

Planning Commission Members

District 1: Alan Patterson
District 2: Tamecca Neely
District 3: Charles Deese, Chair
District 4: Judianna Tinklenberg
District 5: James Barnett, Vice-Chair
District 6: Sheila Hinson
District 7: Ben Levine

**County Attorney**

Ginny L. Merck-Dupont

Clerk to Planning Commission

Jennifer Bryan

Development Services Director

March 2, 2023

5:00 PM

**101 North Main Street
Lancaster, SC 29720**

**LANCASTER COUNTY PLANNING COMMISSION
County Council Chambers, County Administration
Building, 101 North Main Street, Lancaster, SC 29720**

AGENDA

- 1. Call to Order Regular Meeting and Roll Call Vote**
- 2. New Business**
 - a.** CU-2022-2447 Tidal Wave Auto Spa
Application by Advanced Engineering Services LLC for a Conditional Use Permit for Minor Maintenance and Repair (Auto) at location 4138 Doby's Bridge Road (TM# 0013-00-015.00), for the purpose of developing an automated car wash.
 - b.** UDO-TA-2023-0188 LCWSD Water Tanks
Application by Lancaster County Water & Sewer District for an amendment to Section 2.4, regarding building heights, requesting an exemption for LCWSD water tanks.
 - c.** SD-2021-2450 Pettus Pond
Application by Eastwood Homes, Jane Pettus and Anthony Haltom for approval of a Preliminary Plat for three parcels totaling approximately 61.24 acres located at or adjacent to #10925 and #10822 Pettus Farm Road and Old Pettus Place, respectively, (TMs 0003-00-051.00, 0003-00-052.00, and 0003-00-052.06), for a single-family residential development of 99 lots.
 - d.** Overview of next month's Agenda
 - e.** Other
- 3. Adjourn**

Agenda Item Summary

Ordinance # / Resolution #: CU-2022-2447 Tidal Wave Auto Spa

Contact Person / Sponsor: M. Blaszyk

Department: Planning

Date Requested to be on Agenda: 3/2/2023

Points to Consider:

ATTACHMENTS:

Description	Upload Date	Type
Corrected Application	2/14/2023	Exhibit
Owner Authorization	2/14/2023	Exhibit
Proposed Plat	1/18/2023	Exhibit
Location Map	1/30/2023	Exhibit



Planning Department
P.O. Box 1809, 101 N. Main Street, Lancaster, SC 29721
Phone: 803.285.6005, planning@lanastercountysc.net
www.mylanastersc.org

CONDITIONAL USE APPLICATION

SUBMITTAL REQUIREMENTS

- Completed Application
- Signatures of Applicant and Property Owner
- All items noted on the Conditional Use Plan Checklist
- Fees associated with review

GENERAL INFORMATION

Property Address 4138 Dobys Bridge Rd
City Fort Mill State SC Zip 29707 Tax Parcel ID 0013-0-015.00
Current Zoning GB Current Use Gas Station
Total Acres 2.11 Surrounding Property Description _____

Proposed Conditional Use GB - Automated Car Wash associated parking and infrastructure

CONTACT INFORMATION

Applicant Name TWAS Properties
Address 124 East Thompson Street
City Thomaston State GA Zip 30286 Phone 706-647-0414
Fax N/A Email martie@shiconstructiongroup.com
Property Owner Name Gate Petroleum Company
Address P O Box 23627
City Jacksonville State FL Zip 32241 Phone 904-229-9472
Fax N/A Email BHamilton@gatepetro.com

APPLICATION CERTIFICATIONS

I hereby certify that I have read this application and the information supplied herein is true and correct to the best of my knowledge. I agree to comply with all applicable County ordinances and state laws related to the use and development of the land. I further certify that I am the property owner, or his/her authorized agent, or the subject property. I understand that falsifying any information herein may result in rejection or denial of this request.

Applicant

Date

Property Owner(s)

Date

Attach owner's notarized written authorization with property information if the applicant is not the owner.

LANCASTER COUNTY OFFICE USE ONLY

Application Number _____ Date Received _____ Receipt Number _____

Amount Paid _____ Check Number _____ Cash Amount _____

Received By _____ Planning Commission Meeting Date _____

SCHEDULE/PROCESS

1. Submit Application

- The deadline for this application is at least 45 days prior to the Planning Commission meeting, held every third Tuesday of the month.
- Once an application is submitted, it is placed on the Planning Commission agenda for the following month.
- An application withdrawal should be made in writing and received prior to public notice in order to receive a refund.
- Conditional Use Application Fee - \$325.00

2. Planning Commission

- Conducts a public hearing on the application to receive input from Lancaster County citizens, applicant, and other interested parties.
- Reviews the application to ensure it is consistent with the Lancaster County Unified Development Ordinance, Comprehensive Plan, and all adopted County plans.
- Makes a recommendation to the County Council.

3. County Council

- Approves, denies, or submits application to the Planning Commission for further study.
- Action requires a resolution for approval.
- Subsequent to County Council action, notice of action will be provided to the applicant,

CONDITIONAL USE PLAN CHECKLIST

- _____ The size of the plan and number of copies should conform to the following: Eight copies that are 24" x 36" (full size) and Two copies that are 11" x 17" (reduced size).
- _____ A descriptive location of the property and vicinity map at a scale of not less than one inch equals one mile.
- _____ Proposed name of the development.
- _____ The date of the survey or plan.
- _____ All plans shall be embossed with the seal and signature of the engineer/surveyor responsible for the work.
- _____ A graphic scale and numerical scale shall be shown on the plan.
- _____ The North arrow shall be shown and be accurately correlated with the courses with indications as to whether it is true, magnetic or grid.
- _____ Total acreage and boundaries of the development shall be shown on the plan.
- _____ All existing and proposed uses of land throughout the tract shall be shown on the plan.
- _____ Topography of the site with a contour interval of not more than 5 feet shall be shown on plan.
- _____ Typical arrangement of existing and proposed buildings and structures, including dimensions, elevations, uses, and setbacks shall be shown on the plan.
- _____ Location of adjoining property lines and existing buildings shall be shown on the plan.
- _____ The names of adjacent landowners, lot and/or block numbers, highways, streets, and named waterways shall be shown.
- _____ All property lines shall be defined by course and horizontal distance. All property lines shall be plotted to the scale shown in the title.
- _____ All easements and rights-of-way of existing and proposed buildings and structures shall be shown and shall include their widths and center lines.
- _____ All existing street intersections shall be shown on the plan.
- _____ Proposed parking areas and traffic circulation shall be shown on the plan.
- _____ Exact ratio of impervious surfaces to lot area shall be shown.
- _____ At a minimum the plan shall include basic landscape information such as the location and dimension of required buffer yards.

owner, and adjacent property owners.

- **Please note that upon approval of a conditional use, the applicant shall subsequently submit a site plan to The Lancaster County Planning Department for review. This site plan shall conform to the site plan process as enumerated in UDO Section 9.2.9 (Site Plan Process Chart)**

February 10, 2023

Lancaster County
Planning Department
101 N. Main Street
Lancaster, SC 29721
Phone: 803.285.6005

RE: Conditional Use Application / "Owner's Notarized written authorization with property information"
Subject Site – 4138 Dobys Bridge Rd
Fort Mill, SC 29707
Tax Parcel ID – 0013-00-015.00

Dear Planning Department,

This letter shall serve as "Owner's Notarized written authorization" to allow TWAS Properties to submit the attached Conditional Use Application for subject site located at 4138 Dobys Bridge Rd, Fort Mill, SC 29707.

Owner: Gate Petroleum Company

By: Becky Hamilton

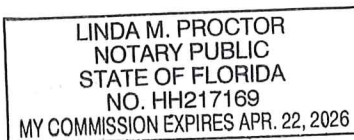
Name: Becky Hamilton

Title: VICE PRESIDENT

Notary Public Linda M. Proctor

My Commission Expires:
(Affix Notary Seal) Sworn to and subscribed before
me this 10th day of February,
2023.

