



## REZONING APPLICATION

Submit required documentation to:  
Wake County Planning, Development and Inspections  
PO Box 550 Wake County Office Building  
Raleigh, NC 27602-0550 336 Fayetteville Street Mall, Downtown Raleigh  
Contact (919) 856-6335 for additional information.

File #  
Fee  
Amt Paid  
Check #  
Rec'd Date  
Rec'd By

Complete with required information (write "n/a" if information is not applicable to proposal).

### **Proposed Rezoning** (include area for each current and proposed district)

From (R-40W) Existing Residential-40 Watershed (26,297 SF / 0.604 Ac.) | Total Existing Site Area in (R-40W) Residential-40 Watershed (127,799 SF / 2.934 Ac.). There is a Special Highway Overlay District, SHOD, on the subject property. The SHOD will be unaffected by the watershed declassification rezoning, if approved.

(current zoning district(s))

To (CU-R-40) Conditional Use-Residential-40 (26,297 SF / 0.604 Ac.) | Existing (R-40W) Residential-40 Watershed to remain (101,502 SF / 2.330 Ac.)

(proposed zoning district(s))

### **Property**

Parcel Identification Number (PIN): 1718-52-7761

Address: 9101 Falls of Neuse Road, Raleigh, NC 27615

Location: West side of Falls of Neuse Road, at/between  
(north, east, south, west) (street)

I-540  
(street)

and

Stonegate Drive  
(street)

Total site area in square feet and acres: 127,799 square feet 2.934 acres

Zoning District(s) and Overlay Districts (if any) and land area within each:

(R-40W) Residential-40 Watershed & (SHOD) Special Highway Overlay District (127,799 SF / 2.934 Ac.)

Present land use(s): Vacant Wooded

### **Property Owner**

Name: Falls Ridge West, LLC James Jackson, Manager

Address: 36 High Dune Drive

City: St. Augustine State: FL Zip Code: 32080

Telephone Number: 910-547-6016 Fax: N/A

E-mail Address: jifinc1@att.net

### **Applicant** (person to whom all correspondence will be sent)

Name: Mark Phillips, Project Manager, Pabst Design Group, PA

Address: 107 Fayetteville Street, Suite 200

City: Raleigh State: NC Zip Code: 27601

Telephone Number: 919-848-4399 Fax: 919-848-4395

E-mail Address: mphillips@pabstdesign.com Relationship to Owner: Engineer of Record

## Site Information

### Vehicular Access:

Name of adjacent street	Right-of-way width (ft)	Pavement width (ft)	No. of lanes	Paved? (Y or N)	Roadway design capacity <sup>1</sup>	Traffic volume <sup>2</sup>
Falls of Neuse Road	130'	Approx. 85'	6	Y	46,700 ADT (Source: Federal Highway Administration "Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System")	50,500 ADT (Source: 2019 NCDOT Traffic Data)

<sup>1</sup> See NCDOT Highway Capacity Manual or Wake County Thoroughfare Plan Appendix

<sup>2</sup> See CAMPO web site ([www.raleigh-nc.org/campo/trafcnt/98trfcnt.html](http://www.raleigh-nc.org/campo/trafcnt/98trfcnt.html)) or contact NCDOT Traffic Survey Unit

<sup>3</sup> Base on Institute of Transportation Engineers ratios - ratio used for estimate (e.g., x trips per y sf) \_\_\_\_\_

### Utilities and Services:

Water supply provided by: ( ) municipal system ( \_\_\_\_\_ )

( ) community system ( \_\_\_\_\_ ) (X) individual well(s)

Wastewater collection/treatment provided by: ( ) municipal system ( \_\_\_\_\_ )

( ) community system - specify type \_\_\_\_\_ (X) individual on-site system

Solid waste collection provided by: Private vendor

Electrical service provided by: Duke Energy

Natural gas service provided by: PSNC

Telephone service provided by: Spectrum

Cable television service provided by: Spectrum

Fire protection provided by: Wake Forest Fire Department (WAKETTE) Station 5

### Miscellaneous:

Generalized slope of site The existing site slope is divided by a ridge line on the eastern portion of the site. 101,502 SF or 2.330 Ac. of the site drains naturally from east to west with a general slope of approximately 5.9% into the Falls Lake Watershed. 26,297 SF or 0.604 Ac. of the site drains from northwest to southeast with a general slope of approximately 2.5% into the Perry Creek & Neuse Watershed. The area draining to the Perry Creek & Neuse Watershed is captured in a culvert just west of Falls of Neuse Road and is conveyed by stormwater pipe to the southeast of Falls of Neuse Road. Additionally, the natural topography for the eastern 0.604 Ac. draining to the Perry Creek & Neuse Watershed has not been altered by man. Attached is aerial photography illustrating that the existing trees have been undisturbed since before the I-540 construction. Also, refer to attached Watershed Exhibit EX-WS1 through EX-WS3 and Boundary & Topographic Survey illustrating existing slope/drainage conditions. Topography for the subject site was field verified by a professional surveyor and generated mostly with a Leica TPS 1200, total station: a minority of shots were taken with fixed GNSS(GPS). Ground shots were taken at approximately 50' intervals. No other measurements or information were used to generate the contours.

Valuable natural features (rare plant community, wildlife habitat, lake, stream, geology, etc.) on or adjoining site: Per field observation and GIS research, there is no evidence of valuable natural features on or adjoining the site that will be adversely impacted by the subsequent development. A Phase 1 Environmental Report by Sage Ecological Services dated June 29, 2018, and a Limited Soil Removal Report by Cape Lookout Environmental Sciences dated October 17, 2019 was conducted for subject site. The Limited Soil Removal Report describes site conditions and clean-up efforts that were performed to remove debris and contaminated soils from the site at three sample locations

noted in the Phase 1 Environmental Report. The Phase 1 Environmental Report and Limited Soil Removal were conducted voluntarily by owner. It was determined that this was in fact a pit and not a well.

Valuable historic resources (homestead, mill, archeological site) on or adjoining site: \_\_\_\_\_

Per field observation and GIS research, there is no evidence of valuable historical resources on or adjoining the site that will be adversely impacted by the subsequent development.

### **Land Use Plan Classifications**

General Classification (note associated municipality and/or watershed):

- ( ) Short-Range Urban Services Area/Water Supply Watershed \_\_\_\_\_
- ( ) Short-Range Urban Services Area \_\_\_\_\_
- ( ) Long-Range Urban Services Area/Water Supply Watershed \_\_\_\_\_
- ( ) Long-Range Urban Services Area \_\_\_\_\_
- ( X ) Non-Urban Area/Water Supply Watershed Falls Lake (Wake County) \_\_\_\_\_
- ( ) Non-Urban Area \_\_\_\_\_

Land Use Classification(s) (Note Area Land Use Plan, if applicable): residential less than 1 dwelling unit per acre.

General Classification Map: Non-Urban Area/Water Supply Watershed

### **How is this proposed use a public necessity?**

The Applicant does not propose any specific use allowed by this application as a public necessity, but simply requests a technical correction so that the zoning classification comports with the actual physical characteristics, topography, and natural drainage patterns of the property. The portion of the parcel for which this rezoning is requested does not naturally drain to the Falls Lake Watershed.

### **What is impact on adjacent properties and the surrounding neighborhood?"**

Applicant does not anticipate any impact on adjacent properties and the surround neighborhood other than the benefits set forth in the next response. Any future use that might be developed on the property that would require a Special Use Permit must be found by the Board of Adjustment to be in harmony with the area in which it is located and will not substantially injure the value of adjoining property.

### **How does the proposed use benefit the adjacent and surrounding properties?**

The Applicant does not at this time propose any specific use allowed by this rezoning, but simply requests a technical correction so that the zoning classification comports with the actual physical characteristics, topography, and natural drainage patterns of the property. A small café along with an additional MX building that may someday be developed on this parcel -- following the satisfaction of multiple requirements as discussed below -- would be consistent with the adjacent transportation infrastructure, would create additional employment opportunities, and would provide goods or services that are needed and would be enjoyed by the surrounding properties.

### **Statement of how rezoning complies with the Land Use Plan.**

Implicit in any land use plan is the assumption that any watershed zoning designation comports with the actual physical characteristics, topography, and natural drainage patterns of the property. This

rezoning of 0.604 acres is in the nature of a technical correction so that the zoning designation does, in fact, comply with that implicit assumption of the Land Use Plan.

More specifically, Goal #2 in the Wake County Land Use Plan is to allow and “encourage growth close to municipalities.” The subject parcel is immediately adjacent to the City of Raleigh’s corporate limits, which is fully developed with a variety of commercial uses on the east side of Falls of Neuse Road. The west side of the road, however, is in Wake County’s planning jurisdiction, and has been primarily developed into residential subdivisions. The subject property fronts Falls of the Neuse Road and is next to the I-540 ramp and has not been developed as part of the residential subdivision that borders it to the north and the west, but it is directly across the street from a pharmacy and several office buildings in the City of Raleigh. The parcel is currently zoned Residential-40 Watershed, but because of its location on a major road and the I-540 ramp, it would not be appropriate for a residence. As discussed in more detail below, rezoning that acknowledges that part of the subject property is, in fact, not in the watershed creates an opportunity for a small-scale use to serve the neighborhoods that surround it and complement the fully-developed area on the other side of the street.

While this proposed rezoning would be one step in the direction of allowing the type of growth that the Wake County Land Use Plan envisions, it is also consistent with Goal #10, which is the County’s policy of “prevent[ing] contamination of and maintain[ing] the capacity of groundwater resources.” This Goal says that Wake County will use “groundwater monitoring and modeling to better understand the dynamics of groundwater movement in areas where groundwater is the primary source of drinking water . . . .” As the applicant has shown, scientific evidence and surveys show that a portion of the subject parcel does not drain stormwater toward the Falls Lake Watershed and would thus not endanger this water source.

The parcel that is the subject of the proposed rezoning, while adjacent to the City of Raleigh, is not in any municipality’s Urban Services Area, and the City of Raleigh has indicated that it will not extend water and sewer to the site (despite close proximity to city water and sewer pipes) and are not interested in annexing it.

#### **Compliance with Transitional Urban Development Policies:**

As previously mentioned, the parcel is not in a municipality’s Urban Services Area. But because of its proximity to the City of Raleigh, the applicant has discussed annexation with Raleigh; however, the City will not, at this time, provide water and/or sewer lines to the property and does not wish to annex the property at this time.

#### **Statement of How Rezoning Otherwise Advances Public Health, Safety, and General Welfare:**

**The requested rezoning is simply a technical correction of the watershed boundary (i.e. Residential-40 Watershed to Residential-40 for a portion of the subject property) to accurately reflect the existing topography and natural drainage patterns.** The portion of the parcel for which this rezoning is requested (consisting of only 0.604 acres) does not naturally drain to the Falls Lake Watershed. As a practical matter, rezoning this small portion of the front part of the property to CU-R-40 would make very few additional uses available to the applicant. Under Section 4-11 (Use Table) of the UDO, this rezoning would make no additional uses immediately available to the applicant without the applicant first obtaining a Land Use Plan Amendment adding an Activity Center designation to the property, a Special Use Permit or both.

If the requested rezoning is approved, the applicant would only have these additional permitted by right uses on the CU-R-40 portion of the property to consider: (1) libraries, (2) a school, (3) a religious assembly, (4) a governmental use, or (3) golf course (as a part of a subdivision); however, none of these permitted uses is feasible due to the small size of the area being rezoned (i.e. approx. 0.604 acres).

If the requested rezoning is approved with the conditions proposed, and *if* the landowner obtains (1) a Land Use Plan Amendment to add an Activity Center to the property *and* (2) a Special Use Permit for the use, then, after those steps, there are a few commercial uses that could be allowed on the subject

property (all of which are special uses). One of them would be a "Neighborhood/ convenience oriented retail (without gas sales)" as a special use. The applicant is willing to permanently exclude some uses as a condition of this rezoning. Other uses may, in the future, be limited in the Land Use Plan Amendment process, and, of course, any special uses would require a separate hearing for the specific use requested and an evidentiary showing by the applicant that the use meets the requirements for the special use permit.

