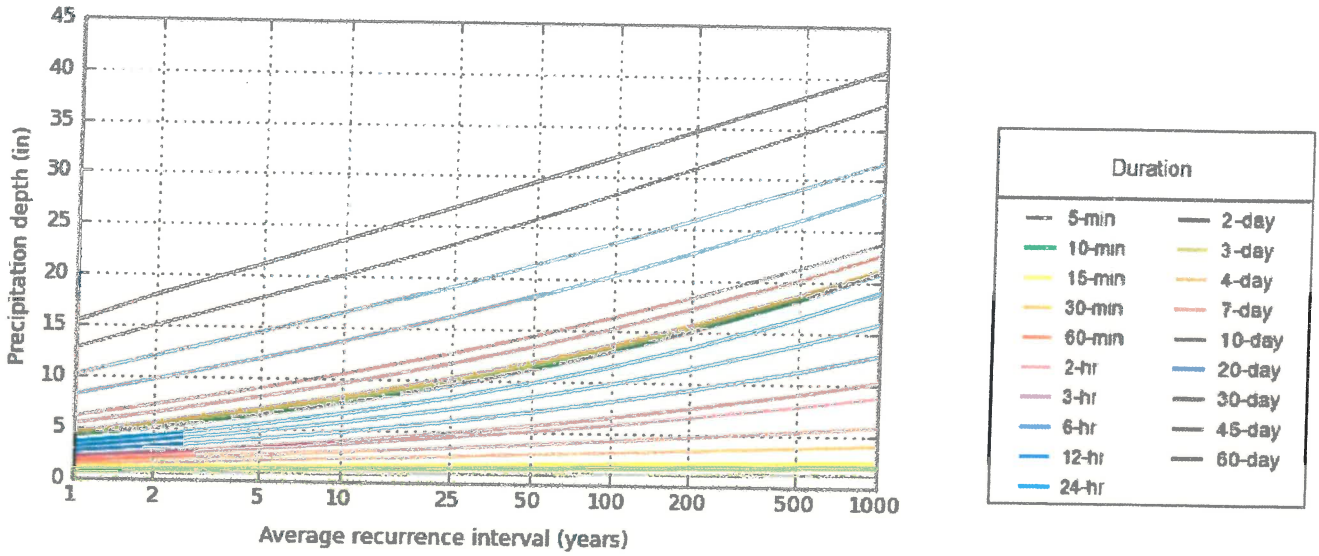
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 34.5442°, Longitude: -77.9160°





NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Mon Jun 19 14:44:54 2017

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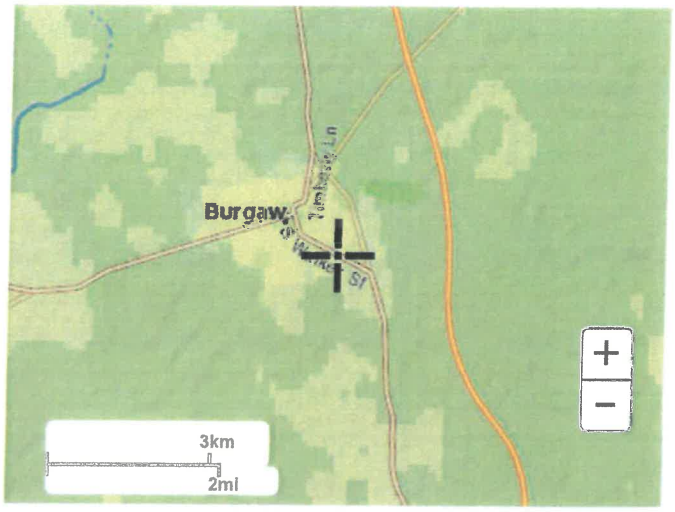
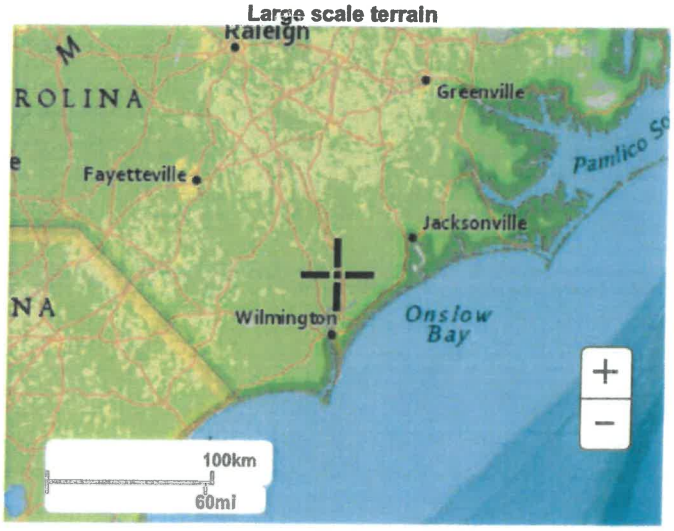
Maps & aerials