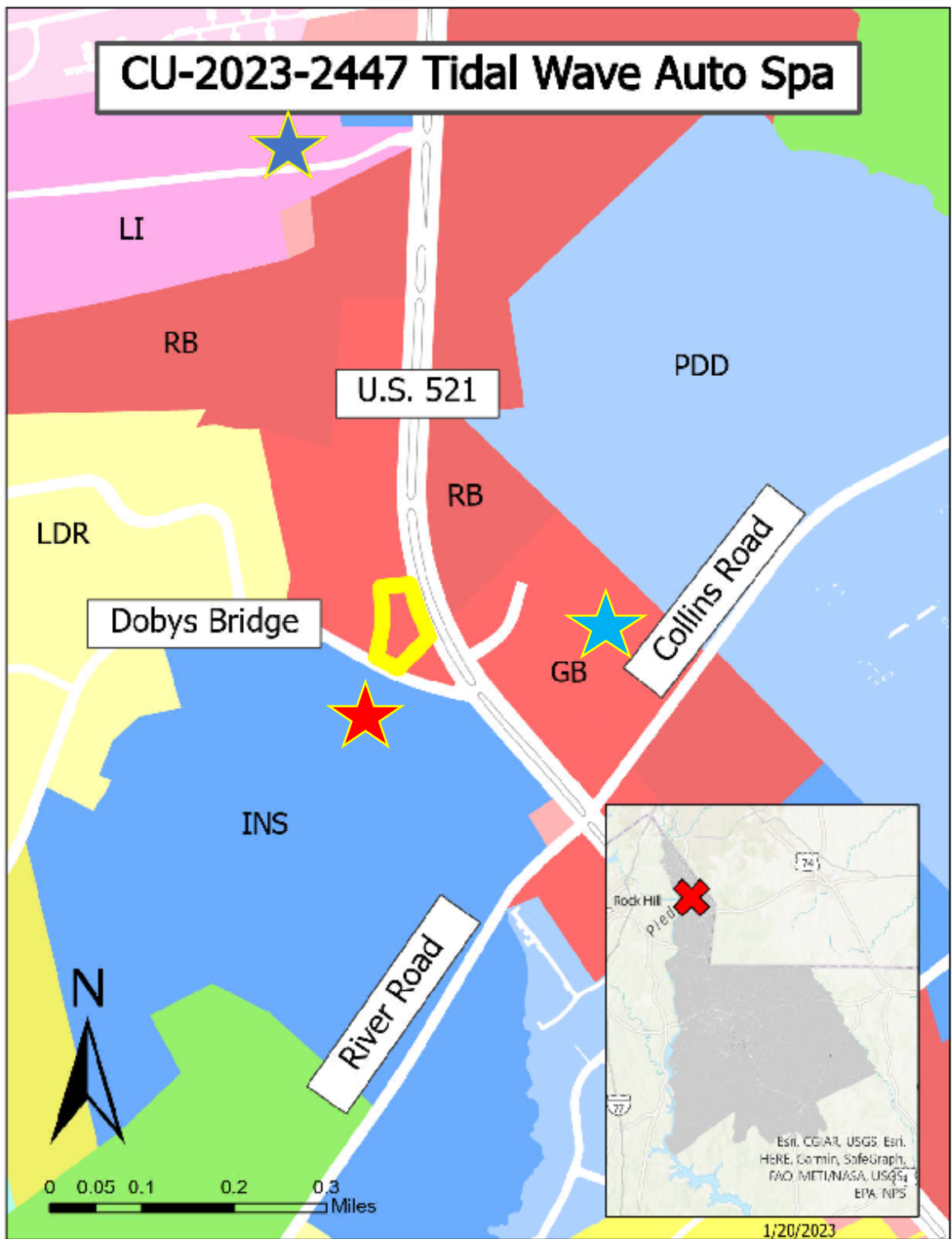
Walter J. Kh
Witness



Thank you,

Becky Hamilton
Gate Petroleum Company
bhamilton@gatepetro.com
904.448.3027 (O)
904.229.9472 (C)

CU-2023-2447 Tidal Wave Auto Spa



Lancaster
County
South Carolina



Subject Property



Perimeter 521
Commercial Park



IL School Schools



Cross Creek/Publix

Proposal:
Conditional Use: Minor
Maintenance & Repair

Agenda Item Summary

Ordinance # / Resolution #: UDO-TA-2023-0188 LCWSD Water Tanks

Contact Person / Sponsor: M. Blaszyk

Department: Planning

Date Requested to be on Agenda: 3/2/2023

Points to Consider:

ATTACHMENTS:

Description	Upload Date	Type
Application	2/17/2023	Exhibit



Planning Department

P.O. Box 1809, 101 N. Main Street, Lancaster, SC 29721
Phone: 803.285.6005, planning@lanastercountysc.net
www.mylanastersc.org

TEXT AMENDMENT APPLICATION

SUBMITTAL REQUIREMENTS

- Completed Application
- Signatures of Applicant
- Fees associated with Application

GENERAL INFORMATION

UDO Section(s) Proposed to be Amended 2.4 Building Height and Setbacks
Current Text Building Height is 35 feet to 60 feet and setbacks 4. For every foot
building height, the developer shall provide setbacks equal to the height of the
building.

Proposed Text Add a footnote to each table. The new footnote reads: Elevated Water
Tanks installed by Lancaster County Water and Sewer District are exempted from
Building Height Requirements and setbacks shall be the setbacks in the chart not
setbacks equal to the height of the building.

Description of Need for Proposed Text Attached

☐ Additional pages attached for more information

CONTACT INFORMATION

Applicant Name Lancaster County Water and Sewer District
Address 1400 Pageland Highway
City Lancaster State SC Zip 29720 Phone 803-416-5523
Fax 803-285-9575 Email bbucy@lcwasd.org

APPLICATION CERTIFICATIONS

I hereby certify that I have read this application and the information supplied herein is true and correct to the best of my knowledge. I agree to comply with all applicable County ordinances and state laws related to the use and development of the land. I further certify that I am the property owner, or his/her authorized agent, or the subject property. I understand that falsifying any information herein may result in rejection or denial of this request.

Applicant Bradley H. Bucy Lancaster County Water & Sewer District Date 1/30/2023
Property Owner(s) Lancaster County Water & Sewer District Date 1/30/2023

Attach owner's notarized written authorization with property information if the applicant is not the owner.

LANCASTER COUNTY OFFICE USE ONLY

Application Number _____ Date Received _____ Receipt Number _____
Amount Paid _____ Check Number _____ Cash Amount _____
Received By _____ Planning Commission Meeting Date _____

SCHEDULE/PROCESS

1. Submit Application

- The deadline for this application is at least 45 days prior to the Planning Commission meeting, held every third Tuesday of the month.
- Once an application is submitted, it is placed on the Planning Commission agenda for the following month.
- An application withdrawal should be made in writing and received prior to public notice in order to receive a refund.
- Text Amendment Application Fee - \$435.00

2. Planning Commission

- Conducts a public hearing on the application to receive input from Lancaster County citizens, applicant, and other interested parties.
- Reviews the application to ensure it is consistent with the Lancaster County Unified Development Ordinance, Comprehensive Plan, and all adopted County plans.
- Makes a recommendation to the County Council.

3. County Council

- Approves, denies, or submits application to the Planning Commission for further study.
- Action requires three readings for approval

Description of Need for Proposed Text: Elevated Tanks are normally 120 to 150 feet tall, and the elevated tank height is dependent on the ground elevation and water system hydraulic grade line. Setbacks shall be the minimum as stated in the 2.4 chart for all zoning districts. Setbacks equal to the height of the building do not apply to Elevated Tanks.

We offer the following information to support the text amendment: Lancaster County Water and Sewer District (LCWSD) charter allows LCWSD to provide water and sewer service to the unincorporated areas of Lancaster County. LCWSD sites elevated water storage tanks based to topographical elevations and water system hydraulics throughout the County which prohibits LCWSD from siting them by zoning district. We simply must site the tank at the best location for system hydraulics and topography considerations. Also, looking for available property is a challenge in high growth areas. LCWSD is subject to SC Department of Health and Environmental Control Regulations which require maintenance of elevated water tanks to meet drinking water standards and elevated tank design and maintenance standards. There will never be a situation where a tank is left standing and in disrepair to become a safety issue. SC DHEC would require the tank to be taken out of service and removed if it became a drinking water liability. Elevated Tanks are designed according to the American Water Works Association (AWWA) Standard D-100 per SC DHEC regulation R.61.58.4C2a. "Steel structures shall be designed in accordance with current AWWA Standard D-100". AWWA Section 4.7 Tank Stability Against Overturning states "The tank stability against overturning shall be checked as outlined in Section 3.8.3, 12.4, and 12.5 with the tank empty and maximum wind load. If applicable, stability under seismic loading shall also be checked with the tank full". The most conservative analysis is applying the wind load with the tank empty and applying the seismic load with the tank full. Section 12.5.1 Overturning stability states "The size of the foundation shall be sufficient to maintain bearing pressures below the ultimate bearing capacity of the soil when subjected to an overturning moment equal to 1.5 times the overturning moment determined for wind or seismic loads". It is required that the safety factor of elevated tank design is very stringent with built in safety factors which far exceed the standard building code. Elevated water tanks are normally operated with substantial water in them (more than ½ full) and are only drained for inspections and maintenance which are highly regulated and monitored events done during appropriate weather conditions.

Elevated Tanks are not occupied structures and building setbacks based on height of building do not apply to Elevated Water Tanks.

Agenda Item Summary

Ordinance # / Resolution #: SD-2021-2450 Pettus Pond

Contact Person / Sponsor: A. Davis

Department: Planning

Date Requested to be on Agenda: 3/2/2023

Points to Consider:

ATTACHMENTS:

Description	Upload Date	Type
Application	2/22/2023	Exhibit
Submittal Cover Letter	2/22/2023	Exhibit
Proposed Plat	2/22/2023	Exhibit
TIA	2/22/2023	Exhibit
Wetland Delineation	2/22/2023	Exhibit
Comments/Response 2021	2/22/2023	Exhibit
Location Map	2/23/2023	Exhibit



MAJOR SUBDIVISION PRELIMINARY PLAT

WHEN TO USE THIS PROCESS, AND WHEN TO USE A DIFFERENT ONE

When to use this checklist:

If either or both of the following circumstances exist, use this checklist or subdivision that front existing streets that include 11 or more acres.

- Creating 5 or more lots for any type of development; or
- Creating new streets or alleys.

APPLICATION AND APPROVAL PROCESS

- **Required Pre-Application Conference:** Please call to schedule a Pre-Application Conference and Sketch Plan review prior to submitting a Preliminary Plat application. Sketch Plans are usually a one-sheet conceptual drawing. Refer to the **Sketch Plan Checklist** for additional information. Pre-Application Conferences will be used to provide an overview of applicable standards and the approval process, as well as feedback on your sketch, if submitted in advance.

Prepare the Preliminary Plat using this checklist and the UDO which is available on our website.

- Submit the following items for plan review.
 - ☐ Project can be submitted online by creating an account at <https://evolvepublic.infovisionsoftware.com/lancaster/?portal=project>
 - ☐ Two (2) paper copies of Preliminary Plat and Supporting Data is required for all submittals over 10 pages.
- Plans will be reviewed by County staff and a notice of revision, if required, will be sent to the designated contact person.
- Most Preliminary Plats require Planning Commission approval, which meets on the 3rd Tuesday of each month. Subsequent to preliminary plat approval, After, Planning Commission approves the plat, you will receive a notification that you can print the stamped digital set from Evolve Project Portal.
- Plans and review must be submitted by 5pm of the first business day of the month. Prior to the Planning Commission meeting, staff will review the plan with the Technical Review Committee.

Upon the approval of a Preliminary Plat, detailed plans for street construction, utility line installations, and similar approvals shall be included in detailed **Civil Construction Plans**. The following will summarize the Preliminary Plat submittal and approval processes.