In summary, the proposed rezoning is just a first step in what will likely be many steps and approvals that would be required to develop the subject property for a small café use. A use for the property, such as for a small café, would require a Land Use Plan Amendment, approved by the Board of Commissioners, and then a Special Use Permit, approved by the Board of Adjustment.

**Traffic Impact Analysis Requirement:** A Traffic Assessment Statement has been prepared by Wetherill Engineering and is provided with this application. The traffic assessment summarizes the maximum anticipated trips for the proposed Falls Ridge West development. The final site plan is yet to be determined. It is estimated that the proposed development could generate a total of 828 trips per average weekday, including 71 trips during the AM peak hour and 55 trips during the PM peak hour. These values include fifty percent pass-by for the coffee/donut shop only but do not include any internal capture. While these values are below the minimum threshold required to provide a Traffic Impact Analysis per Article 15, Section 12 of the Wake County UDO (i.e., 1,000 trips per day or 100 trips per peak hour), it is understood that additional analysis may still be required as this project progresses, pending review and coordination with the County and requirements of NCDOT. The proposed worst-case scenario would be well below the minimum threshold, so therefore no formal Traffic Impact Analysis is required. Heavy traffic in the area, concern from citizens, proximity to I-540, and the widening of Falls of Neuse Road provide circumstances that may dictate additional examination of the study area.

#### **Conditional Use Zoning Conditions**

The proposed use(s) of the property must be identified by condition. If conditional use zoning is being proposed, list the proposed conditions below (attach a separate sheet if needed):

1. An eight (8)-foot tall masonry wall or opaque fence, or two (2)-foot berm and six (6)-foot tall masonry wall or opaque fence, will be installed along the northern property line from Falls of the Neuse Road to the westernmost point of any building(s) or paved parking/vehicle circulation area(s).
2. Plants will be installed that will provide, at their maturity, year-round screening of at least 80% of the exterior face area of the masonry wall or opaque fence along the northern property line.
3. No structures will be constructed, or paving installed more than 350 feet from the Falls of the Neuse Road right-of-way other than as necessary for stormwater control, septic system, or well(s).
4. The maximum building height, as calculated pursuant to the UDO, shall be no greater than twenty-five (25) feet above post-construction grade.
5. Exterior lighting of the parking/vehicle circulation area(s) shall be limited to LED fixtures and will be fitted with shadow-box-type, full cut-off shielding to minimize light at the property line.
6. The following uses, as listed in the Wake County UDO Use Table, will not be permitted on the property:

Residential Use Group:

Mobile home  
Family care home  
Group care facility  
Group home  
Health/personal care facility  
All other group living

Hospitals

Lodge or Private Club

Animal Services

Kennel

Shelter

Gas Station

Lodging

Campgrounds and recreational vehicle parks

Office

Conference center/retreat house

Recreation and Entertainment, Outdoor

(All uses in category)

Retail Sales and Service

Neighborhood/convenience-oriented retail (with gas sales)

Vehicle Sales and Service

Vehicle repair/service

Waste-Related Use

(all uses in category)

Other Use Group

Solar energy systems

Special Events

Static transformer stations, radio/TV and towers, relay station

Water Tower

All property owners must sign this application unless one or more individuals are specifically authorized to act as an agent on behalf of the collective interest of some or all of the owners (provide a copy of such authorization).

The undersigned property owner(s) hereby authorize the filing of this application (and any subsequent revisions thereto). The filing of this application authorizes the Wake County staff to enter upon the site to conduct relevant site inspections as deemed necessary to process the application.

Signature:  James Jackson, Manager Date: 3.21.22

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

The undersigned applicant hereby certifies that, to the best of his or her knowledge and belief, all information supplied with this application is true and accurate.

Signature:  Mark Phillips Date: 3-24-22

Notes: All documents and maps submitted as required become the property of Wake County.  
The Wake County Unified Development Ordinance is on the web at [www.wakegov.com](http://www.wakegov.com).



107 Fayetteville Street, Suite 200  
Raleigh, NC 27601  
Office: 919.848.4399  
Fax: 919.848.4395

**March 2, 2022**

**Wake County Planning Department  
Attn: Keith Lankford  
Wake County Office Building  
336 Fayetteville St.  
Raleigh, NC 27601  
Re: Falls Ridge West Watershed Analysis**

Dear Keith:

Please find the results of the Falls Ridge West Watershed Analysis performed by Pabst Design Group, PA below in this memorandum.

**Executive Summary:** Pabst Design Group, PA (PDG) of Raleigh, North Carolina has been contracted by Falls Ridge West, LLC (Client) to provide a watershed determination and analysis for the subject property (site) to Wake County (County) for their review. PDG determined that approximately 0.604-acres of the site is incorrectly mapped and does not drain to the Falls Lake Water Supply Watershed. Instead, the drainage area conveys to Perry Creek watershed (non-water supply) which is located in the Lower Neuse River Basin via a City of Raleigh (CoR) owned and operated stormwater pipe conveyance system. Below is a summary of PDG actions and analysis findings.

**Purpose:** PDG was retained by Client to perform a watershed analysis on a 2.93 acre parcel located at 9101 Falls of Neuse Road in Raleigh, North Carolina. The purpose of this analysis was to demonstrate that a 0.604 acre portion of the subject property naturally drains away from the Falls Lake Water Supply Watershed based on existing topography and drainage structures which indicate that it drains to the Perry Creek watershed (non-water supply). To provide this determination, PDG utilized a combination of information from topographic survey prepared by PTS Land Surveying (PTS), dated December 6, 2017 and current GIS data for existing stormwater inlets and conveyance as shown on the attached watershed exhibits. PTS was sub-contracted by PDG to perform the boundary and topographic survey and topography was field verified.

**Analysis Method:** PDG used PTS's topographic survey to delineate the two primary watersheds located on the property separated by an existing ridgeline as indicated on exhibit EX-WS1. The drainage area to the discharge point was delineated by traveling perpendicular to all topography lines upstream until the drainage area reached closure as also indicated on exhibit EX-WS1. The portion of the property on the western side of the ridgeline drains

offsite into the Falls Lake Watershed, but the hatched area to the east of the ridgeline drains to an existing 24" pipe. Current Raleigh GIS data for the stormwater conveyance system that this inlet contributes to, indicates drainage to the southeast until the system outfalls to an open channel as illustrated on exhibits EX-WS1, EX-WS2 and EX-WS3. This entire drainage system lies within the Perry Creek watershed (non-water supply) and not the protected Falls Lake water supply watershed. PDG determined the point at which the surface runoff enters the storm pipe network draining to the Perry Creek watershed (non-water supply) to be the existing 24" storm pipe inlet just north of Falls of Neuse Road within the right-of-way as indicated on EX-WS1.

**Results and Discussion:** PDG determined two watersheds existed on the property, Falls Lake and Perry Creek. The area draining to Perry Creek consisted of runoff from the subject property, public right-of-way, and adjoining property and totaled 38,338 square feet or 0.880 acres. Specific to the property, 26,297 square feet or 0.604 of an acre, drains to Perry Creek.

**Conclusions and Recommendations:** Based on PDG's watershed analysis, PDG determined that approximately 0.604 acres of the subject property drains to Perry Creek and not into the Falls Lake water supply watershed. As a result, PDG recommends that this portion of the property be removed from all Wake County and North Carolina Department of Environmental Quality (NCDEQ) maps designating the Falls Lake watershed.

**Attachments:** Refer to the attached Watershed Exhibits EX-WS1 through EX-WS3 for PDG's delineation.

Sincerely,

A handwritten signature in blue ink, appearing to read "P.D. Pabst", with a long horizontal flourish extending to the right.

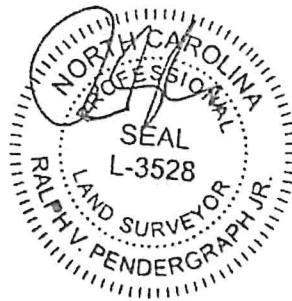
**PABST DESIGN GROUP, PA**

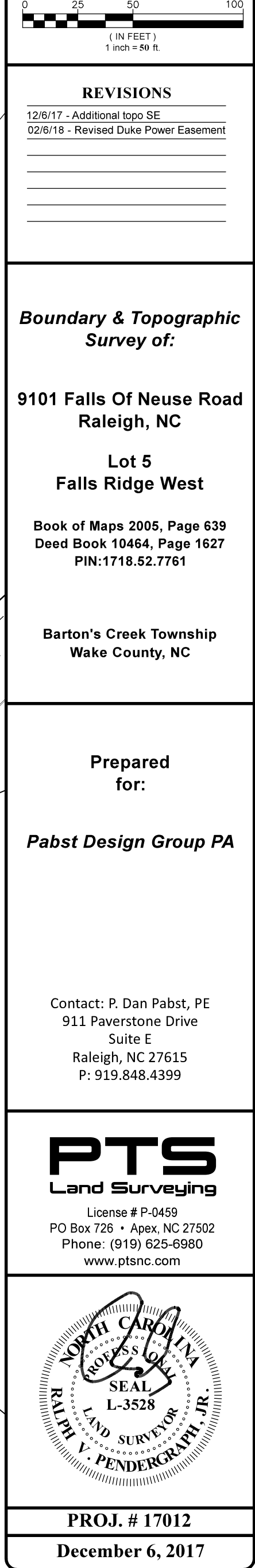
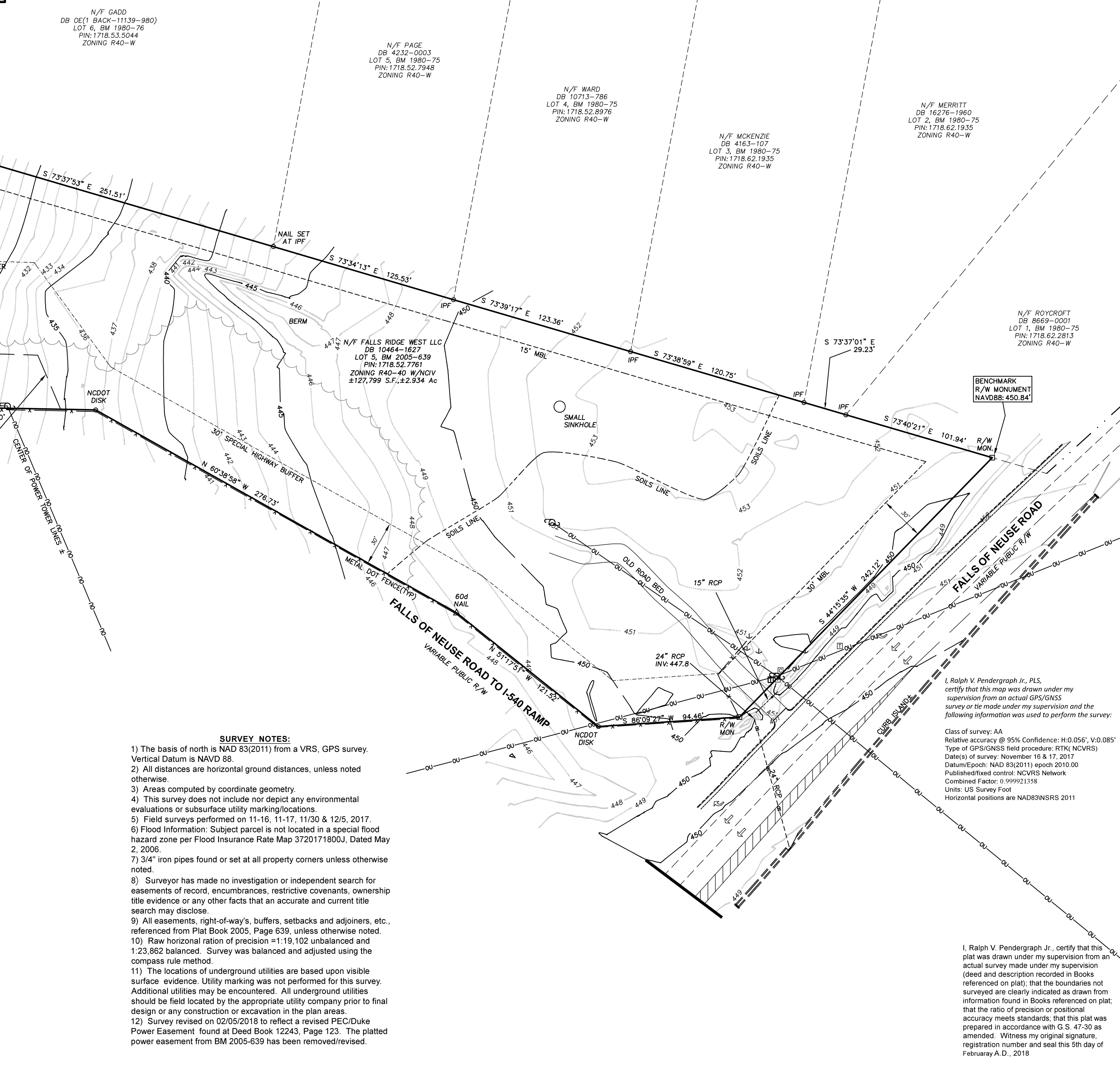
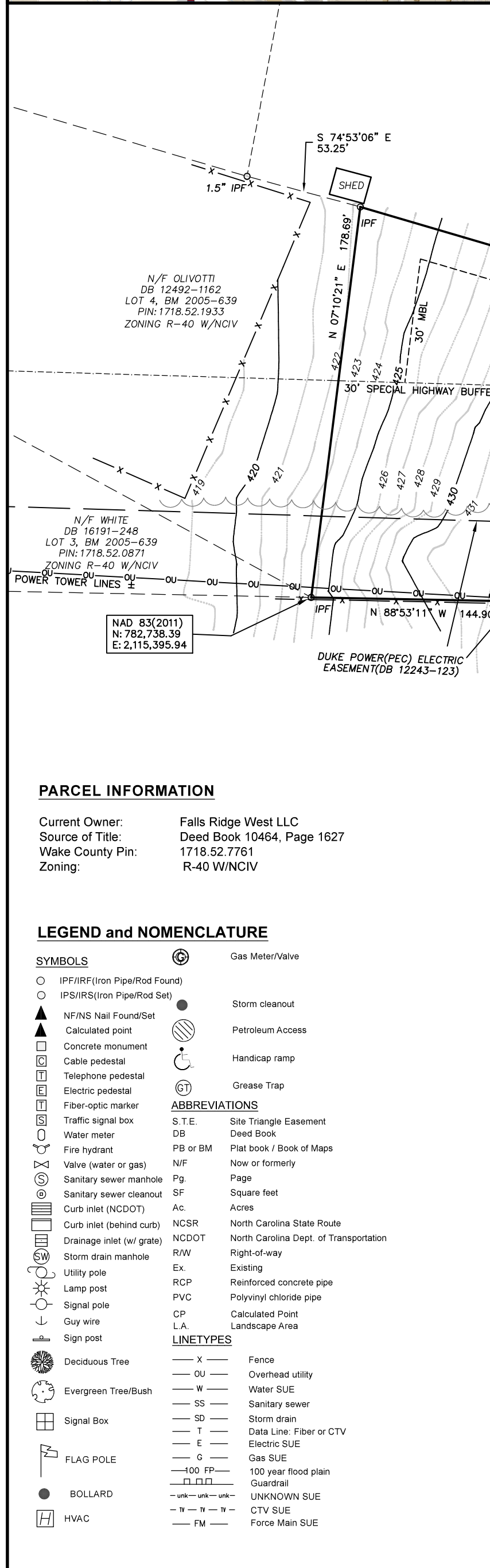
P. Dan Pabst, PE  
Principal