Small scale terrain

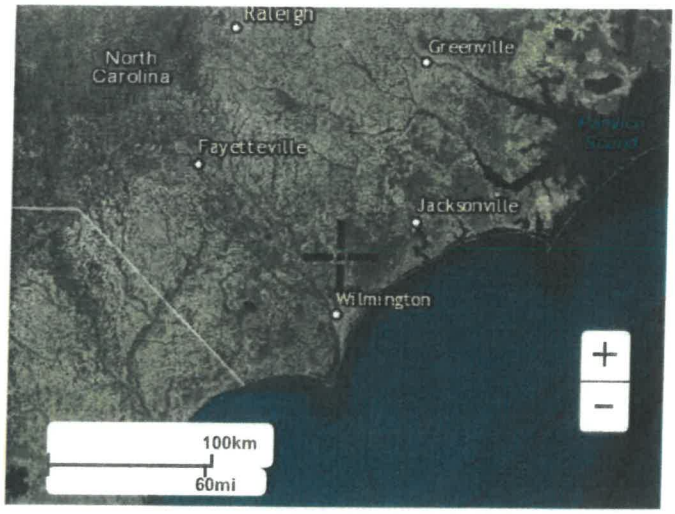


Large scale terrain



Large scale map

Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

NOAA Atlas 14, Volume 2, Version 3
Location name: Hampstead, North Carolina, USA*
Latitude: 34.3839°, Longitude: -77.6916°
Elevation: 35.82 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.512 (0.476-0.554)	0.609 (0.565-0.659)	0.712 (0.658-0.770)	0.792 (0.731-0.856)	0.894 (0.821-0.964)	0.970 (0.888-1.05)	1.05 (0.954-1.13)	1.13 (1.02-1.22)	1.23 (1.10-1.33)	1.31 (1.17-1.43)
10-min	0.818 (0.760-0.885)	0.974 (0.903-1.05)	1.14 (1.05-1.23)	1.27 (1.17-1.37)	1.42 (1.31-1.54)	1.55 (1.41-1.67)	1.67 (1.52-1.80)	1.79 (1.62-1.93)	1.95 (1.74-2.11)	2.07 (1.84-2.25)
15-min	1.02 (0.949-1.11)	1.23 (1.14-1.33)	1.44 (1.33-1.56)	1.60 (1.48-1.73)	1.81 (1.66-1.95)	1.96 (1.79-2.11)	2.11 (1.92-2.28)	2.25 (2.04-2.44)	2.45 (2.19-2.66)	2.60 (2.30-2.82)
30-min	1.40 (1.30-1.52)	1.69 (1.57-1.83)	2.05 (1.90-2.22)	2.32 (2.14-2.51)	2.67 (2.46-2.89)	2.95 (2.70-3.18)	3.23 (2.94-3.49)	3.51 (3.17-3.80)	3.90 (3.49-4.22)	4.21 (3.73-4.57)
60-min	1.75 (1.62-1.89)	2.12 (1.97-2.30)	2.63 (2.43-2.84)	3.02 (2.79-3.27)	3.56 (3.27-3.84)	3.99 (3.65-4.31)	4.44 (4.04-4.80)	4.92 (4.45-5.32)	5.59 (5.00-6.06)	6.14 (5.45-6.67)