PROJECT INFORMATION

Project Address/Location: Pettus Farms Rd. Fort Mill, SC 29707

Tax Map ID/Parcel No. 0003-00-051.00; 0003-00-052.00; 0003-00-052.06

Project Description: Single-Family Major Subdivision

Applicant Name: Eastwood Homes

Address: 2587 Westport Rd. Charlotte, NC 28208

Phone: (704)942-7435 Fax: N/A Email: jlesch@eastwoodhomes.com

Property Owner Name: Jane M. Pettus

Address: 1606 Tranquility Blvd. Lancaster, SC 29720

Phone: _____ Fax: _____ Email: _____

Other Project Contacts

Name: Jonathan Murdock

Address: 1186 Stonecrest Blvd. Fort Mill, SC 29708

Phone: (803)802-1799 Fax: N/A Email: JMurdock@rjoeharris.com

Name: _____

Address: _____

Phone: _____ Fax: _____ Email: _____

DocuSigned by:

Joe Polite

E11216BC51C24F4...

Applicant Signature

Property Owner Signature

9/28/2021

Date

Date

PRELIMINARY PLAT CHECKLIST

The following identifies required information to be placed on Preliminary Plat drawings. A list of key requirements has also been provided, however, this checklist should not be used as a substitute to reviewing the UDO.

Upon the approval of a Preliminary Plat, detailed plans for street construction, utility line installations, and similar approvals shall be included in detailed **Civil Construction Plans**. The following will summarize the Preliminary Plat submittal and approval processes.

PROJECT INFORMATION

Project Address/Location: Pettus Farms Rd. Fort Mill, SC 29707

Tax Map ID/Parcel No. 0003-00-051.00; 0003-00-052.00; 0003-00-052.06

Project Description: Single-Family Major Subdivision

Applicant Name: Eastwood Homes

Address: 2587 Westport Rd. Charlotte, NC 28208

Phone: (704)942-7435 Fax: N/A Email: jlesch@eastwoodhomes.com

Property Owner Name: Jane M. Pettus

Address: 1606 Tranquility Blvd. Lancaster, SC 29720

Phone: _____ Fax: _____ Email: _____

Other Project Contacts

Name: Jonathan Murdock

Address: 1186 Stonecrest Blvd. Fort Mill, SC 29708

Phone: (803)802-1799 Fax: N/A Email: JMurdock@rjoeharris.com

Name: _____

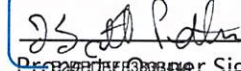
Address: _____

Phone: _____ Fax: _____ Email: _____

Applicant Signature

Date

DocuSigned by:



Property Owner Signature

Scott Pettus, Attorney-In-Fact for Jane Pettus,

9/29/2021 | 8:59 AM PDT

Date

PRELIMINARY PLAT CHECKLIST

The following identifies required information to be placed on Preliminary Plat drawings. A list of key requirements has also been provided, however, this checklist should not be used as a substitute to reviewing the UDO.

Upon the approval of a Preliminary Plat, detailed plans for street construction, utility line installations, and similar approvals shall be included in detailed **Civil Construction Plans**. The following will summarize the Preliminary Plat submittal and approval processes.

PROJECT INFORMATION

Project Address/Location: _____

Tax Map ID/Parcel No. _____

Project Description: _____

Applicant Name: _____

Address: _____

Phone: _____ Fax: _____ Email: _____

Property Owner Name: Anthony D. Haltom Sr.

Address: 10925 Pettus Farm Rd Indian Land, SC 29707

Phone: _____ Fax: _____ Email: _____

Other Project Contacts

Name: _____

Address: _____

Phone: _____ Fax: _____ Email: _____

Name: _____

Address: _____

Phone: _____ Fax: _____ Email: _____

Applicant Signature _____

Date

DocuSigned by:

Anthony D. Haltom Sr.

Property Owner Signature

9/29/2021 | 7:33 AM PDT

Date

PRELIMINARY PLAT CHECKLIST

The following identifies required information to be placed on Preliminary Plat drawings. A list of key requirements has also been provided, however, this checklist should not be used as a substitute to reviewing the UDO.



R. Joe Harris & Associates, Inc.

1186 Stonecrest Blvd., Tega Cay, S.C. 29708
(803) 802-1799

via online submittal
February 10, 2023

Ashley Davis, Sr. Planner
Lancaster County Planning Department
101 N. Main Street
Lancaster, South Carolina 29720

**RE: PETTUS POND – PRELIMINARY PLAT
 MDR Conventional Subdivision – 99 Lots
 Resubmittal of Preliminary Plat**

RJH Project #5396

Dear Ms. Davis:

On behalf of Eastwood Homes (applicant) and the property owners, we are resubmitting the following documents for Lancaster County's review and consideration:

1. Pettus Pond Preliminary Plat dated/signed 2/10/2023 by Patrick L. Murphy, PE
2. Copy of Draft TIA dated 1/16/2023 (this will be uploaded separately by Kimley Horn Associates)
3. Copy of Previously Submitted Major Subdivision Preliminary Plat Application as signed by Eastwood Homes, Jane Pettus and Anthony Haltom
4. Major Subdivision/Preliminary Plat Application Fee of \$2,775.00 (RJH Check #8609) – this will be hand delivered to the Planning Department by RJH

I would like to remind the Planning Department of the history of this project and reason for resubmittal as follows:

- A. Rezoning with an MDR Conventional Concept Plan was approved by County Council on August 23, 2021 (Concept Plan showed the layout proposed on the Preliminary Plat with 99 lots)
- B. Preliminary Plat was originally submitted on October 14, 2021 with comments issued by the County on November 9, 2021
 - Major Subdivision/Preliminary Plat Fee of \$2,775.00 was submitted and accepted by Lancaster County (RJH Check #7919)
- C. Upon issuance of comments issued by Lancaster County dated November 9, 2021, we were notified that LCWSD had adopted a policy that 'subdivision cannot be approved until downstream sewer infrastructure is in place and the notice of capability and capacity is obtained from LCWSD'.
- D. When we initially reached out to LCWSD, they had suggested that it was not meant to hold up Preliminary Plats with understanding they could not give final approval to construction drawings until the downstream infrastructure had been completed. It's our recollection this was communicated to the senior planner (Robert Tefft) and that he would verify with LCWSD.
- E. It's our understanding that LCWSD does not have a formal written policy enforcing such a policy and that such a policy was not enforced on prior projects (such as Patterson Preserve).

- F. Subsequently, both Lancaster County and LCWSD provided notice that project would not be able to proceed due to the downstream sewer infrastructure being incomplete and apparent agreement between the entities to not allow projects relying on downstream sewer infrastructure by others from being processed.
- G. This resulted in Lancaster County suspending review of the project and then cancelling/removing the Preliminary Plat submission from the Online Portal.
- H. Eastwood Homes opted to wait out the completion of the downstream sewer improvements with information provided by LCWSD that the improvements were anticipated to be completed by end of 2022. Eastwood Homes released RJH on October, 2022 to again prepare the Preliminary Plat submittal and have ready for submittal once the downstream sewer improvements had been completed and placed into operation.
- I. Due to circumstances beyond the control of Eastwood Homes, the downstream sewer improvements have not yet been completed and was notified at the end of 2022 by LCWSD that it may be March/April of 2023 until the improvements were complete (downstream sewer improvements by Sugar Creek Development).
- J. Eastwood Homes was made aware that the Planning Commission took and made recommendations to the Unified Development Ordinance (UDO) that would make changes to the MDR Zoning District which would contravene the original the original MDR Rezoning Concept Plan that was presented to the Lancaster County Council during its approval of the property to MDR Zoning.
- K. Eastwood Homes has endured significant expenses related to the rezoning of the property and preparation of the Preliminary Plat in accordance with Lancaster County's standards and practices.
- L. It is believed that Eastwood Homes has certain rights to be able to complete the development in reliance of the conceptual rezoning plan that was provided during the rezoning and subsequent Preliminary Plat submittal provided on October 14, 2021.
- M. The proposed UDO Amendments affecting the MDR Zoning District could be interpreted, if approved and implemented against this project, as making the project infeasible.
- N. Eastwood Homes is requesting that this submitted Preliminary Plat be accepted for continuing review with the proviso that the Preliminary Plat approval be contingent upon the approval of the downstream sewer improvements.
- O. Eastwood Homes will consider voluntarily entering into a Development Agreement or other mechanism to secure approval of this project outside of the parameters of an amended UDO.

On Eastwood Homes behalf, we request that Lancaster County continue review of this project under the current, approved Unified Development Ordinance as a MDR Conventional Subdivision.

If you should have any questions, please contact me at (803) 802-1799 or via email at brandonpridemore@rjoe-harris.com.

Sincerely,
R. JOE HARRIS & ASSOCIATES, INC.



Brandon S. Pridemore
Vice President & Lead Development Consultant

cc via Email: Joe Lesch – Eastwood Homes
Mike Kemp – Eastwood Homes
Patrick Murphy – R. Joe Harris

**Traffic Impact Analysis UPDATE for
Pettus Farm Development
Lancaster County, South Carolina**



Prepared for:

**Eastwood Development Corporation
Charlotte, North Carolina**

Prepared by:

**Kimley-Horn and Associates, Inc.
200 South Tryon Street, Suite 200
Charlotte, North Carolina 28202
(704) 333-5131**

**January 2023
013248004**

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1.0 Executive Summary

The purpose of this Traffic Impact Analysis (TIA) UPDATE is to review vehicular traffic impacts as a result of the proposed Pettus Farm development. The primary objectives of the study are:

- To estimate trip generation and distribution for the proposed development.
- To perform intersection capacity analyses for the identified study area.
- To determine the potential traffic impacts of the proposed development.
- To develop recommendations for needed roadway and operational improvements to accommodate the proposed development's traffic impacts.

The proposed site is located north of the Pettus Road/Camp Cox Circle intersection in Lancaster County, South Carolina. As currently envisioned, the proposed development consists of 99 single-family homes expected to be built-out in 2027, whereas in the 5-21-21 TIA completion was planned for 2026. Based on the site plan, access to the site is proposed via a full-movement connection to Pettus Road aligned with Camp Cox Circle, consistent with the TIA. A future connection to the Patterson Preserve development is also planned.