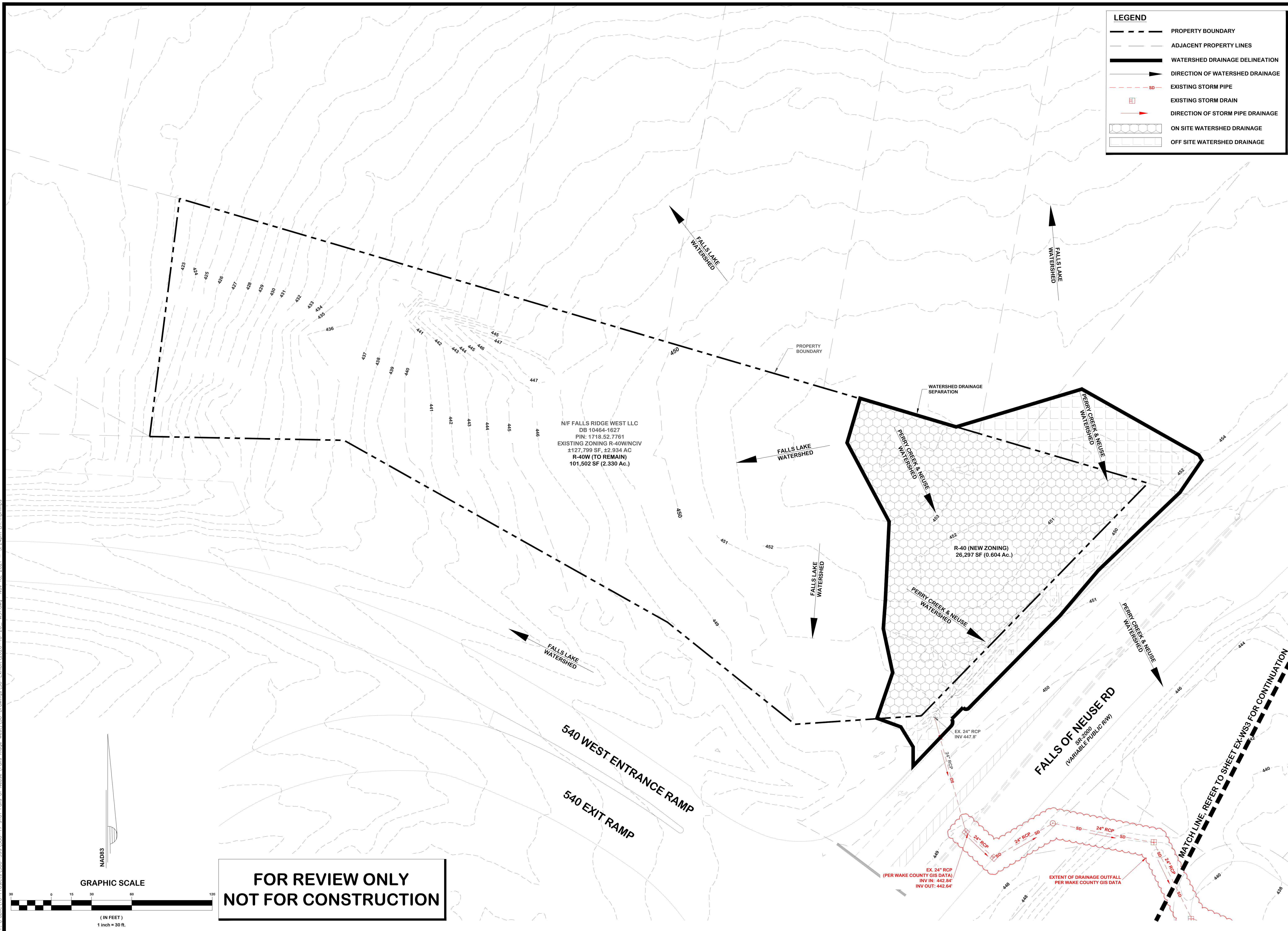
Enclosure

Ralph V. Pendergraph Jr., PLS  
PTS Land Surveying, PLLC  
May 7, 2018

I Ralph V. Pendergraph Jr., NCPLS #L-3528, certify that a portion of the property at 9101 Falls of Neuse Road, Raleigh, NC, drains to the southeast, across Falls of Neuse Road, as per the certified survey by PTS Land Surveying, dated December 6, 2017.







**NAD83**

### GRAPHIC SCALE

( IN FEET )  
1 inch = 30 ft

**FOR REVIEW ONLY  
NOT FOR CONSTRUCTION**

**N/F FALLS RIDGE WEST LLC  
DB 10464-1627  
PIN: 1718.52.7761  
EXISTING ZONING R-40W/NCIV  
±127,799 SF, ±2.934 AC  
R-40W (TO REMAIN)  
101,502 SF (2.330 Ac.)**

540 WEST ENTRANCE RAMP

540 EXIT RAMP

This diagram shows a section of a road with two ramps. The top ramp is labeled '540 WEST ENTRANCE RAMP' and the bottom ramp is labeled '540 EXIT RAMP'. Both ramps are shown with dashed lines indicating lane markings and a solid line on the right side. The ramps are connected by a short section of road.

**FALLS LAKE  
WATERSHED**



FALLS LAKE  
WATERSHED

FALLS LAKE  
WATERSHED

ALLS OF NEUSE RD  
SR-2000  
(VARIABLE PUBLIC R/W)

EX. 24" RCP  
(PER WAKE COUNTY GIS DATA)  
INV IN: 442.84'  
INV OUT: 442.64'

**EXTENT OF DRAINAGE OUTFALL  
PER WAKE COUNTY GIS DATA**

A topographic map segment showing a dashed line labeled "MATCH LINE, REFER TO SHEET EX-WS3 FOR CONTINUATION". The map includes contour lines labeled 440 and 446. A red line segment is visible at the bottom left corner.

PREPARED FOR :	FALLS RIDGE WEST, LLC
	PO BOX 152
	BLOWING ROCK, NC 28605
DATE :	10.20.2020
PROJECT ENGINEER:	
PDP	
PROJECT CADD DESIGNER:	
MMP	
PROJECT SURVEYOR:	
	PTS LAND SURVEYING

9101 FALLS OF NEUSE ROAD  
WAKE COUNTY, NORTH CAROLINA  
REZONING PETITION  
WATERSHED EXHIBIT

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 032573  
 P. J. R.  
 11-21-11

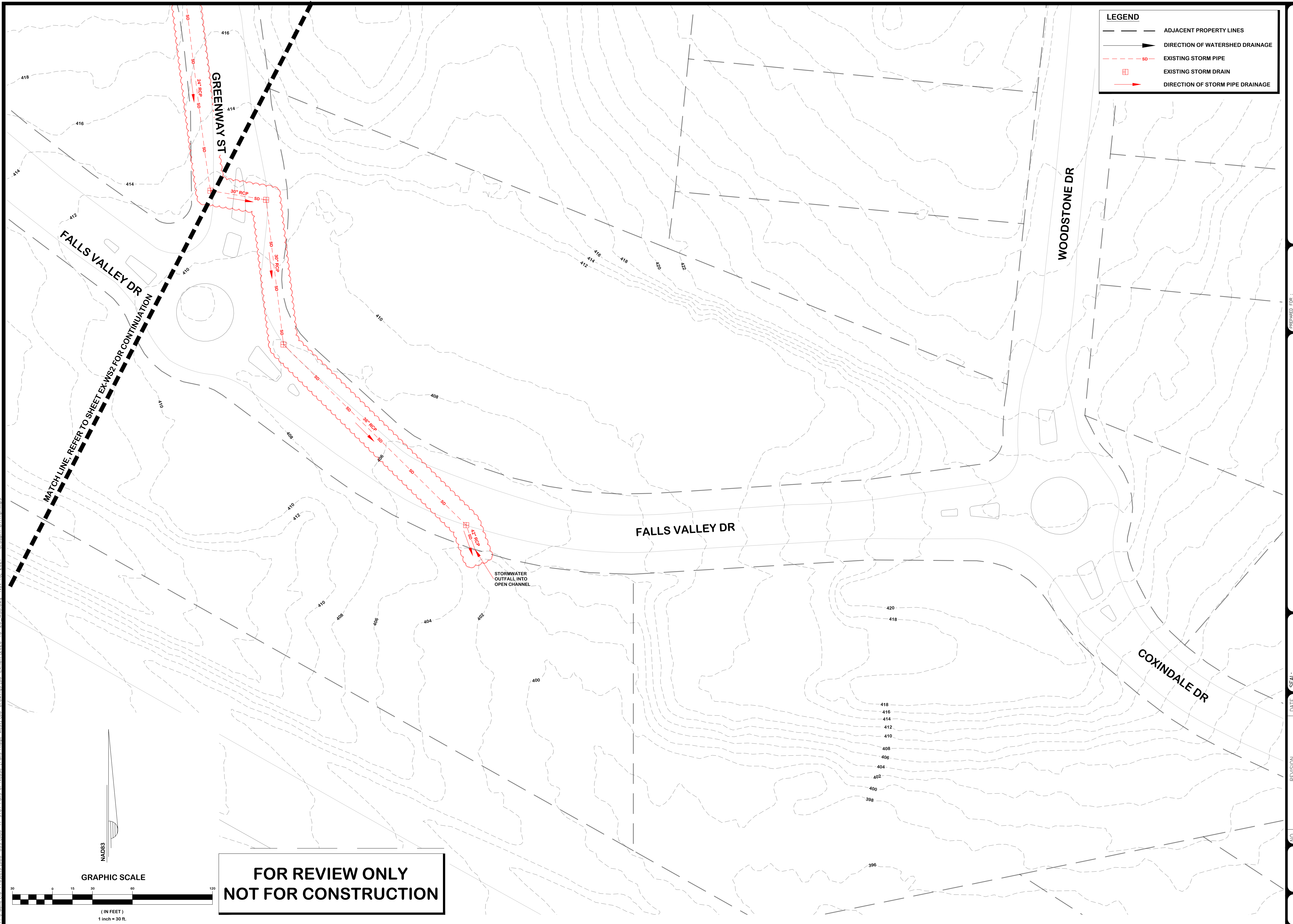
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DRAWING  
SHEET  
**EX-WS1**  
PROJECT NUMBER  
**380-17**



**PABST DESIGN GROUP, PA**  
**Engineering | Consulting**  
107 Fayetteville Street, Suite 200, Raleigh, North Carolina 27601  
Phone: 919 848 4399 | Fax: 919 848 4395 | NC LICENSE NUMBER: C-3211






**NAD83**

## GRAPHIC SCALE

( IN FEET )  
1 inch = 30 ft.