2-hr	2.09 (1.93-2.29)	2.56 (2.36-2.80)	3.26 (2.99-3.55)	3.83 (3.51-4.18)	4.65 (4.24-5.07)	5.35 (4.85-5.83)	6.11 (5.50-6.65)	6.93 (6.20-7.55)	8.15 (7.21-8.89)	9.19 (8.07-10.1)
3-hr	2.25 (2.07-2.47)	2.74 (2.52-3.02)	3.51 (3.21-3.85)	4.16 (3.79-4.56)	5.12 (4.64-5.60)	5.95 (5.36-6.51)	6.87 (6.14-7.51)	7.89 (7.00-8.62)	9.44 (8.27-10.3)	10.8 (9.34-11.8)
6-hr	2.77 (2.54-3.07)	3.39 (3.11-3.75)	4.34 (3.96-4.79)	5.15 (4.69-5.68)	6.36 (5.75-6.99)	7.42 (6.66-8.15)	8.60 (7.66-9.43)	9.92 (8.74-10.9)	11.9 (10.4-13.1)	13.7 (11.8-15.0)
12-hr	3.26 (2.96-3.63)	3.98 (3.61-4.43)	5.13 (4.65-5.70)	6.12 (5.52-6.80)	7.62 (6.81-8.44)	8.94 (7.93-9.88)	10.4 (9.17-11.5)	12.1 (10.5-13.4)	14.7 (12.6-16.2)	17.0 (14.3-18.7)
24-hr	3.79 (3.46-4.20)	4.60 (4.20-5.11)	5.95 (5.43-6.60)	7.14 (6.48-7.90)	8.95 (8.04-9.89)	10.6 (9.40-11.7)	12.4 (10.9-13.7)	14.5 (12.5-16.0)	17.7 (15.0-19.7)	20.5 (17.1-23.0)
2-day	4.46 (4.08-4.92)	5.39 (4.94-5.96)	6.92 (6.32-7.64)	8.25 (7.49-9.11)	10.3 (9.24-11.3)	12.1 (10.7-13.3)	14.1 (12.4-15.6)	16.3 (14.2-18.2)	19.8 (16.8-22.2)	22.9 (19.1-25.8)
3-day	4.75 (4.35-5.23)	5.74 (5.26-6.33)	7.32 (6.68-8.06)	8.67 (7.89-9.56)	10.7 (9.66-11.8)	12.5 (11.2-13.8)	14.5 (12.8-16.0)	16.7 (14.6-18.6)	20.1 (17.2-22.5)	23.1 (19.4-26.1)
4-day	5.04 (4.62-5.54)	6.08 (5.58-6.70)	7.71 (7.05-8.49)	9.10 (8.28-10.0)	11.2 (10.1-12.3)	12.9 (11.6-14.3)	14.9 (13.2-16.5)	17.1 (15.0-19.0)	20.5 (17.6-22.9)	23.4 (19.8-26.4)