Per the Lancaster County Unified Development Ordinance (UDO) Section 6.8, the impact of the development was analyzed for the year after the development is expected to be at full occupancy. Therefore, this TIA evaluates the traffic operations under 2022 existing conditions, 2028 background conditions (without the proposed development), and 2028 build-out conditions (with the proposed development) during the AM and PM peak hours. Through coordination with Lancaster County and South Carolina Department of Transportation (SCDOT) staff, the following study intersections are included:

1. Barberville Road and Harrisburg Road
2. Barberville Road and Pettus Road
3. Barberville Road and SC 160 (Fort Mill Highway)

For purposes of this study, Barberville Road is referenced as east/west at its intersections with Harrisburg Road and Pettus Road and is referenced as north/south at its intersection with SC 160 (Fort Mill Highway).

Kimley-Horn was retained to determine the potential traffic impacts of this development (in accordance with the traffic study guidelines in the *SCDOT Access and Roadside Management Standards (ARMS)* and the Lancaster County UDO Section 6.8), and to identify transportation improvements that may be required to accommodate these impacts.

Based on the analyses contained herein, the following improvements are recommended as developer mitigation:

- Construction of a westbound right-turn lane along Barberville Road at Pettus Road with 100 feet of storage.
- Construct the Site Access with a 55-foot internal protected stem (IPS) and stop sign.
- Per prior coordination with SCDOT, improvements to Pettus Road will be necessary to bring the pavement width and asphalt depth to an acceptable standard, along with the installation of a stop sign.

All additions and attachments to State and County roadway system shall be properly permitted, designed, and constructed in conformance to standards maintained by the agencies. It is noted

that the site-civil engineer is responsible for confirming that the proposed access points meet current spacing and sight distance standards.

2.0 Introduction

The proposed site is located north of the Pettus Road/Camp Cox Circle intersection in Lancaster County, South Carolina. **Figure 2.1** shows the site location.

As currently envisioned, the proposed development consists of 99 single-family homes expected to be built-out in 2027, whereas in the 5-21-21 TIA completion was planned for 2026. Based on the site plan, access to the site is proposed via a full-movement connection to Pettus Road aligned with Camp Cox Circle. A future connection to the Patterson Preserve development is also planned. The proposed unit count and access is consistent with the TIA.

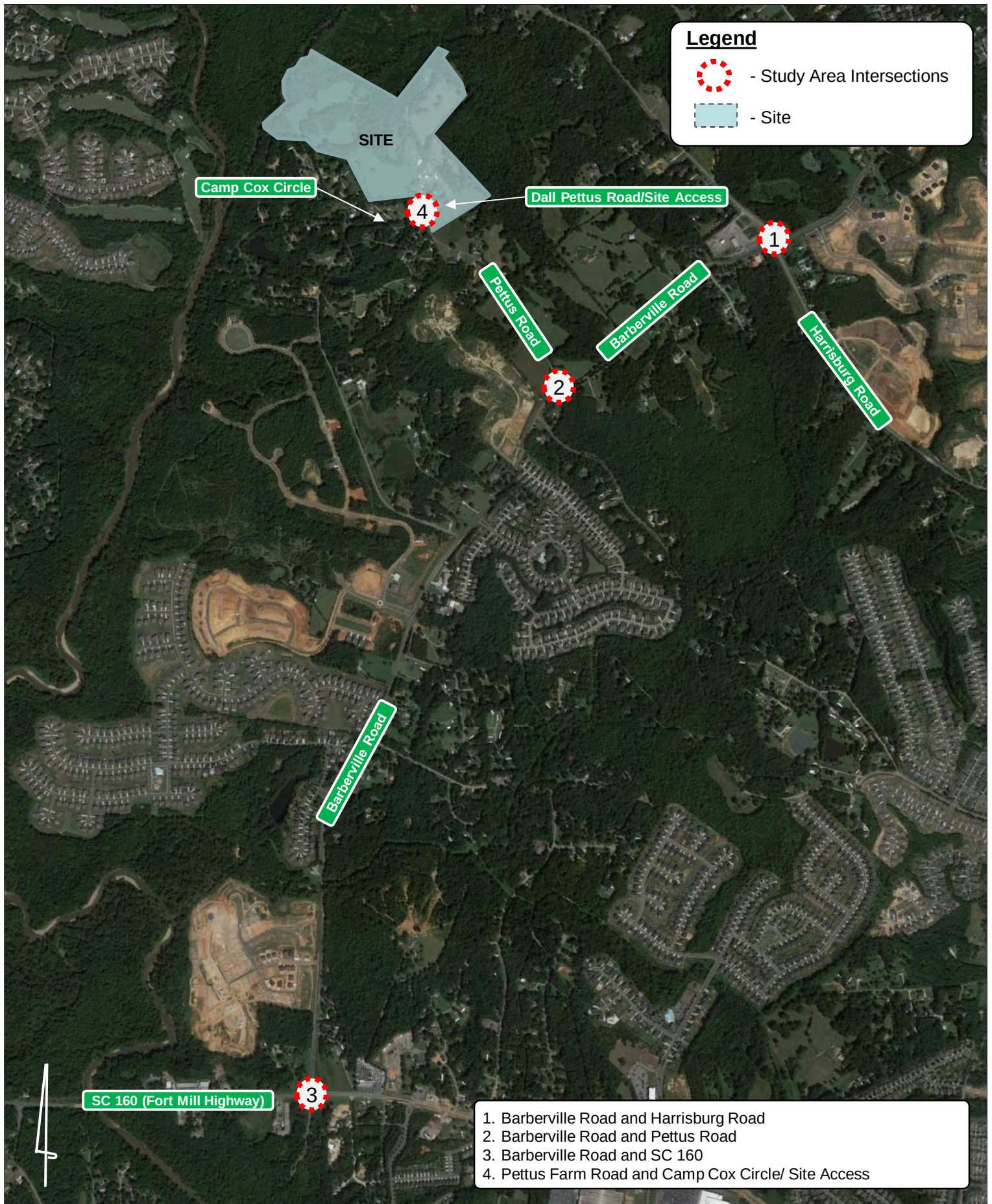
Figure 2.2 shows the proposed site plan for the development.

Per the Lancaster County UDO Section 6.8, the impact of the development was analyzed for the year after the development is expected to be at full occupancy. Therefore, this TIA evaluates the traffic operations under 2022 existing conditions, 2028 background conditions (without the proposed development), and 2028 build-out conditions (with the proposed development) during the AM and PM peak hours. Through coordination with Lancaster County and South Carolina Department of Transportation (SCDOT) staff, the following study intersections are included:

1. Barberville Road and Harrisburg Road
2. Barberville Road and Pettus Road
3. Barberville Road and SC 160 (Fort Mill Highway)

For purposes of this study, Barberville Road is referenced as east/west at its intersections with Harrisburg Road and Pettus Road and is referenced as north/south at its intersection with SC 160 (Fort Mill Highway).

Kimley-Horn was retained to determine the potential traffic impacts of this development (in accordance with the traffic study guidelines in the *SCDOT ARMS* and the Lancaster County UDO Section 6.8) and to identify transportation improvements that may be required to accommodate these impacts.



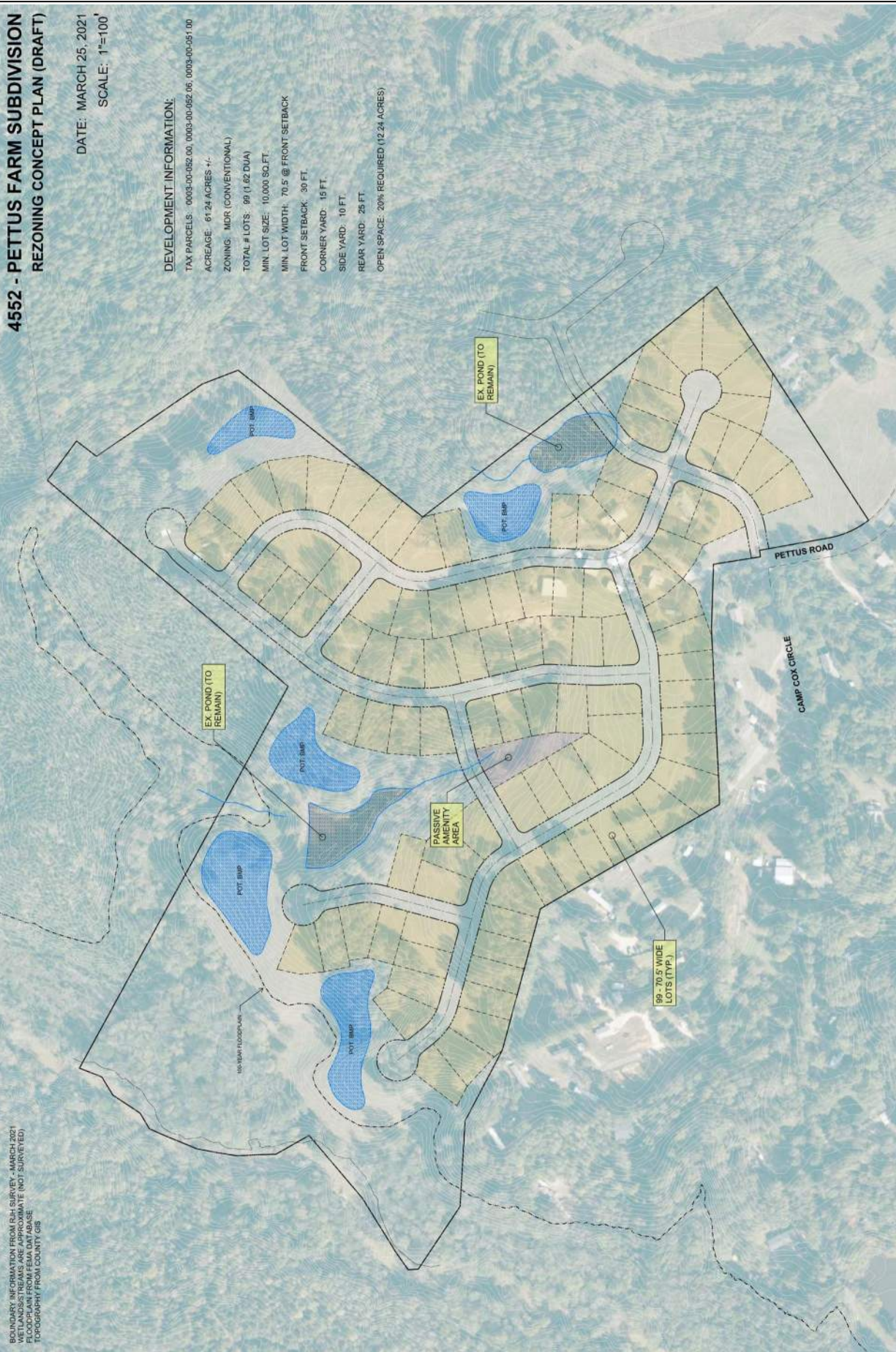
**4552 - PETTUS FARM SUBDIVISION
REZONING CONCEPT PLAN (DRAFT)**

DATE: MARCH 25, 2021
SCALE: 1"=100'