**FOR REVIEW ONLY  
NOT FOR CONSTRUCTION**

**LEGEND**

- — — — — ADJACENT PROPERTY LINES
- ▶ DIRECTION OF WATERSHED DRAINAGE
- - - - - SD - - - - - EXISTING STORM PIPE
-  EXISTING STORM DRAIN
- ▶ DIRECTION OF STORM PIPE DRAINAGE



**PABST DESIGN GROUP, PA**  
**Engineering | Consulting**  
 107 Fayetteville Street, Suite 200, Raleigh, North Carolina 27601  
 Phone: 919 848 4399 | Fax: 919 848 4395 | NC LICENSE NUMBER: C-3211

FALLS RIDGE WEST, LLC PO BOX 152 BLOWING ROCK, NC 28605
DATE : 10.20.2020
PROJECT ENGINEER: PDP
PROJECT CADD DESIGNER: MMP
PROJECT SURVEYOR: JETS LAND SURVEYING

9101 FALLS OF NEUSE ROAD  
WAKE COUNTY, NORTH CAROLINA  
REZONING PETITION  
WATERSHED EXHIBIT

Professional Engineer Seal for North Carolina, State Seal 032573, signed by H. M. [Signature], dated 11-18-24.

[illegible]

DRAWING  
SHEET

**EX-WS3**

PROJECT NUMBER  
**380-17**

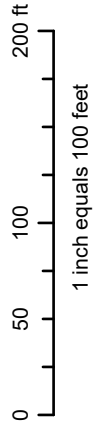
**EXISTING 24" RCP PIPE INLET CROSSING UNDER FALLS OF NEUSE RD.**

**AS ILLUSTRATED ON EX-WS1**





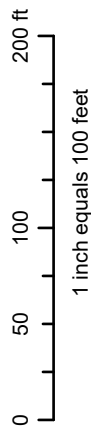
# 9101 Falls of Neuse Road, 1999 WC GIS Imagery



**Disclaimer**  
iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.



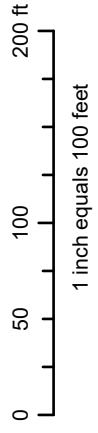
# 9101 Falls of Neuse Road, 2002 WC GIS Imagery



**Disclaimer**  
iMaps makes every effort to produce and publish the most current and accurate information possible. However, the maps are produced for information purposes, and are **NOT** surveys. No warranties, expressed or implied, are provided for the data therein, its use, or its interpretation.



# 9101 Falls of Neuse Road, 2005 WC GIS Imagery



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## TECHNICAL MEMORANDUM

Date: March 3, 2022

To: Keith Lankford, AICP, CZO, Wake County

From: Lawrence Green, PE, PTOE

Subject: Traffic Assessment Statement for Proposed Falls Ridge West Development

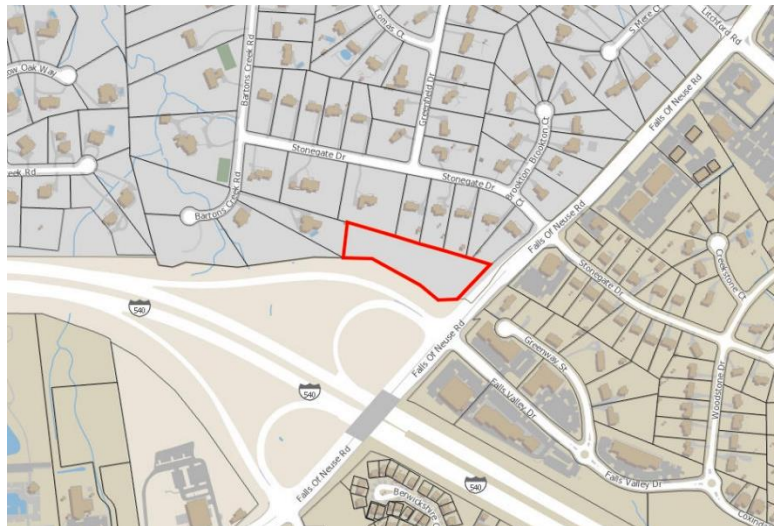
### 1. Introduction

This memorandum summarizes the trip generation characteristics for the proposed development at 9101 Falls of Neuse Road (PIN 1718527761) in Wake County, North Carolina, and the general traffic operations in its vicinity. **Figure 1** shows the site location. The developer has requested that a portion of the site be rezoned from R-40W to CU-R-40. A full traffic impact analysis (TIA) will be required by the North Carolina Department of Transportation (NCDOT) later in the development process due to the site's proximity to the I-540 interchange. Additional information is provided in the **Appendix**.

The site is located west of Falls of Neuse Road between Stonegate Drive and the westbound I-540 ramps. The proposed development is still in the planning stages and may include a drive-thru-only coffee shop and commercial/retail use. While the exact use and site layout are still being determined, for the purposes of this traffic statement, the use generating the most traffic is being considered. Access to the site will be through a new right-in/right-out driveway on Falls of Neuse Road.

This property has a Special Highway Overlay District (SHOD) on it and must address such requirements as are included in Section 3-71 of the Wake County Unified Development Ordinance (UDO). Per correspondence with the County, a TIA is not required at this stage; however, Section 15-12 of the UDO has been consulted to provide an estimate of the anticipated traffic volumes to/from the site and a general assessment of traffic operations. A summary of available crash data is also included in this statement.

*Figure 1. Site Location*



## 2. Trip Generation

### Development Size

The total site area is 2.93 acres, which is currently undeveloped. It is zoned as R-40W: Residential-40 Watershed District. The proposed site plan currently includes a 1,450-square foot coffee/donut shop with a drive-through window and no indoor seating and a neighborhood/convenience-oriented retail building (without gas sales) of 6,160 square feet to host approximately four tenants. The anticipated business types are for personal and convenience-oriented services. Parking will be provided on site.

### Site Trip Generation Methodology

Traffic volumes were calculated based on the land use and density of the proposed development using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10<sup>th</sup> Edition*. Trip generation characteristics were approved recently by NCDOT in November 2020 but originally scoped in 2018. The scoping document submitted to NCDOT is included in the **Appendix**.

For both land uses, the peak hour of adjacent street traffic (one hour between 7:00 and 9:00 am and 4:00 and 6:00 pm) was used to determine the effects of development traffic on the neighboring streets as recommended per NCDOT Capacity Analysis Guidelines. No reductions for internal capture are applied. A fifty percent (50%) reduction for pass-by trips for the coffee/donut shop only are applied, though the pass-by trip percentage is anticipated to be higher.

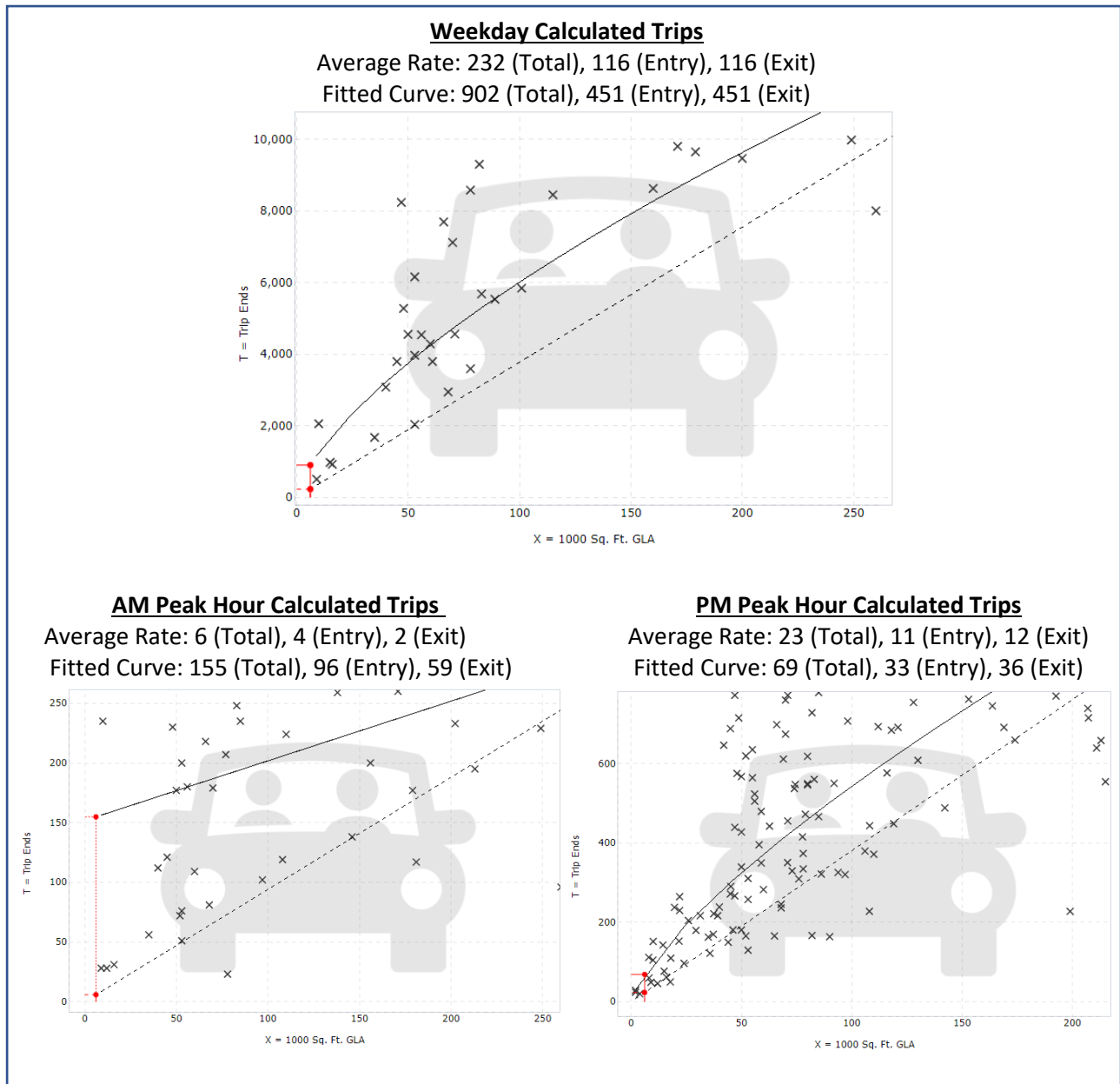
**Table 1** summarizes the trip generation for the proposed development. It is estimated that the proposed development could generate a total of 828 trips per average weekday, including 71 trips during the AM peak hour and 55 trips during the PM peak hour. These values include pass-by for the coffee/donut shop but do not include any internal capture. While the daily and peak hour trips do not meet the requirements for a TIA per the County UDO (i.e., 1,000 trips per day or 100 trips per peak hour), a TIA will be required by NCDOT due to its proximity to the I-540 interchange.