7-day	5.80 (5.36-6.33)	7.00 (6.47-7.63)	8.80 (8.12-9.60)	10.3 (9.47-11.2)	12.5 (11.4-13.6)	14.4 (13.0-15.7)	16.4 (14.7-17.9)	18.6 (16.5-20.4)	21.8 (19.1-24.1)	24.6 (21.1-27.4)
10-day	6.54 (6.06-7.10)	7.83 (7.25-8.52)	9.71 (8.97-10.6)	11.3 (10.4-12.3)	13.5 (12.4-14.7)	15.5 (14.1-16.8)	17.5 (15.8-19.1)	19.7 (17.6-21.6)	23.0 (20.2-25.4)	25.7 (22.3-28.6)
20-day	8.75 (8.16-9.42)	10.4 (9.73-11.2)	12.7 (11.8-13.7)	14.6 (13.6-15.7)	17.3 (16.0-18.6)	19.5 (17.9-21.0)	21.8 (19.9-23.6)	24.3 (21.9-26.4)	27.8 (24.8-30.5)	30.7 (27.0-33.8)
30-day	10.7 (10.1-11.5)	12.7 (12.0-13.6)	15.3 (14.3-16.3)	17.4 (16.3-18.5)	20.2 (18.9-21.6)	22.5 (20.9-24.1)	24.9 (23.0-26.7)	27.4 (25.0-29.5)	30.8 (27.8-33.4)	33.5 (30.0-36.5)
45-day	13.4 (12.6-14.3)	15.8 (14.9-16.9)	18.8 (17.7-20.0)	21.2 (19.9-22.6)	24.5 (22.9-26.2)	27.2 (25.3-29.1)	29.9 (27.7-32.1)	32.7 (30.1-35.2)	36.6 (33.2-39.6)	39.7 (35.7-43.1)
60-day	16.1 (15.2-17.1)	19.0 (17.9-20.1)	22.2 (21.0-23.6)	24.8 (23.4-26.3)	28.3 (26.6-30.1)	31.0 (29.0-33.0)	33.8 (31.4-36.0)	36.5 (33.8-39.0)	40.2 (36.9-43.2)	43.0 (39.2-46.5)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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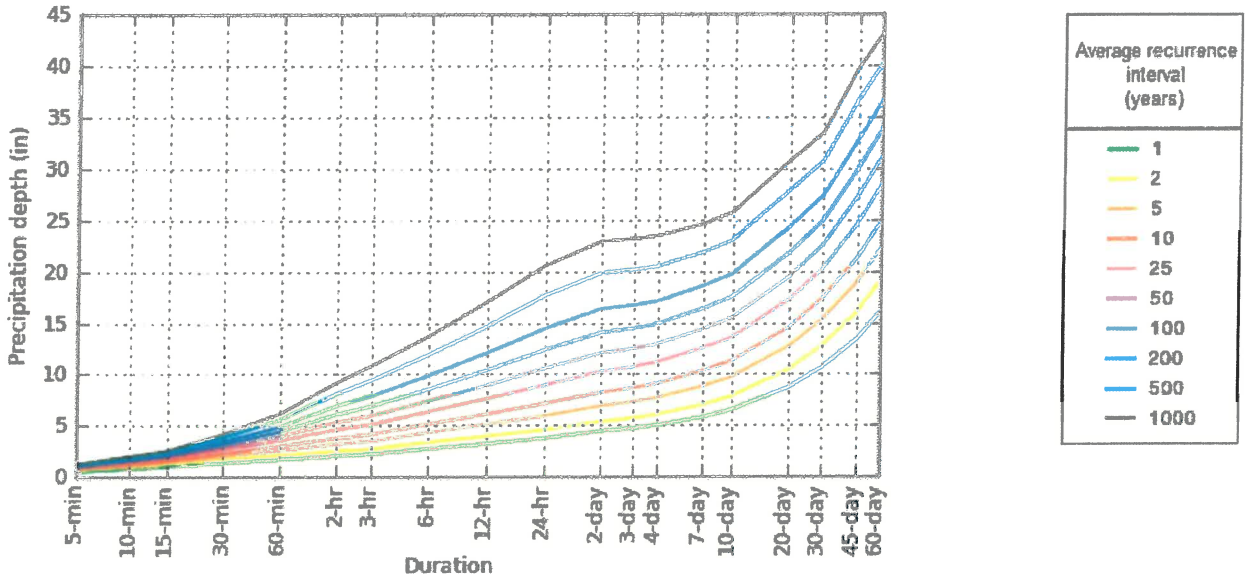
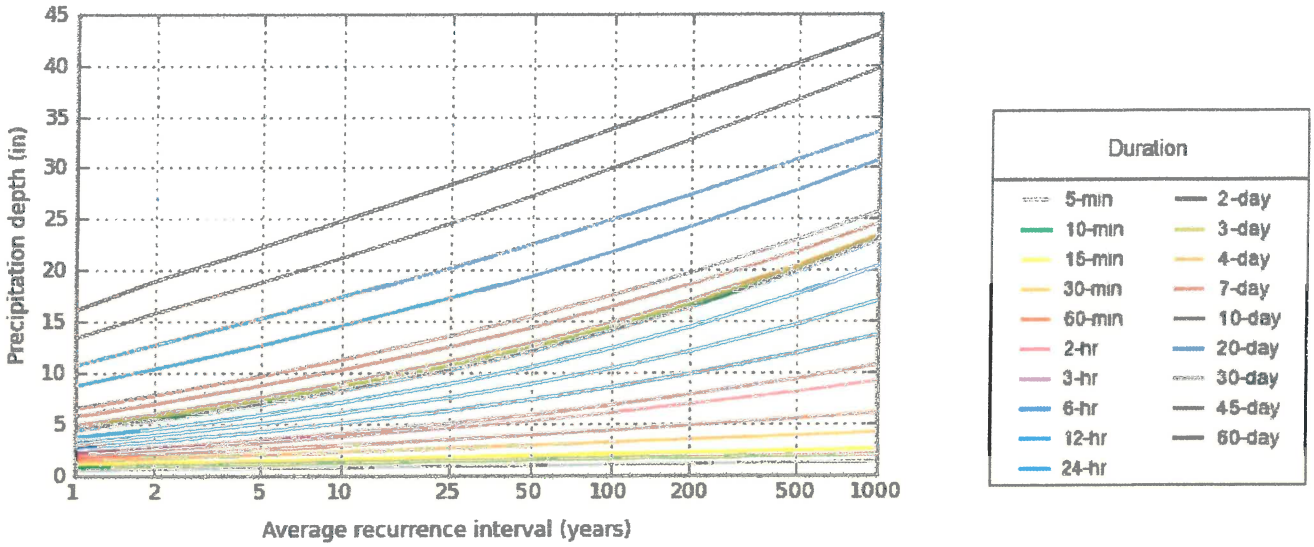
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 34.3839°, Longitude: -77.6916°