DEVELOPMENT INFORMATION:

TAX PARCELS: 0003-00362-00, 0003-00362-05, 0003-00361-00
ACREAGE: 61.24 ACRES +/-
ZONING: MDR (CONVENTIONAL)
TOTAL # LOTS: 99 (182 DUA)
MIN. LOT SIZE: 10,000 SQ. FT.
MIN. LOT WIDTH: 70.5' @ FRONT SETBACK
FRONT SETBACK: 30 FT.
CORNER YARD: 15 FT.
SIDE YARD: 10 FT.
REAR YARD: 25 FT.
OPEN SPACE: 20% REQUIRED (12.24 ACRES)

BOUNDARY INFORMATION FROM G&H SURVEY - MARCH 2021
WETLANDS/STREAMS ARE APPROXIMATE (NOT SURVEYED)
FLOODPLAIN FROM FEMA DATABASE
TOPOGRAPHY FROM COUNTY GIS



3.0 Existing Traffic Conditions

Existing traffic conditions were coordinated with Lancaster County and SCDOT staff and collected through field observations and turning-movement counts to establish the existing conditions baseline analysis.

3.1 STUDY AREA

The study area for this TIA consists of the following intersections:

1. Barberville Road and Harrisburg Road
2. Barberville Road and Pettus Road
3. Barberville Road and SC 160 (Fort Mill Highway)

Figure 3.1 shows the current roadway geometry at the study intersections. The primary roadways in the vicinity of the site are described in **Table 3.1** in terms of 2021 SCDOT annual average daily traffic (AADT) volumes in vehicles per day (vpd) available online, facility type and state functional classifications, and posted speed limits in miles per hour (mph).

Table 3.1- Study Area Roadways

Roadway	Section type	2021 AADT	Posted speed limit
Barberville Road	2-lane undivided major collector	8,000 N of SC 160	40 mph
Harrisburg Road	2-lane undivided major collector	6,400 N of Barberville 5,700 S of Barberville	40 mph
SC 160 (Fort Mill Highway)	2-lane undivided principal arterial	15,800 E of York County Line	45 mph
Pettus Road	2-lane undivided local road	Not Available	Not Posted (25 mph assumed)

3.2 EXISTING TRAFFIC CONDITIONS

AM (7:00-9:00) and PM (4:00-6:00) peak-period intersection turning-movement counts were collected by National Data & Surveying Services on Thursday, March 18, 2021 at the following intersections:

- Barberville Road and Harrisburg Road
- Barberville Road and Pettus Road
- Barberville Road and SC 160 (Fort Mill Highway)

In accordance with SCDOT's Revised Guidance for conducting Traffic Impact Studies during COVID19 (7-29-2020), March 2021 TMCs were factored up by 12% to account for changes in traffic patterns associated with the COVID-19 pandemic and grown an additional 4% for one year to represent existing 2022 volumes per the discussion in Section 4.1.

Volume balancing was not performed between the study area intersections due to the presence of streets/driveways.

Figure 3.2 shows the 2022 existing AM and PM peak-hour traffic volumes. Raw peak-hour intersection turning-movement count data is provided in the **Appendix**.