*Table 1. Trip Generation Summary*

Description: ITE Land Use, (Land Use Code)	Units	Daily Volume	Weekday AM Peak Hour Volume			Weekday PM Peak Hour Volume			Method
			Enter	Exit	Total	Enter	Exit	Total	
Proposed Development (Special Use Approval Required), ITE Trip Generation Manual, 10 <sup>th</sup> Edition									
Neighborhood/ convenience-oriented retail (without gas sales): Shopping Center, (820)	6,160 SF	233	4	2	6	11	12	23	Rate, Adjacent
Eating and Drinking Establishment: Coffee/ Donut Shop with Drive- Through Window, (937)	1,450 SF	1,190	66	63	129	31	32	63	Rate, Adjacent
Total Unadjusted Trips	-	1,423	70	65	135	42	44	86	-
NCDOT-Approved Pass-By 50% of Coffee/Donut Shop	-	-595	-33	-31	-64	-15	-16	-31	-
Total Adjusted Trips	-	828	37	34	71	27	28	55	-

To better match the trip generation samples for a small site, the rate was used for Land Use 820. **Figure 2** depicts the graphs from the Trip Generation software comparing the average rate (dashed line) and the fitted curve (solid line). The size of the study development falls below the sizes of the samples provided to ITE as illustrated in Figure 2, which is a zoomed in image of the graph online. For the weekday and AM peak hour, this study site is smaller than all of the ITE study sites. For the PM peak hour, only three samples are smaller than this development, and the average ITE development size is 327,000 square feet. An equation is not provided for ITE Land Use 937, so no comparison figure is provided.

*Figure 2. ITE Land Use 820 Trip Generation Rate versus Equation*



### 3. Traffic Operations

#### Existing Traffic Volumes

Falls of Neuse Road is a four-lane, 45-mph roadway with turn lanes at major intersections that had an average annual daily traffic (AADT) of 50,500 vehicles per day (vpd) in 2019 in the vicinity of the study site, according to NCDOT data. The westbound I-540 on-ramp carries approximately 13,000 vpd, and the I-540 westbound off-ramp carries 5,500 vpd. In the eastbound direction, the off-ramp carries 15,000 vpd while the on-ramp has a volume of 6,100 vpd.

#### Traffic Concerns

Traffic on Falls of Neuse Road is frequently heavy; of particular concern is the southbound direction during the morning peak period. During busy times of day, operations of the site driveway may be dependent upon operations at the westbound I-540 ramps. When traffic congestion on I-540 spills back onto Falls of Neuse Road, this will impact the site driveway. However, the site is planned with right-in/right-out only access and a right-turn lane that extends from the westbound I-540 ramps to Stonegate Drive exists for patrons to use. Additionally, since much of the expected traffic is anticipated to be pass-by trips, many of these vehicles will not be adding to the congestion along the corridor but only making a short detour and returning to their original route. Fifty percent pass-by trips have been approved for this analysis, though the actual number may be much higher.

#### Falls of Neuse Road Widening

NCDOT State Transportation Improvement Program project U-5826 (Spot ID H140401) has just completed the right-of-way acquisition for all parcels. Right of Way Field Certification was signed by the Division ROW Agent on 12/20/21 and the utility relocation has just started coordination. The tentative let date is 07/19/22 and the construction is expected to last 1.5 years. This project will widen Falls of Neuse Road from I-540 to Durant Road from four lanes to six lanes plus turn lanes at key locations. In the vicinity of the site, the roadway will be divided with three northbound through lanes, a northbound left-turn lane onto Stonegate Drive, three southbound through lanes, a southbound left-turn lane onto Falls Valley Drive, and a southbound right-turn lane onto the westbound I-540 on-ramp. This right-turn lane is expected to begin within approximately 200 feet of Stonegate Drive. The right-turn lane would serve traffic both to I-540 and to the study site. Excerpts of two widening concepts are provided in the **Appendix**; operationally, the laneage in the two concepts is the same though the construction varies.

#### Capacity Analysis

The Existing Conditions capacity analysis was completed following methodologies consistent with the Wake County September 2020 Unified Development Ordinance (UDO) and the *NCDOT Congestion Management Traffic Impact Analysis Capacity Analysis Guidelines (NCDOT Guidelines)*. Capacity analyses were performed for the AM and PM peak hours using Synchro 10 software for existing (2018) conditions using Synchro software and Highway Capacity Manual (HCM) methodologies. Measures of effectiveness included in this traffic statement are the level of service and the seconds of delay. While this capacity analysis does not fulfill TIA requirements, it serves to address requirements set forth in Section 15-12 of the UDO.

Future conditions analyses will be completed as part of the TIA examining No Build and Build Conditions without and with the widening of Falls of Neuse Road project.

### Existing Level of Service

A capacity analysis was performed under existing conditions. The measures of effectiveness are summarized in **Table 2**. Note each of the signalized intersections operates at LOS E or F during one or both peak hours under existing conditions. The future conditions will be analyzed as part of the TIA.

*Table 2. Existing Conditions Capacity Analysis Summary*

Intersection	Approach/ Movement	Synchro Results			
		Delay (seconds)		LOS	
		AM	PM	AM	PM
Falls of Neuse Road and Litchford Road	<b>Overall</b>	<b>29.9</b>	<b>123.6</b>	<b>C</b>	<b>F</b>
	Eastbound	41.0	57.3	D	E
	Westbound	39.7	143.8	D	F
	Northbound	27.3	149.0	C	F
	Southbound	29.3	72.1	C	E
Falls of Neuse Road and Falls Valley Drive / Westbound I-540 Ramps	<b>Overall</b>	<b>75.3</b>	<b>106.7</b>	<b>E</b>	<b>F</b>
	Eastbound	190.1	57.9	F	E
	Westbound	149.2	101.4	F	F
	Northbound	22.0	144.7	C	F
	Southbound	61.2	81.9	E	F
Falls of Neuse Road and Thorpshire Drive / Eastbound I-540 Ramps	<b>Overall</b>	<b>96.5</b>	<b>95.7</b>	<b>F</b>	<b>F</b>
	Eastbound	178.4	129.0	F	F
	Westbound	162.4	87.9	F	F
	Northbound	24.8	77.3	C	E
	Southbound	88.9	76.9	F	E

## 4. Crash History (2015-2019)

Available crash data from NCDOT was collected and is shown in **Table 3**. Over the five years from 2015 to 2019, there were 259 recorded crashes at the four intersections nearest the proposed site: Falls of Neuse Road at Litchford Road, at Stonegate Drive, and at the I-540 ramps. One fatality (a 2019 nighttime pedestrian crash) and one serious injury (alcohol-involved) were reported. No additional details regarding crash type or other characteristics are available at this time.

*Table 3. Five-Year Collision History within Study Area*

Intersection	Total	Fatal	Severe (A) Injury	B + C Injury	PDO
Falls of Neuse Road and Litchford Road	159	1 (ped)	1 (alcohol-involved)	35	122
Falls of Neuse Road and Stonegate Drive	20	0	0	6	14
Falls of Neuse Road and Falls Valley Drive / Westbound I-540 Ramps	40	0	0	15	25
Falls of Neuse Road and Thorpshire Drive / Eastbound I-540 Ramps	48	0	0	13	35

## 5. Summary

This traffic assessment summarizes the maximum anticipated trips for the proposed Falls Ridge West development. The final site plan is yet to be determined. It is estimated that the proposed development could generate a total of 828 trips per average weekday, including 71 trips during the AM peak hour and 55 trips during the PM peak hour. These values include fifty percent pass-by for the coffee/donut shop only but do not include any internal capture. While these values are below the minimum threshold required to provide a TIA per the Wake County UDO (i.e., 1,000 trips per day or 100 trips per peak hour), it is understood that additional analysis may still be required as this project progresses, pending review and coordination with the County and requirements of NCDOT. Heavy traffic in the area, concern from citizens, proximity to I-540, and the widening of Falls of Neuse Road provide circumstances that may dictate additional examination of the study area.

Appendix

Correspondence: Regarding Trip Generation..... Page 8

Correspondence: Regarding the Traffic Statement..... Page 9

Excerpts of Widening Concepts ..... Page 10

NCDOT email with Approval of Scope ..... Page 11

Scoping Document with Appendix as submitted to NCDOT ..... Page 12

## Correspondence: Regarding Trip Generation

**From:** Drew Draper

**Sent:** Tuesday, September 11, 2018 1:19 PM

**To:** 'Bunting, Clarence B' <cbunting@ncdot.gov>

**Cc:** Matthew Tracey <MTracey@wetherilleng.com>; Wheeler, Millard S <mwheeler@ncdot.gov>; Brennan, Sean P <spbrennan@ncdot.gov>; Sorrell, Charles V <csorrell@ncdot.gov>; Walker, Braden M <bmwalker1@ncdot.gov>

**Subject:** RE: [External] Falls Ridge West TIA Scoping Information

Clarence-

Thanks for looking this over and discussing it with me today. We'll move forward with 820 for the retail piece to be consistent with ITE version 10 and apply 50% pass-by to the coffee shop (though seating is not currently planned we are comfortable with that rate to be more conservative). If there are no other comments, we'll proceed with our analysis.

Thank you,  
Drew

**Drew Draper, PTP**

*Planning Manager*

**Wetherill Engineering**

1223 Jones Franklin Rd., Raleigh, NC 27606

Office: (984) 242-0581 Mobile: (850) 445-8545 Fax: (919) 851-8107 [www.wetherilleng.com](http://www.wetherilleng.com)

**From:** Bunting, Clarence B <cbunting@ncdot.gov>

**Sent:** Tuesday, September 4, 2018 1:41 PM

**To:** Matthew Tracey <MTracey@wetherilleng.com>; Wheeler, Millard S <mwheeler@ncdot.gov>; Brennan, Sean P <spbrennan@ncdot.gov>; Sorrell, Charles V <csorrell@ncdot.gov>; Walker, Braden M <bmwalker1@ncdot.gov>

**Cc:** Drew Draper <DDraper@wetherilleng.com>

**Subject:** RE: [External] Falls Ridge West TIA Scoping Information

Matt,

Specialty Retail was removed from version 10 of the ITE codebook, so we would recommend selecting 820.

We wouldn't recommend 89% pass-by for a coffee shop with seating. Some of those places become destinations depending on how they are set up. Without local data, I think we could allow about 50% if everyone else is fine with that.

If you need more information, let us know!

Thanks,  
Clarence

**Clarence Bunting**

Congestion Management Project Engineer

Traffic Management Unit

North Carolina Department of Transportation

919 814 5076 office

[cbunting@ncdot.gov](mailto:cbunting@ncdot.gov)

750 N. Greenfield Parkway, Garner, NC 27529



 Nothing Compares

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## Correspondence: Regarding the Traffic Statement

**From:** Keith Lankford <[Keith.Lankford@wakegov.com](mailto:Keith.Lankford@wakegov.com)>

**Sent:** Wednesday, October 16, 2019 12:27 PM

**To:** Kemerait, Karen <[KKemerait@foxrothschild.com](mailto:KKemerait@foxrothschild.com)>

**Cc:** Mark Phillips <[mphillips@pabstdesign.com](mailto:mphillips@pabstdesign.com)>; James Jackson ([jifinc1@att.net](mailto:jifinc1@att.net)) <[jifinc1@att.net](mailto:jifinc1@att.net)>; Timothy Maloney <[tmaloney@wakegov.com](mailto:tmaloney@wakegov.com)>; Steven Finn <[Steven.Finn@wakegov.com](mailto:Steven.Finn@wakegov.com)>

**Subject:** RE: Falls Ridge West, LLC

Karen et al,

Thanks for the information yesterday regarding the claim of previous filling on the lot. As discussed please package that material with a cover letter explaining the situation and submit it as part of the rezoning petition. In particular note that the fill that occurred was not within the area being requested for watershed declassification and confirming that that area is original/natural topography. I'll review that as part of the rezoning petition processing and let you know if I have any questions or need additional information.