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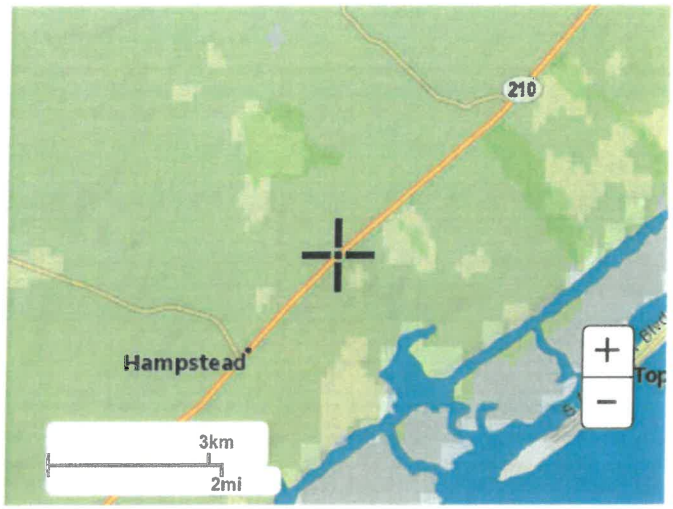
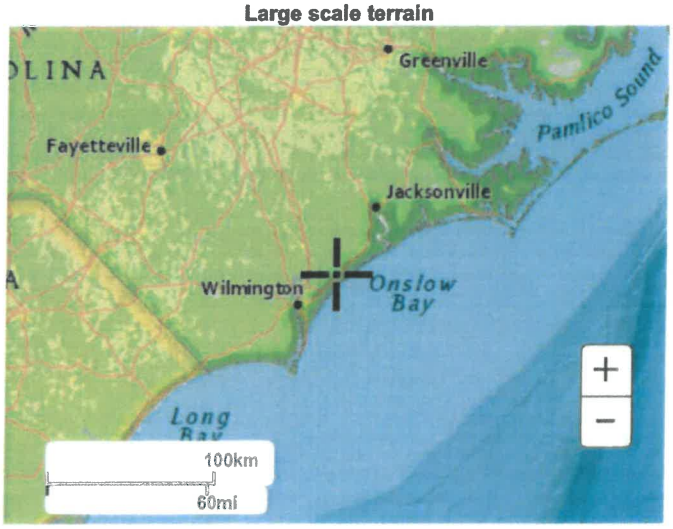
Maps & aerials