LEGEND

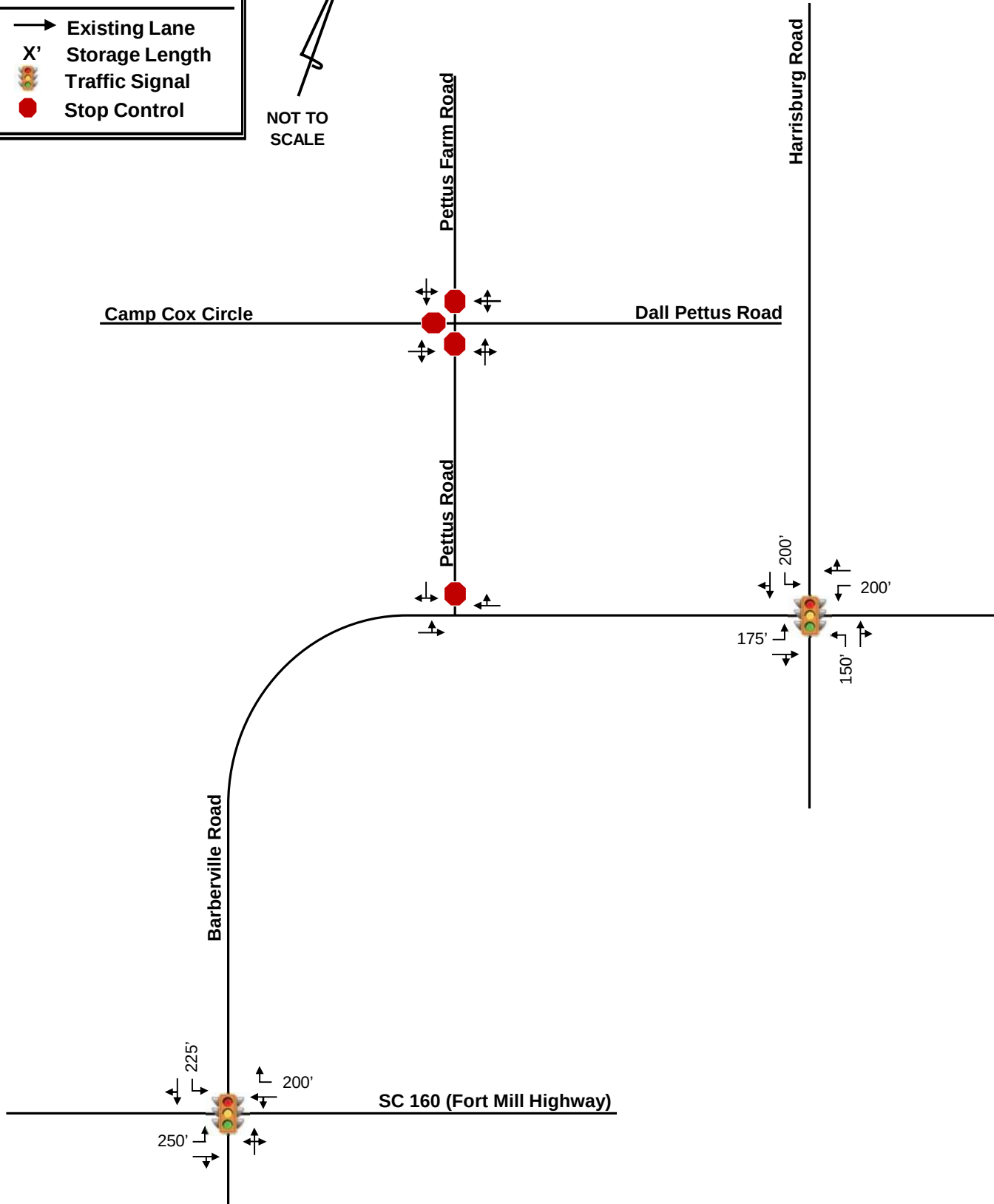
Existing Lane

X' Storage Length

Traffic Signal

Stop Control

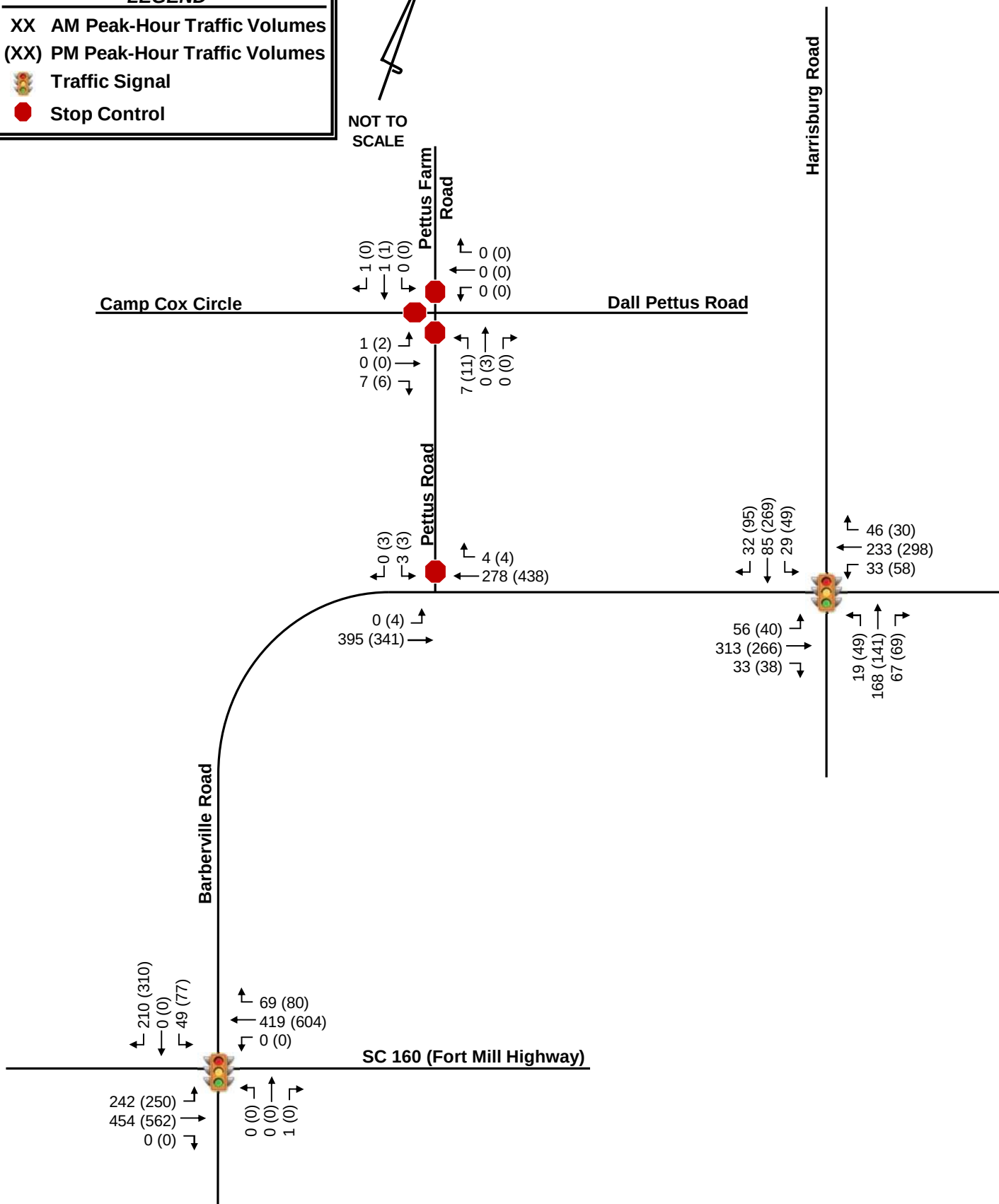
NOT TO SCALE



LEGEND

XX AM Peak-Hour Traffic Volumes
(XX) PM Peak-Hour Traffic Volumes
 Traffic Signal
 Stop Control


NOT TO SCALE



4.0 Background Traffic Conditions

Projected background (non-project) traffic is defined as the expected growth or change in traffic volumes on the surrounding roadway network between the year the existing counts were collected and the expected build-out year absent the construction and opening of the proposed project. This includes both non-specific general growth based on historical increase in local traffic volumes (historical growth) and specific growth in traffic volumes caused by specific approved developments within the relative vicinity of the proposed development.

4.1 HISTORICAL GROWTH TRAFFIC

Historical growth is the increase in existing traffic volumes due to usage increases and non-specific growth throughout the area, and accounts for growth that is independent of specific approved off-site developments or planned transportation projects. Historical growth traffic is calculated using an annual growth rate, which is applied to the existing traffic volumes up to the future horizon year. Based on coordination with SCDOT and Lancaster County staff, the existing 2022 peak-hour traffic volumes were grown by an annual growth rate of 4% per year to the study's 2028 horizon year. Growth rate calculations can be seen in Table 4.1.

Table 4.1- Historical Growth Rate Calculations

SCDOT AADT					
	2019	2015	2009	Growth Rate (2015-2019)	Growth Rate (2009-2019)
Harrisburg Road (N of Barberville)	6,500	6,000	-	2.0%	-
Harrisburg Road (S of Barberville)	7,600	5,800	-	7.0%	-
Barberville Road (N of SC 160)	6,300	5,800	3,800	2.1%	5.2%
Average				3.7%	5.2%

4.2 APPROVED OFFSITE DEVELOPMENT TRAFFIC

Based on agency coordination, seven approved offsite developments within the vicinity of this study area were included in the 2028 background traffic. Each of these had associated approved TIAs. These developments, land uses and intensities, build-out percentages, and committed improvements are outlined in **Table 4.2**.

Offsite approved development traffic volumes were taken directly from each respective TIA and factored as appropriate give the approximate build-out percentages. Existing intersection splits were used to carry and assign volumes appropriately at study area intersections that were not included in the approved TIAs. Approved development data and calculations are included in the **Appendix**.

Table 4.2 – Approved Off-Site Developments

Development	Land Use/Intensity	% Built (2022*/2028)	Build- out Year	TIA	Required Improvements
Patterson Preserve	180 single family homes	0%/100%	2024	2-19	Harrisburg Rd/Barberville Rd -WBR w/125'
Harrisburg Rd Residential (Sugar Creek)	540 single family homes 235 townhomes	0%/100%	2023	10-18	Harrisburg Rd/Barberville Rd -Second EBL w/350' each -NB receiving lane w/1,000' -Extend NBL to 300' -Extend SBL to 250' -SBR w/150' -Perm/prot SBL phasing -Prot EBL phasing
Redwood Apartments	157 apartments	0%/100%	2024	8-20	No improvements within the study area
Covington	328 single family homes	40%/100%	2019	6-14	No improvements within the study area
Chateau Ridge	131 single family homes	0%/100%	2023	7-18 12-18	Harrisburg Rd/Barberville Rd -EBR w/100'
Patterson Property	53 single family homes	0%/100%	2020	10-17	No improvements within the study area
Lodges at Indian Land	329 apartments 124 townhomes	0%/100%	2022	12-19	No improvements within the study area

*Percentages based on review of available January 2021 Nearmap aerials

4.3 PLANNED TRANSPORTATION PROJECTS

Based on coordination with SCDOT and Lancaster County staff, SC 160 (Fort Mill Highway) had been planned to be widened to three lanes between the York County line and Rosemont Drive and to five lanes between Rosemont Drive and Possum Hollow Road. The SC 160 widening project was under construction as indicated in the TIA, planned to be completed by 2021. However, based on the SCODT provided roadway plans, no laneage changes were proposed at the study area intersections as part of the project.

4.4 2028 BACKGROUND TRAFFIC

2028 background traffic consists of existing 2022 traffic, 2028 historical growth traffic, and approved development traffic. **Figures 4.1 and 4.2** show the 2028 background AM and PM peak-hour traffic volumes, respectively.