Please keep me posted on the neighborhood meeting and any issues that may arise. I'll be glad to discuss possible rezoning conditions to help mitigate any concerns that may arise.

I think that we had noted this in previous meetings, but as a reminder, the subject property also has a Special Highway Overlay District (SHOD) on it. Please ensure that your rezoning petition and subsequent plans address the SHOD requirements (see Section 3-71 of the Wake County Unified Development Ordinance (UDO)).

On another issue we typically do **not** require a Traffic Impact Analysis (TIA) for a rezoning **unless** circumstances warrant it (e.g.—high accident rate, excessive existing traffic). We usually hold off on the TIA until the actual development stage. The proposed use of the site with two buildings and multiple tenants (i.e.—the café and 3 or 4 in the second building) is fairly heavy, so we will need at least a general statement regarding the traffic situation. See Section 15-12 of the UDO. We will need an estimate of the anticipated traffic volumes to/from the site, and a general assessment of the traffic situation in that area (e.g.—traffic volume, level of service, accident rate). You may want to submit this ahead of the formal rezoning petition submittal. [It may also be useful information for the neighborhood discussion.] I'll review that and let you know if an actual TIA is required as part of the rezoning (we have had to require a partial TIA in one other rezoning case on a problematic road—Smithfield Road—over capacity with failing LOS and semi-frequent accidents).

As part of my rezoning staff report I will include a section on the traffic volumes, accident rates, etc.... I'll order a 3- (or 5-year) accident report from NCDOT as part of my petition review.

Please let me know if there are any questions. Take care!

Keith A. Lankford, AICP, CZO  
Planner III  
Wake County Planning, Development and Inspections  
Phone: (919) 856-7569  
Fax: (919) 856-5824  
Web site: [www.wakegov.com/planning](http://www.wakegov.com/planning)



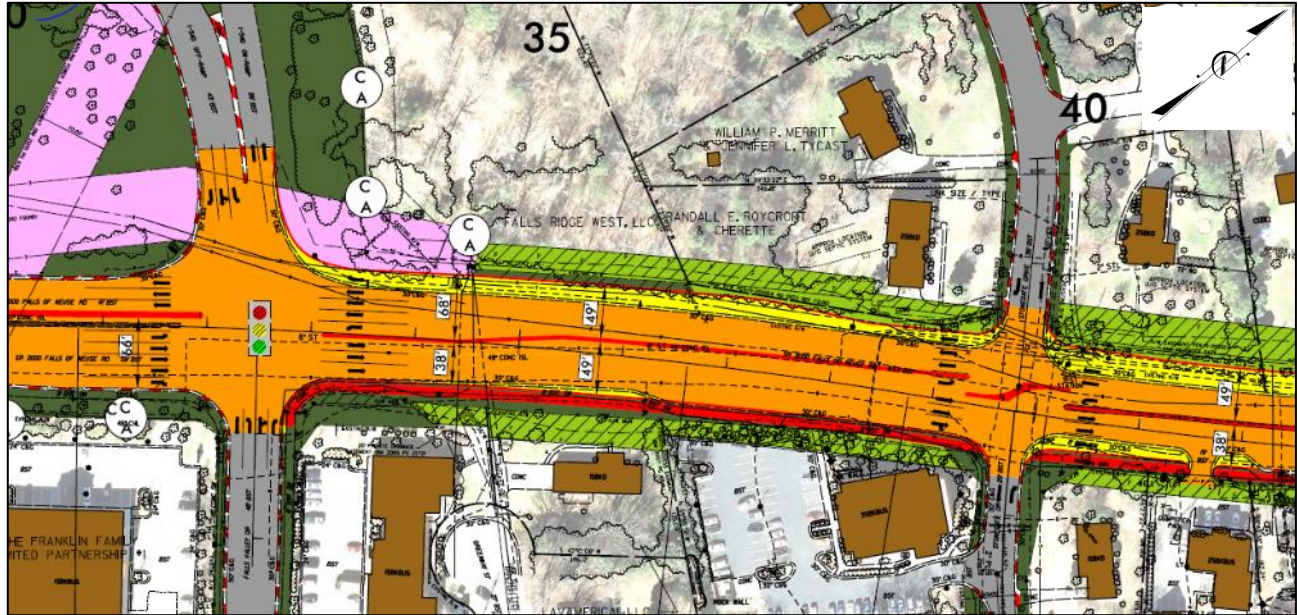
Permit forms, applications and fees link:  
[www.wakegov.com/planning/zoning/Pages/forms.aspx](http://www.wakegov.com/planning/zoning/Pages/forms.aspx)

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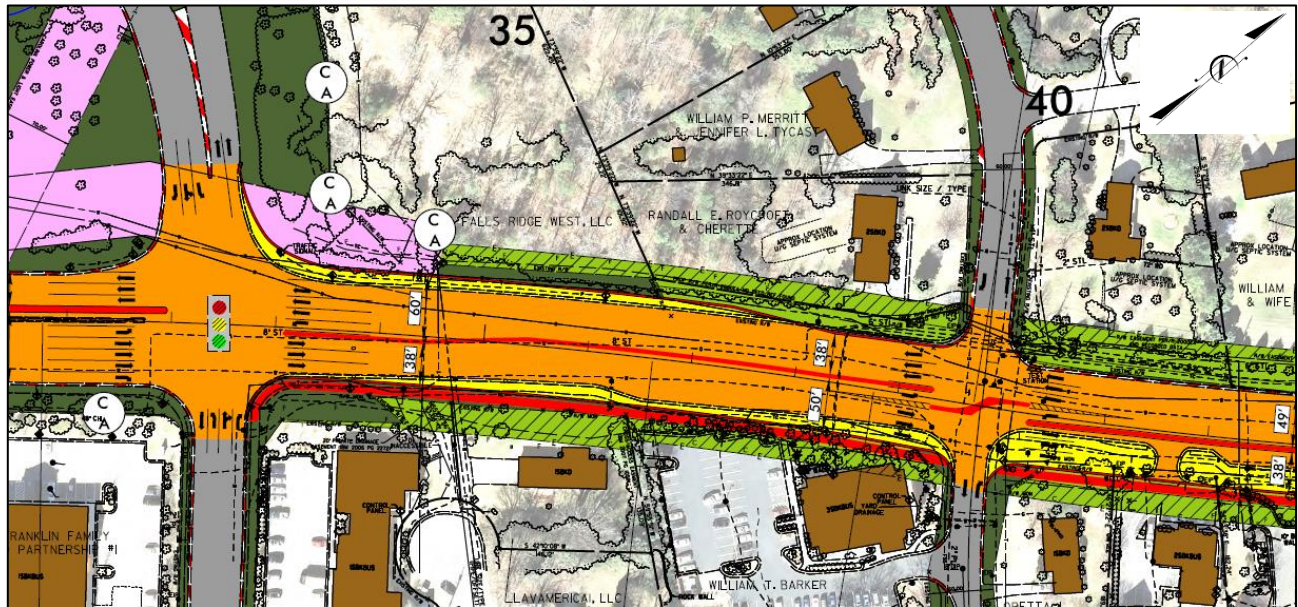


Excerpts of Widening Concepts:

**DESIGN PUBLIC HEARING MAP**  
 PROJECT U-5826  
 ALTERNATE 1 - WIDEN TO THE LEFT  
 WAKE COUNTY  
 FALLS OF NEUSE ROAD (SR 2000)  
 FROM I-540 TO DURANT ROAD (SR 2006)  
 ROLL 1 OF 1

**DESIGN PUBLIC HEARING MAP**  
 PROJECT U-5826  
 ALTERNATE 2 - WIDEN TO THE RIGHT  
 WAKE COUNTY  
 FALLS OF NEUSE ROAD (SR 2000)  
 FROM I-540 TO DURANT ROAD (SR 2006)  
 ROLL 1 OF 1

## Erin Govea

---

**Subject:** PRINT: Falls Ridge West Scoping Doc

---

**From:** Brennan, Sean P <[spbrennan@ncdot.gov](mailto:spbrennan@ncdot.gov)>

**Sent:** Monday, November 16, 2020 12:51 PM

**To:** Erin Govea <[EGovea@wetherilleng.com](mailto:EGovea@wetherilleng.com)>; Drew Draper <[DDraper@wetherilleng.com](mailto:DDraper@wetherilleng.com)>

**Cc:** Neidringhaus, Amy N <[anneidringhaus@ncdot.gov](mailto:anneidringhaus@ncdot.gov)>; Ishak, Doumit Y <[dishak@ncdot.gov](mailto:dishak@ncdot.gov)>; Walker, Braden M <[bmwalker1@ncdot.gov](mailto:bmwalker1@ncdot.gov)>; Lineberger, Nicholas C <[nclineberger@ncdot.gov](mailto:nclineberger@ncdot.gov)>; Grant, John H <[jhgrant@ncdot.gov](mailto:jhgrant@ncdot.gov)>; Winkler, Niklaus C <[ncwinkler@ncdot.gov](mailto:ncwinkler@ncdot.gov)>

**Subject:** Re: [External] Falls Ridge West Scoping Doc

Erin,

NCDOT doesn't have anything else to add.

Regards,

**Sean Brennan, PE**

Senior Assistant District Engineer

Division 5/District 1

Department of Transportation

919-733-3213 office

919-715-5778 fax

[spbrennan@ncdot.gov](mailto:spbrennan@ncdot.gov)

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1575 Mail Service Center (Mailing Address)

Raleigh, NC 27699-1575

*Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.*

---

**From:** Erin Govea <[EGovea@wetherilleng.com](mailto:EGovea@wetherilleng.com)>

**Sent:** Monday, November 16, 2020 8:53 AM

**To:** Brennan, Sean P <[spbrennan@ncdot.gov](mailto:spbrennan@ncdot.gov)>; Drew Draper <[DDraper@wetherilleng.com](mailto:DDraper@wetherilleng.com)>

**Cc:** Neidringhaus, Amy N <[anneidringhaus@ncdot.gov](mailto:anneidringhaus@ncdot.gov)>; Ishak, Doumit Y <[dishak@ncdot.gov](mailto:dishak@ncdot.gov)>; Walker, Braden M <[bmwalker1@ncdot.gov](mailto:bmwalker1@ncdot.gov)>; Lineberger, Nicholas C <[nclineberger@ncdot.gov](mailto:nclineberger@ncdot.gov)>; Grant, John H <[jhgrant@ncdot.gov](mailto:jhgrant@ncdot.gov)>; Winkler, Niklaus C <[ncwinkler@ncdot.gov](mailto:ncwinkler@ncdot.gov)>

**Subject:** RE: [External] Falls Ridge West Scoping Doc

Good morning all,

I hope y'all had a good weekend. I've verified that each of Clarence's comments are incorporated into the scope. Did anyone have anything else to add or change?

Thank you,

Erin

**Erin M. Govea, PE**

Senior Traffic Engineer

**Wetherill Engineering**

Direct: (984) 242-0683



## SCOPING DOCUMENT

---

Date: November 12, 2020

To: NCDOT Staff: Sean Brennan, Amy Neidringhaus, Clarence Bunting, Doumit Ishak

From: Erin Govea, PE

Drew Draper, PTP

---

### 1. Introduction

This memorandum summarizes the assumptions that have been made for this project in order to receive feedback and approval from NCDOT prior to completing the traffic analysis. This project was originally scoped in September 2018. Due to the time that the project has been delayed, this document summarizes the original assumptions for review.

The proposed development located at 9101 Falls of Neuse Road includes a drive-thru-only coffee shop and commercial buildings, and the developer has requested that a portion of the site be rezoned from R-40W to R-40. A full traffic impact analysis (TIA) is anticipated due to rezoning and the proximity of the site to the I-540 interchange. The impacts of the U-5826 Falls of Neuse widening project will be considered, also.

### 2. Study Area

The proposed development is located off Falls of Neuse Road in Wake County, North Carolina. The study intersections are:

- Falls of Neuse Road and Litchford Road
- Falls of Neuse Road and I-540 WB Ramp/Falls Valley Drive
- Westbound I-540 Ramp Meter
- Falls of Neuse Road and I-540 EB Ramp/Thorpshire Drive
- Falls of Neuse Road and Site Driveway (under Build Conditions)

Access to the site will be through a new right-in/right-out driveway on Falls of Neuse Road. A new C/A break is required, but median access is not.