Small scale terrain

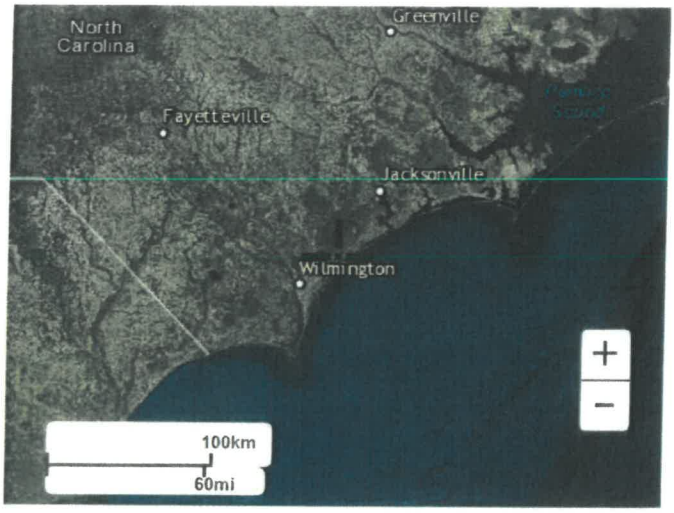


Large scale terrain



Large scale map

Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Level of Service Definitions

The relationship of travel demand compared to the roadway capacity determines the level of service (LOS) of a roadway. Six levels of service identify the range of possible conditions. Designations range from LOS A, which represents the best operating conditions, to LOS F, which represents the worst operating conditions.

Design requirements for roadways vary according to the desired capacity and level of service. LOS D indicates "practical capacity" of a roadway, or the capacity at which the public begins to express dissatisfaction. Recommended improvements and overall design of the transportation plan were based upon achieving a minimum LOS D on existing facilities and a LOS C on new facilities. The six levels of service are described below and illustrated in the following figures.

- **LOS A**: Describes primarily free flow conditions. The motorist experiences a high level of physical and psychological comfort. The effects of minor incidents of breakdown are easily absorbed. Even at the maximum density, the average spacing between vehicles is about 528 ft, or 26 car lengths.

- **LOS B**: Represents reasonably free flow conditions. The ability to maneuver within the traffic stream is only slightly restricted. The lowest average spacing between vehicles is about 330 ft, or 18 car lengths.

- **LOS C**: Provides for stable operations, but flows approach the range in which small increases will cause substantial deterioration in service. Freedom to maneuver is noticeably restricted. Minor incidents may still be absorbed, but the local decline in service will be great. Queues may be expected to form behind any significant blockage. Minimum average spacing is in the range of 220 ft, or 11 car lengths.

- **LOS D**: Borders on unstable flow. Density begins to deteriorate somewhat more quickly with increasing flow. Small increases in flow can cause substantial deterioration in service. Freedom to maneuver is severely limited, and the driver experiences drastically reduced comfort levels. Minor incidents can be expected to create substantial queuing. At the limit, vehicles are spaced at about 165 ft, or 9 car lengths.

- **LOS E**: Describes operation at capacity. Operations at this level are extremely unstable, because there are virtually no usable gaps in the traffic stream. Any disruption to the traffic stream, such as a vehicle entering from a ramp, or changing lanes, requires the following vehicles to give way to admit the vehicle. This can establish a disruption wave that propagates through the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate any disruption. Any incident can be expected to produce a serious breakdown with extensive queuing. Vehicles are spaced at approximately 6 car lengths, leaving little room to maneuver.

- **LOS F**: Describes forced or breakdown flow. Such conditions generally exist within queues forming behind breakdown points.

Level of Service Illustrations

Level of Service A

Driver Comfort: High

Maximum Density:

12 passenger cars per mile per lane

Level of Service B

Driver Comfort: High

Maximum Density:

20 passenger cars per mile per lane

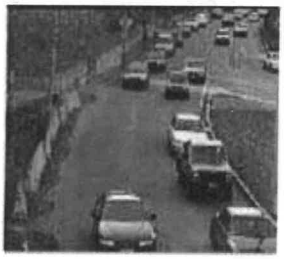
Level of Service C

Driver Comfort: Some Tension

Maximum Density:

30 passenger cars per mile per lane

Level of Service D

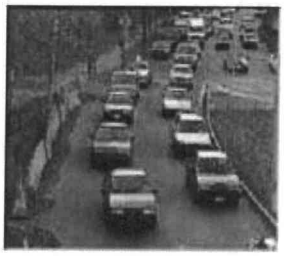


Driver Comfort: Poor

Maximum Density:

42 passenger cars per mile per lane

Level of Service E



Driver Comfort: Extremely Poor

Maximum Density:

67 passenger cars per mile per lane

Level of Service F

Driver Comfort: The lowest

Maximum Density:

More than 67 passenger cars per mile per lane

Source: 2000 Highway Capacity Manual