LEGEND

XX Existing + Historic Growth Traffic

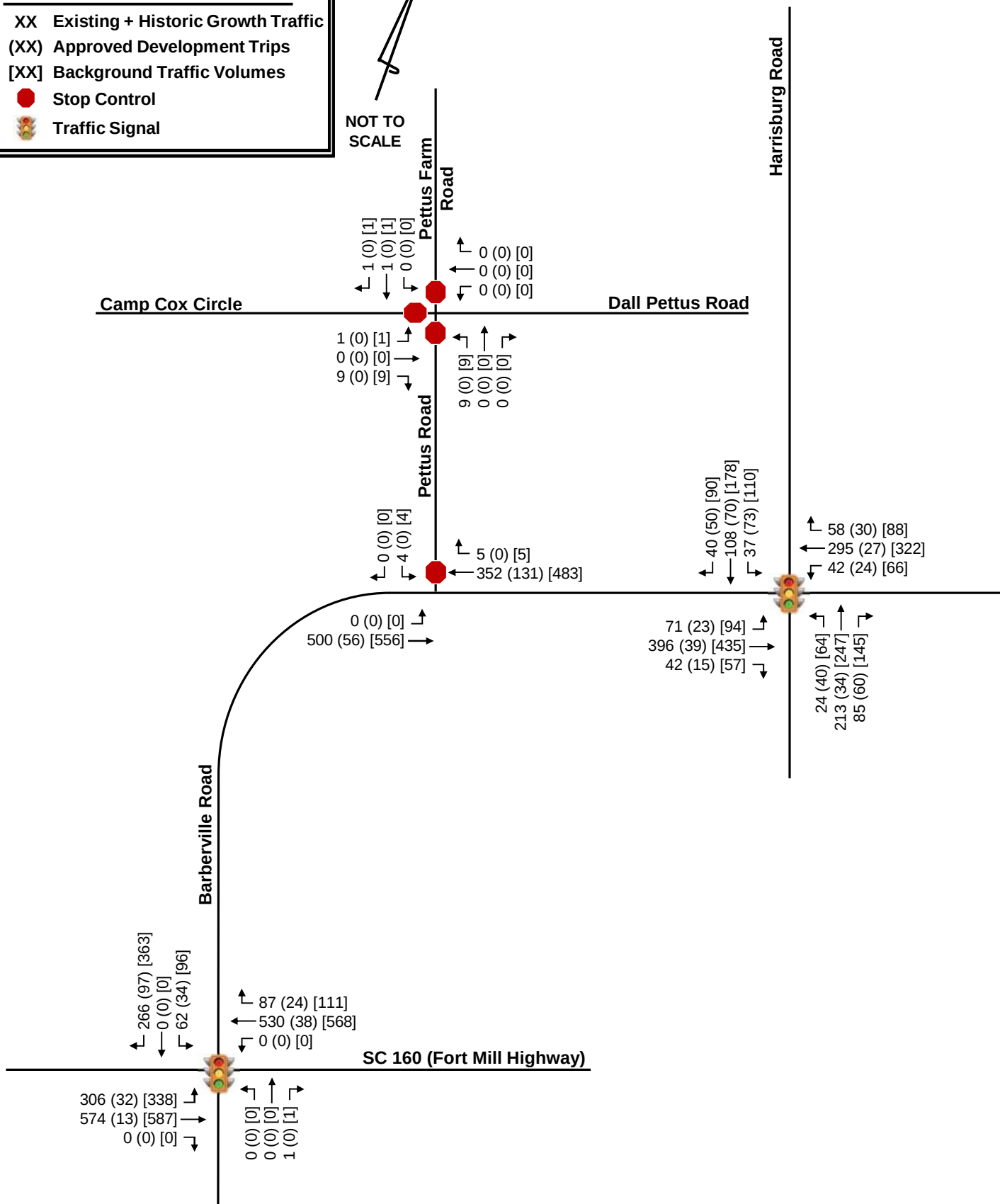
(XX) Approved Development Trips

[XX] Background Traffic Volumes

● Stop Control

🚦 Traffic Signal

NOT TO SCALE



LEGEND

XX Existing + Historic Growth Traffic

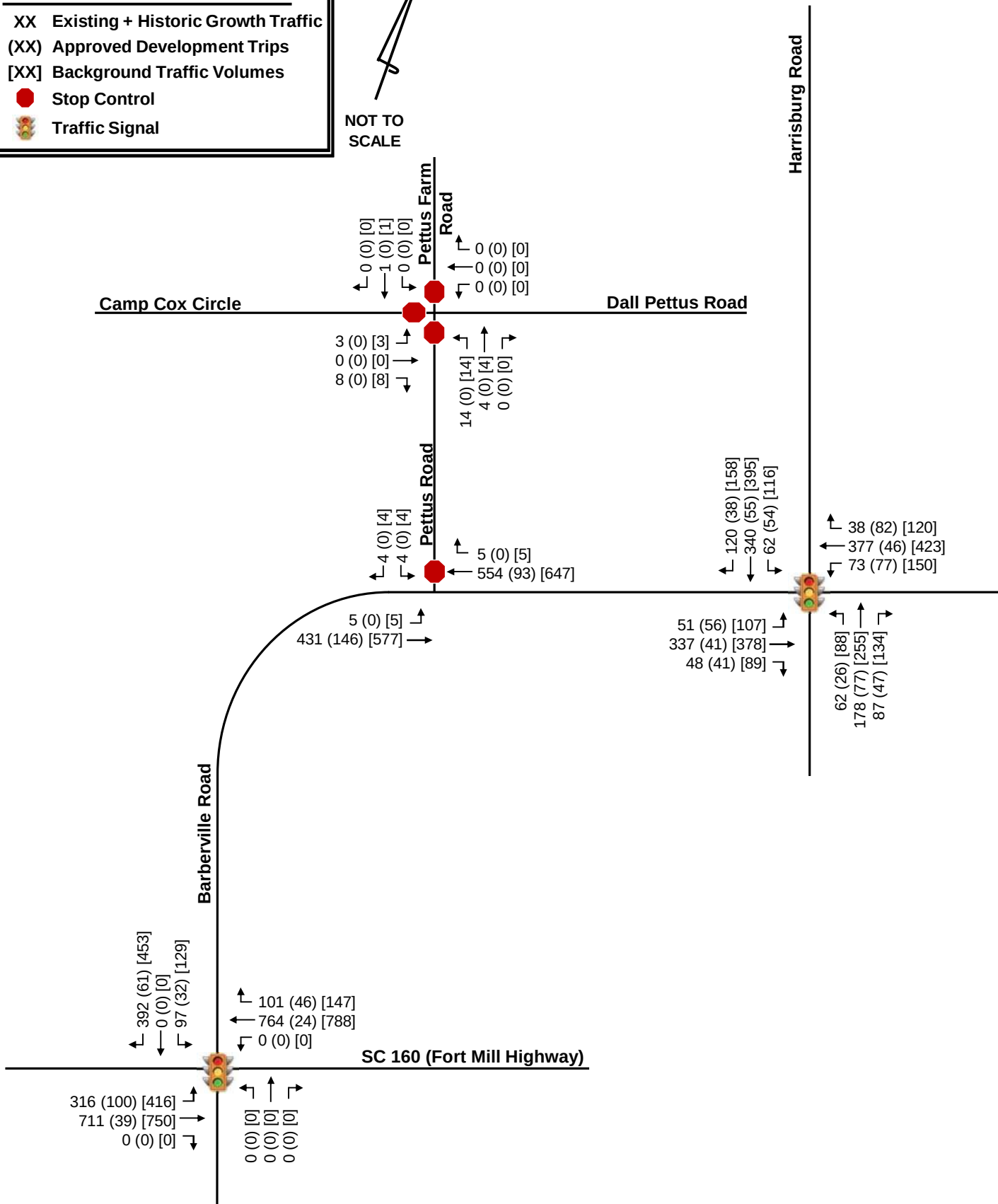
(XX) Approved Development Trips

[XX] Background Traffic Volumes

● Stop Control

🚦 Traffic Signal

NOT TO SCALE



5.0 Site Traffic Volume Development

Site traffic developed for this TIA is defined as the vehicle trips expected to be generated and added to the study area by the construction of the proposed development, and the distribution and assignment of that traffic within the identified study area.

5.1 TRAFFIC GENERATION

The traffic generation potential of the proposed development was determined using the trip generation rates published in *Trip Generation* (Institute of Transportation Engineers, 10th Edition for consistency with the original TIA) for 99 single-family homes.

Table 5.1 summarizes the projected trip generation for the proposed development.

Table 5.1 - Trip Generation										
ITE LUC	Land Use	Intensity		Daily	AM Peak Hour			PM Peak Hour		
					Total	In	Out	Total	In	Out
210	Single-Family Homes	99	DU	1,030	75	19	56	101	64	37

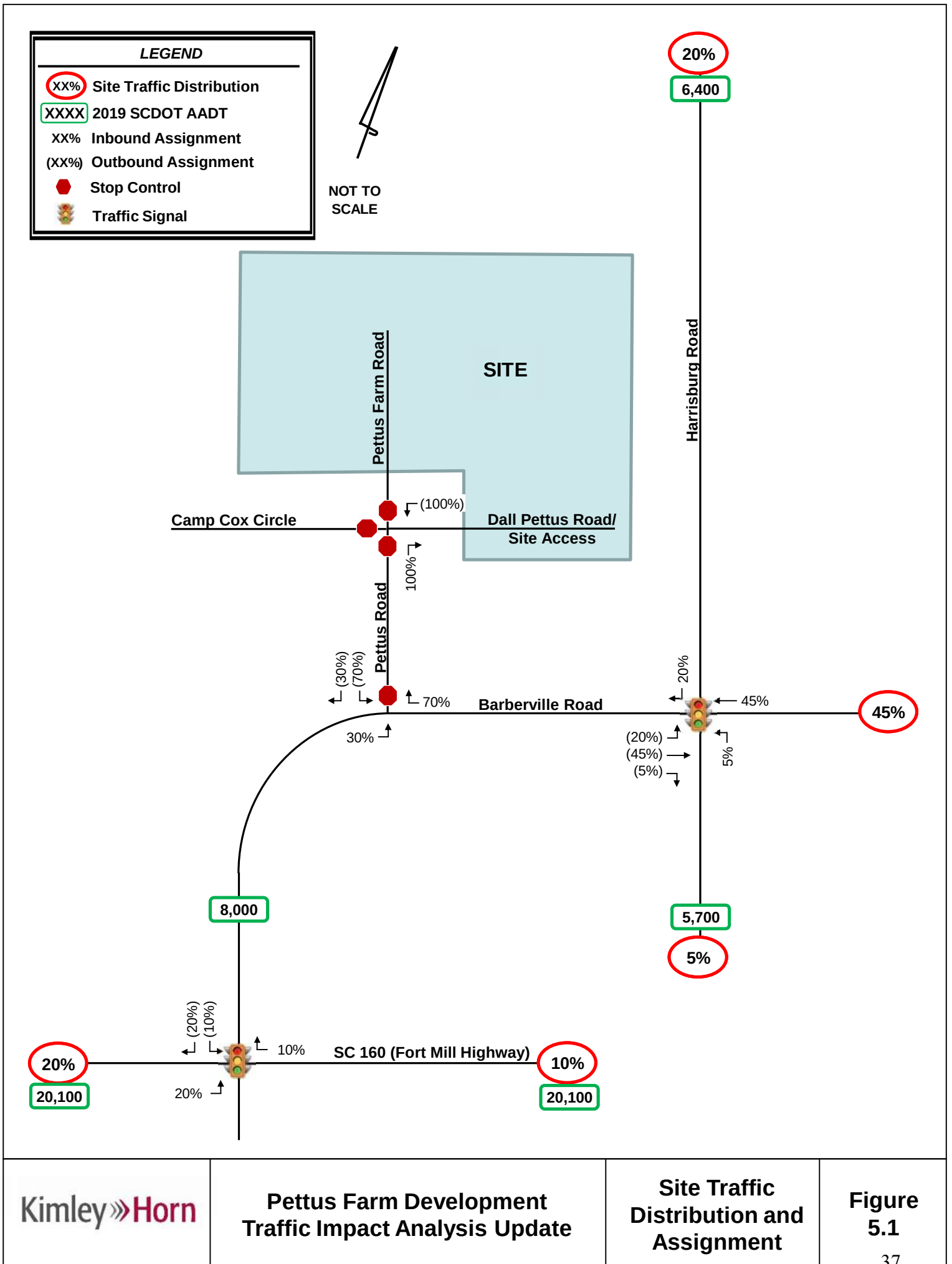
5.2 SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT

The proposed development's trips were assigned to the surrounding network based on AADT data, approved development distribution, and the proposed site layout. The overall site traffic distribution and assignment, approved by SCDOT and Lancaster County staff, are shown in **Figure 5.1**.