### 3. Traffic Counts

The study intersections were counted in September 2018 during the weekday AM peak period (7:00 am – 9:00 am) and PM peak period (4:00 pm – 6:00 pm) when schools were in session. Due to the current pandemic, new counts are not recommended at this time. The unadjusted highest peak hour,

within the time periods noted above, will be analyzed for each signalized intersection. Although some variation in traffic can occur between intersections resulting from U-turns and other access points, it can be expected the peak hours will be consistent and no major imbalances will occur.

The ramp meter on I-540 was installed prior to the traffic counts being recorded, so its effect will be recorded in the existing data. NCDOT stated that a forecast of the 2018 counts is acceptable for analyzing how the ramp meter impacts operations in the study area.

#### 4. Analysis Scenarios

AM and PM peak hour conditions will be analyzed for the following analysis scenarios with an existing year of 2020 and a development build out year of 2025:

- Existing (2018 Volumes plus Growth Rate to 2020) Conditions
- No-Build (2025) Conditions with Falls of Neuse widening
- Build (2025) Conditions with Falls of Neuse widening
- Future No Build (2025) without Falls of Neuse widening
- Future Build (2025) Conditions without Falls of Neuse widening

#### 5. Planned and Approved Projects

No planned and approved development projects are located in or near the study area that would directly impact traffic conditions; however, Falls of Neuse Road will be widened from four to six lanes between Durant Road and the I-540 interchange (U-5826). This widening will be included as part of the future no build and build conditions based on the latest published concept plan found on NCDOT's website.

#### 6. Background Growth Rate

An annual, linear growth rate of 3% will be applied to the existing counts to project 2018 volumes to future conditions.

#### 7. Trip Generation

##### Development Size

The total site area is 2.93 acres, which is currently undeveloped. It is zoned as R-40W: Residential-40 Watershed District. The proposed site plan includes a neighborhood/convenience-oriented retail building (without gas sales) of 6,160 square feet to host approximately four tenants and a 1,450-square foot coffee/donut shop with a drive-through window and no indoor seating. The anticipated business types are for personal and convenience-oriented services. Parking will be provided on site.

##### Site Trip Generation Methodology

Traffic volumes were calculated based on the land use and density of the proposed development using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10<sup>th</sup> Edition*. Trip generation characteristics were previously approved by NCDOT in 2018, and relevant documentation is provided in the **Appendix** and summarized here:

- Shopping Center (ITE Land Use Code 820) will be used for the convenience-oriented retail. Specialty Retail is no longer an option in the updated version of the ITE Trip Generation Manual.

- The rate was used for Land Use 820 instead of the equation to better match the trip generation samples for a small site. An equation is not provided for ITE Land Use 937.
- No reductions for internal capture are applied, but a fifty percent reduction for pass-by trips for the coffee/donut shop are applied, though the pass-by trip percentage is anticipated to be higher.
- The peak hour of adjacent street traffic (one hour between 7:00 and 9:00 am and 4:00 and 6:00 pm) was used to determine the effects of development traffic on the neighboring streets.

**Table 1** summarizes the trip generation for the proposed development.

*Table 1. Trip Generation Summary of Proposed Development*

Description: ITE Land Use, (Land Use Code)	Units	Daily Volume	Weekday AM Peak Hour Volume			Weekday PM Peak Hour Volume			Method
			Enter	Exit	Total	Enter	Exit	Total	
Proposed Development (Special Use Approval Required), ITE Trip Generation Manual, 10 <sup>th</sup> Edition									
Neighborhood/ convenience-oriented retail (without gas sales): Shopping Center, (820)	6,160 SF	233	4	2	6	11	12	23	Rate, Adjacent
Eating and Drinking Establishment: Coffee/Donut Shop with Drive-Through Window, (937)	1,450 SF	1,190	66	63	129	31	32	63	Rate, Adjacent
Total Unadjusted Trips	-	1,423	70	65	135	42	44	86	-
NCDOT-Approved Pass-By 50% of Coffee/Donut Shop	-	-595	-33	-31	-64	-15	-16	-31	-
Total Adjusted Trips	-	828	37	34	71	27	28	55	-

It is estimated that the proposed development could generate a total of 828 trips per average weekday, including 71 trips during the AM peak hour and 55 trips during the PM peak hour. These values include pass-by for the coffee/donut shop but do not include any internal capture.

## 8. Traffic Operations

Assumptions regarding the traffic operations include:

- The U-5826 (Spot ID H140401) project will widen Falls of Neuse Road from I-540 to Durant Road from four lanes to six lanes plus turn lanes at key locations.
- In the vicinity of the study site, the roadway will be median divided with:
  - three northbound through lanes,
  - a northbound left-turn lane onto Stonegate Drive,
  - three southbound through lanes,
  - a southbound left-turn lane onto Falls Valley Drive, and
  - a southbound right-turn lane onto the westbound I-540 on-ramp.

- The right-turn lane would serve traffic both to I-540 and to the study site and is expected to begin within approximately 200 feet of Stonegate Drive.
- During busy times of day, operations of the site driveway may be dependent upon operations at the westbound I-540 ramps due to spillback from the ramp meter.
- Since much of the expected traffic is anticipated to be pass-by trips, many of these vehicles will not be adding to the congestion along the corridor but only making a short detour and returning to their original route. Fifty percent pass-by trips have been approved for this analysis, though the actual number may be much higher.

### Trip Distributions

The trip distributions are shown on the figure in the **Appendix** and were previously approved by NCDOT. Trips are anticipated as follows:

- 25% to/from the north on Falls of Neuse Road
- 20% to/from the south on Falls of Neuse Road
- 15% to/from the west on I-540 WB Ramp
- 15% to/from the west on I-540 EB Ramp
- 10% to/from the east on Litchford Road
- 5% to/from the east on Falls Valley Drive
- 5% to/from the east on Thropshire Drive
- 5% to/from the west on Litchford Drive

### Capacity Analysis

The capacity analysis will follow methodologies consistent with the Wake County January 2019 Unified Development Ordinance (UDO) and the *NCDOT Congestion Management Traffic Impact Analysis Capacity Analysis Guidelines (NCDOT Guidelines)*. Capacity analyses will be performed for the AM and PM peak hours using Synchro 10 software for existing and future conditions using Synchro software and Highway Capacity Manual (HCM) methodologies. The following measures of effectiveness will be reported:

- Delay in seconds for all scenarios
- Level of service (LOS) for all scenarios
- Vehicle queuing under no build and build conditions – reported as 95th percentile and maximum

## 9. Summary

It is estimated that the proposed development could generate a total of 828 trips per average weekday, including 71 trips during the AM peak hour and 55 trips during the PM peak hour. These values include fifty percent pass-by for the coffee/donut shop but do not include any internal capture. These assumptions will be used in the TIA, pending review and coordination with the County and with NCDOT.

# SCOPING DOCUMENT – APPENDIX

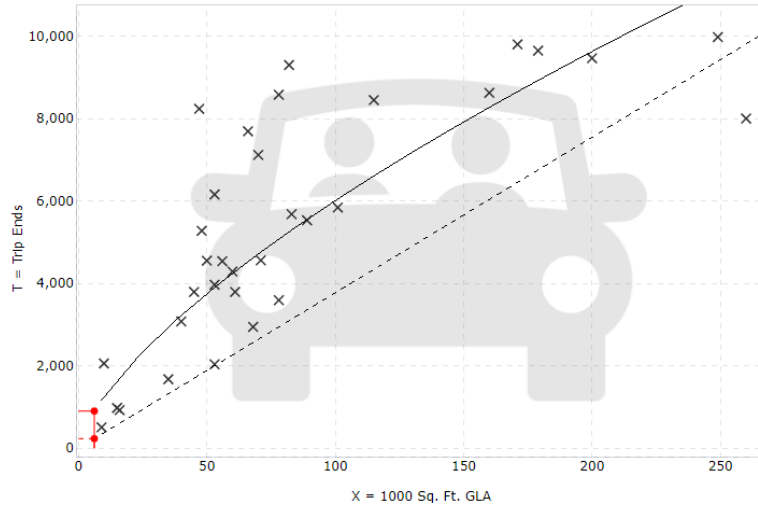
## Appendix

### ITE TRIP GENERATION RATE VS. EQUATION– LAND USE 820

#### Weekday Calculated Trips

Average Rate: 232 (Total), 116 (Entry), 116 (Exit)

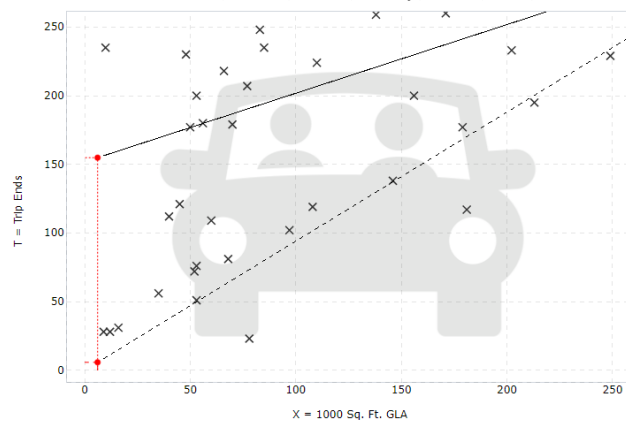
Fitted Curve: 902 (Total), 451 (Entry), 451 (Exit)



#### AM Peak Hour Calculated Trips

Average Rate: 6 (Total), 4 (Entry), 2 (Exit)

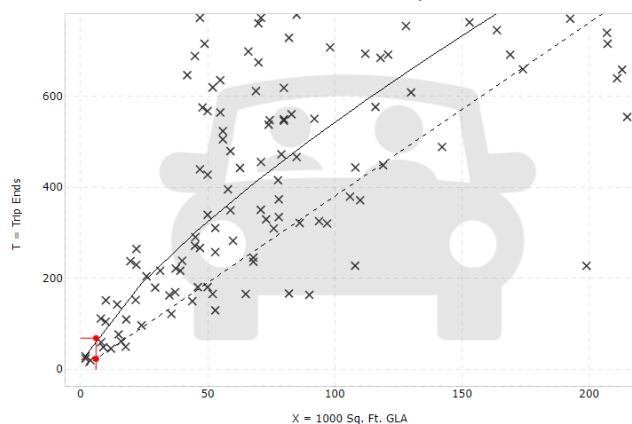
Fitted Curve: 155 (Total), 96 (Entry), 59 (Exit)

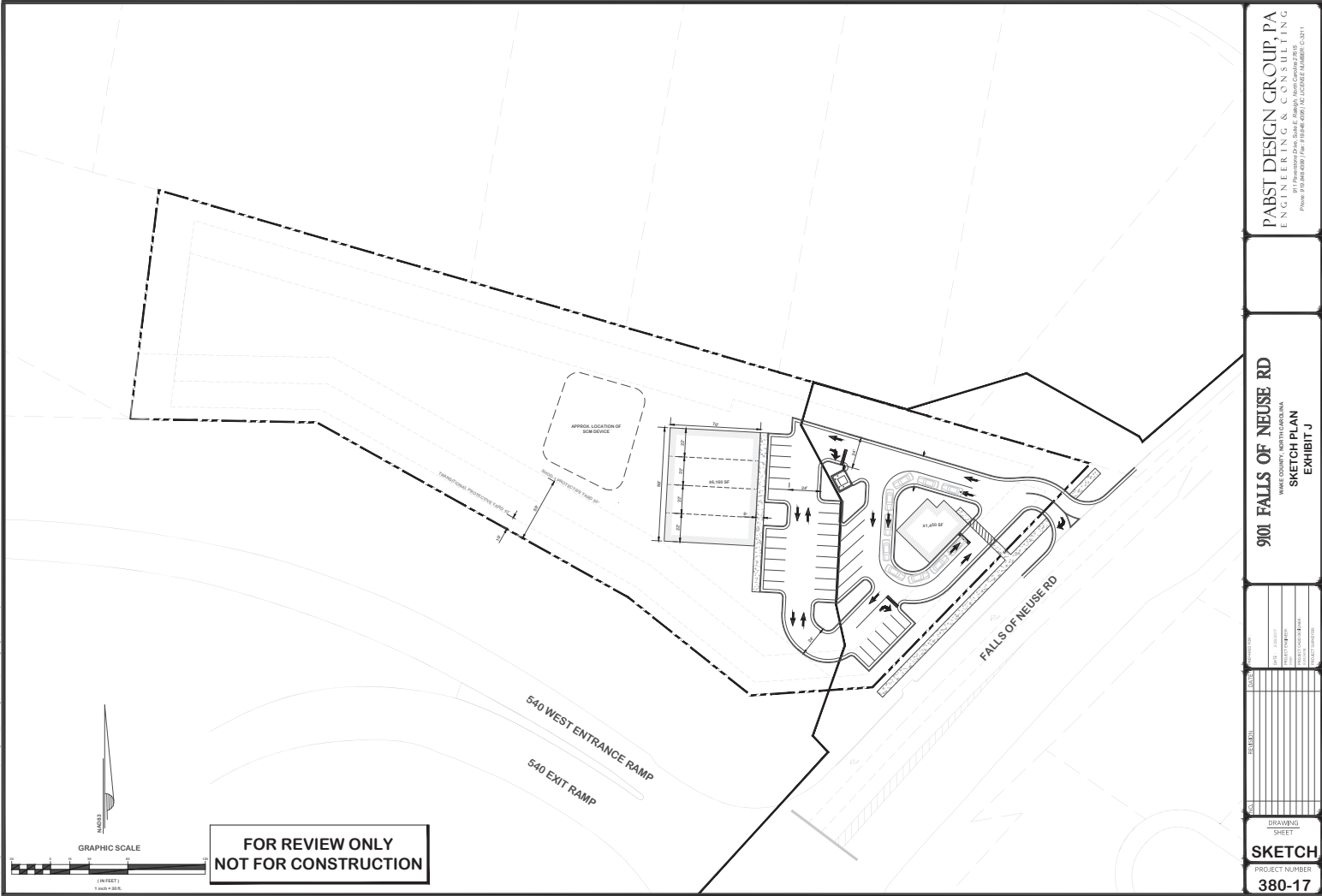


#### PM Peak Hour Calculated Trips

Average Rate: 23 (Total), 11 (Entry), 12 (Exit)

Fitted Curve: 69 (Total), 33 (Entry), 36 (Exit)





## Land Use: 937

### Coffee/Donut Shop with Drive-Through Window

#### Description

This land use includes single-tenant coffee and donut restaurants with drive-through windows. Freshly brewed coffee and a variety of coffee-related accessories are the primary retail products sold at these sites. They may also sell other refreshment items, such as donuts, bagels, muffins, cakes, sandwiches, wraps, salads, and other hot and cold beverages. Some sites may also sell newspapers, music, CDs, and books. The coffee and donut shops contained in this land use typically hold long store hours (more than 15 hours) with an early morning opening. Also, limited indoor seating is generally provided for patrons; however, table service is not provided. Coffee/donut shop without drive-through window (Land Use 936), coffee/donut shop with drive-through window and no indoor seating (Land Use 938), bread/donut/bagel shop without drive-through window (Land Use 939), and bread/donut/bagel shop with drive-through window (Land Use 940) are related uses.

#### Additional Data

The sites were surveyed in the 1990s, the 2000s, and the 2010s in California, Colorado, Connecticut, Illinois, Massachusetts, Minnesota, Nevada, New Hampshire, New Jersey, New York, Ontario (CAN), Pennsylvania, Quebec (CAN), Tennessee, Vermont, Washington, and Wisconsin.

#### Specialized Land Use Data

One study provided data for a coffee/donut shop with a drive-through window that also sells donuts and ice cream (source 617). The trip generating characteristics of this site differed from the sites included in this land use; therefore, trip generation information for this site is presented here and was excluded from the data plots. The site had a gross floor area of 3,300 square feet. It generated 425 vehicle trips during the weekday AM peak hour of adjacent street traffic, and 236 vehicle trips during the weekday PM peak hour of adjacent street traffic.

#### Source Numbers

594, 599, 615, 617, 618, 621, 622, 635, 639, 712, 714, 725, 726, 728, 853, 854, 892, 903, 928, 959, 979, 982

**Table E.33 Pass-By and Non-Pass-By Trips Weekday  
Land Use Code 938—Coffee/Donut Shop with Drive-Through Window  
and No Indoor Seating (Coffee/Esspresso Stand)**

SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			SOURCE
						PRIMARY	DIVERTED	TOTAL	
0.1	Vancouver, WA	Nov. 1997	69	6:00 a.m.–6:00 p.m.	83	—	—	17	Kittelson & Associates Inc.

“—” means no data were provided

**Table E.34 Pass-By and Non-Pass-By Trips Weekday  
Land Use Code 938—Coffee/Donut Shop with Drive-Through Window  
and No Indoor Seating (Coffee/Esspresso Stand)**

EMPLOYEES	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			SOURCE
						PRIMARY	DIVERTED	TOTAL	
1	Vancouver, WA	Nov. 1997	70	6:00 a.m.–6:00 p.m.	83	—	—	17	Kittelson & Associates Inc.
1	Woodburn, OR	Feb. 1998	109	6:00 a.m.–6:00 p.m.	95	—	—	5	Kittelson & Associates Inc.
1	Vancouver, WA	Feb. 1998	83	6:00 a.m.–1:00 p.m.	89	—	—	11	Kittelson & Associates Inc.

Average Pass-By Trip Percentage: 89

“—” means no data were provided

**Table E.35 Pass-By and Non-Pass-By Trips Weekday, AM Peak Period  
Land Use Code 944—Gasoline/Service Station**

SIZE (1,000 SQ. FT. GFA)	VEHICLE FUELING POSITIONS	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
2.3	6	Gaithersburg, MD	1992	37	7:00–9:00 a.m.	32	41	27	68	2,080	RBA
2.1	6	Bethesda, MD	1992	26	7:00–9:00 a.m.	58	23	19	42	2,080	RBA
1.7	6	Wheaton, MD	1992	21	7:00–9:00 a.m.	67	14	19	33	900	RBA
2.0	8	Gaithersburg, MD	1992	46	7:00–9:00 a.m.	87	13	0	13	2,235	RBA
1.2	6	Damascus, MD	1992	21	7:00–9:00 a.m.	43	28	29	57	870	RBA
0.3	12	Wheaton, MD	1992	36	7:00–9:00 a.m.	61	8	31	39	3,480	RBA

Average Pass-By Trip Percentage: 58

“—” means no data were provided

## Land Use: 820

### Shopping Center

#### Description

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Factory outlet center (Land Use 823) is a related use.

#### Additional Data

Shopping centers, including neighborhood centers, community centers, regional centers, and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs, and recreational facilities (for example, ice skating rinks or indoor miniature golf courses).

**Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.**

The vehicle trips generated at a shopping center are based upon the total GLA of the center. In cases of smaller centers without an enclosed mall or peripheral buildings, the GLA could be the same as the gross floor area of the building.

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:15 and 1:15 p.m., respectively.

The average numbers of person trips per vehicle trip at the 27 general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.31 during Weekday, AM Peak Hour of Generator
- 1.43 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.
- 1.46 during Weekday, PM Peak Hour of Generator

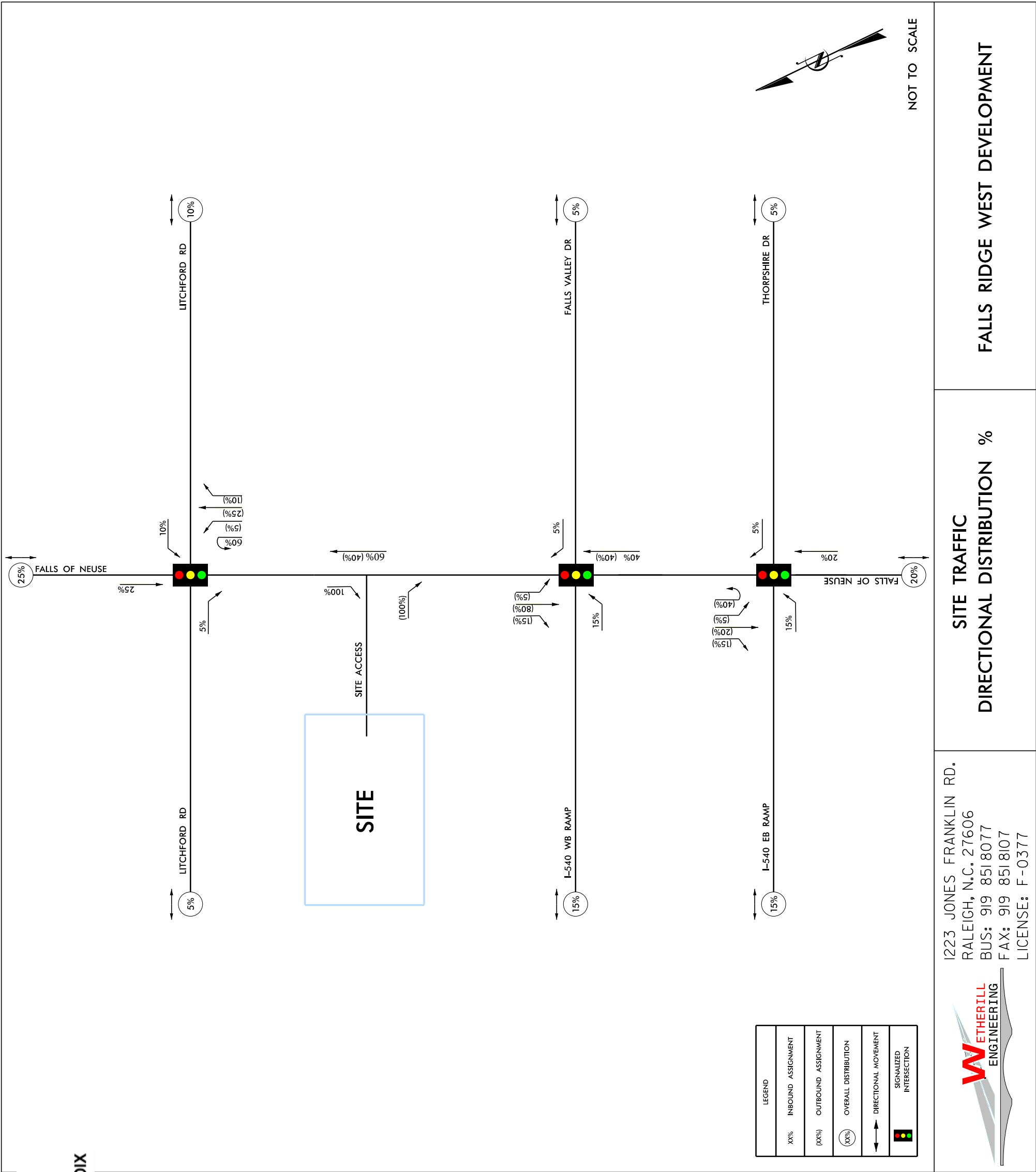
The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), British Columbia (CAN), California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia, and Wisconsin.

#### Source Numbers

105, 110, 154, 156, 159, 186, 190, 198, 199, 202, 204, 211, 213, 239, 251, 259, 260, 269, 294, 295, 299, 300, 301, 304, 305, 307, 308, 309, 310, 311, 314, 315, 316, 317, 319, 358, 365, 376, 385, 390, 400, 404, 414, 420, 423, 428, 437, 440, 442, 444, 446, 507, 562, 580, 598, 629, 658, 702, 715, 728, 868, 870, 871, 880, 899, 908, 912, 915, 926, 936, 944, 946, 960, 961, 962, 973, 974, 978



SCOPING DOCUMENT – APPENDIX





1223 JONES FRANKLIN RD.  
RALEIGH, N.C. 27606  
BUS: 919 8518077  
FAX: 919 8518107  
LICENSE: F-0377

SITE TRAFFIC  
DIRECTIONAL DISTRIBUTION %

FALLS RIDGE WEST DEVELOPMENT