5.3 2028 BUILD-OUT TRAFFIC VOLUMES

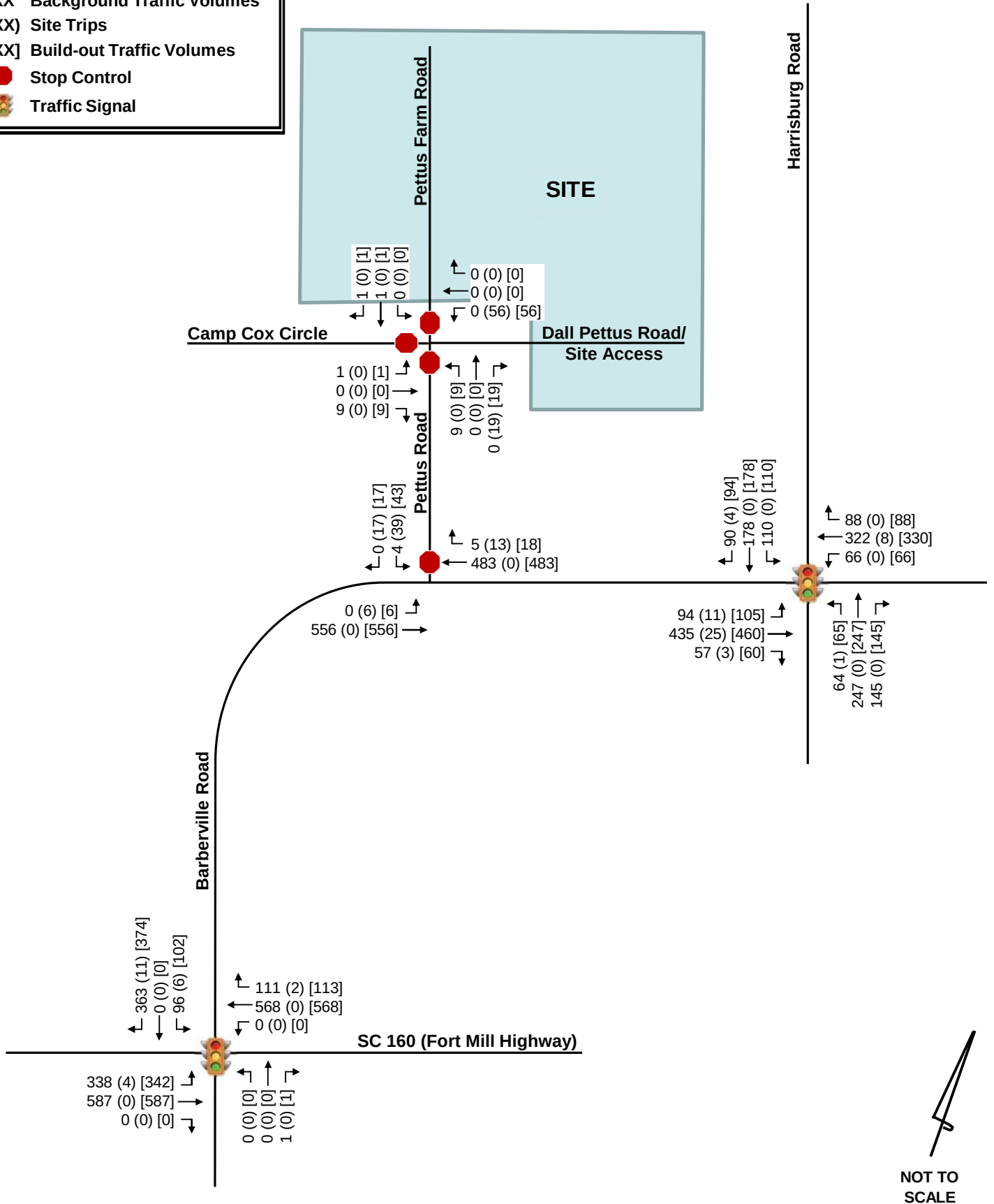
The 2028 build-out traffic volumes include the assignment of the projected site traffic generation and 2028 background traffic volumes. **Figures 5.2 and 5.3** show the projected 2028 build-out traffic volumes for the AM and PM peak-hours, respectively.

Intersection volume development worksheets for study area intersections are provided in the **Appendix**.



LEGEND

- XX Background Traffic Volumes
- (XX) Site Trips
- [XX] Build-out Traffic Volumes
- Stop Control
- 🚦 Traffic Signal



NOT TO SCALE

LEGEND	
XX	Background Traffic Volumes
(XX)	Site Trips
[XX]	Build-out Traffic Volumes
	Stop Control
	Traffic Signal



6.0 Capacity Analysis

Capacity analyses were performed for the AM and PM peak hours using Synchro Version 11 software to determine the operating characteristics at the signalized and stop-controlled intersections of the adjacent street network and to evaluate the impacts of the proposed development. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment, or through a particular intersection, within a specified period of time under prevailing operational, geometric and controlling conditions within a set time duration.

The *Highway Capacity Manual* (HCM) defines level of service (LOS) as a “quantitative stratification of a performance measure or measures representing quality of service”, and is used to “translate complex numerical performance results into a simple A-F system representative of travelers’ perceptions of the quality of service provided by a facility or service”. The HCM defines six levels of service, LOS A through LOS F, with A having the best operating conditions from the traveler’s perspective and F having the worst. However, it must be understood that “the LOS letter result hides much of the complexity of facility performance”, and that “the appropriate LOS for a given system element in the community is a decision for local policy makers”. According to the HCM, “for cost, environmental impact, and other reasons, roadways are typically designed not to provide LOS A conditions during peak periods but instead to provide some lower LOS that balances individual travelers’ desires against society’s desires and financial resources. Nevertheless, during low-volume periods of the day, a system element may operate at LOS A.”

LOS for a two-way stop-controlled (TWSC) intersection is determined by the control delay at the side-street approaches, typically during the highest volume periods of the day, the AM and PM peak periods. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. With respect to field measurements, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time the vehicle departs from the stop line. It is typical for stop sign-controlled side streets and driveways intersecting major streets to experience long delays during peak hours, particularly for left-turn movements. The majority of the traffic moving through the intersection on the major street experiences little or no delay.

LOS for all-way stop-controlled (AWSC) intersections are also determined by the control delay and reported for each stop-controlled approach, using the same control delay thresholds as the TWSC intersections. However, if the volume-to-capacity ratio on an approach of the intersection is greater than 1.0, that approach is reported as LOS F regardless of the reported control delay.

LOS for signalized intersections is reported for the intersection as a whole, also typically during the highest volume periods of the day, the AM and PM peak periods. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Table 6.0-A and **6.0-B** list the LOS control delay thresholds published in the HCM for unsignalized and signalized intersections, respectively, as well as the unsignalized operational descriptions assumed herein.

Table 6.0-A Level-of-Service Control Delay Thresholds for Unsignalized Intersections		
Level-of-Service	Average Control Delay per Vehicle [sec/veh]	
A	≤ 10	Short Delays
B	$> 10 - 15$	
C	$> 15 - 25$	
D	$> 25 - 35$	Moderate Delays
E	$> 35 - 50$	
F	> 50	Long Delays

Table 6.0-B Level-of-Service Control Delay Thresholds for Signalized Intersections	
Level-of-Service	Control Delay per Vehicle [sec/veh]
A	≤ 10
B	$> 10 - 20$
C	$> 20 - 35$
D	$> 35 - 55$
E	$> 55 - 80$
F	> 80

SCDOT staff provided signal plans for the signalized study area intersections of Barberville Road with Harrisburg Road and SC 160 (Fort Mill Highway), which were used in the development of the existing conditions Synchro network. The cycle lengths, splits and offsets included in the SCDOT-provided time of day plans for the coordinated intersection of SC 160 (Fort Mill Highway) and Barberville Road were used for the existing conditions network. Under future year conditions, cycle lengths at the coordinated signal were maintained and the splits were optimized with the planned signalization changes associated with the SC 160 widening project. The cycle lengths and splits at the uncoordinated Barberville Road and Harrisburg Road intersection were optimized under each scenario. Signal plans for both intersections are included in the **Appendix**.

Peak hour factors (PHFs) were taken directly from the count data for the existing conditions scenario. A PHF of 0.9 was assumed for future year analyses during the AM and PM peak hours. Heavy vehicle percentages were taken directly from field observations, subject to a two-percent minimum.

Capacity analyses were performed for the 2022 existing traffic conditions, 2028 background traffic conditions, and 2028 build-out traffic conditions. Reports generated by Synchro software are included in the **Appendix**. SimTraffic queueing/blocking reports for the build-out improved scenario are also included in the **Appendix**.

Mitigation for traffic impacts caused by the proposed development were noted and recommended based on Lancaster County and SCDOT mitigation requirements. When determining the proposed development's traffic impact to the study area intersections, the 2028 background and 2028 build-out conditions were compared. Based on Lancaster County guidelines "for collector or local streets, Level-of-Service (LOS) C or better shall be maintained. On any arterial or higher order street, a LOS D or better shall be maintained...Where the existing LOS is below these standards, the traffic

impact analysis shall identify those improvements required to ensure that development related traffic demands result in no net reduction in LOS, and identify additional improvements needed to raise the level of service to the standards on the applicable street to the adopted LOS standard.” For the purposes of this TIA, the capacity analyses identifying additional improvements needed to raise the LOS to the adopted standards is referred to as “Build IMP Target LOS.” Based on the SCDOT ARMS Manual, the TIA ‘should include proposed improvements or access management techniques that will mitigate any significant changes in the levels of service.’ For the purposes of this TIA, “significant changes” were assumed where the overall intersection or stop-controlled approach delay increases by more than 25% or drops by one or more LOS grade between 2028 background and 2028 build-out conditions.

6.1 BARBERVILLE ROAD AND HARRISBURG ROAD

Table 6.1 summarizes the LOS, control delay, and 95th percentile queue lengths at the signalized intersection.

Table 6.1 - Baberville Road and Harrisburg Road													
Condition	Measure	EB			WB			NB		SB			Intersection LOS (Delay)
		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBTR	SBL	SBT	SBR	
AM Peak Hour													
2022 Existing	LOS (Delay)	A (8.7)			A (7.9)			B (14.2)		A (9.9)			A (9.8)
	Synchro 95th C	19'	99'	-	13'	75'	-	12'	86'	19'	44'	-	
2028 Background	LOS (Delay)	C (22.1)			C (30.2)			D (41.1)		B (12.9)			C (26.9)
	Synchro 95th C	48'	279'	5'	67'	#294'	0'	63'	#371'	70'	105'	20'	
2028 Build-out	LOS (Delay)	C (23.1)			C (30.8)			D (41.4)		B (13.0)			C (27.3)
	Synchro 95th C	53'	300'	6'	68'	#304'	0'	64'	#371'	70'	105'	21'	
PM Peak Hour													
2022 Existing	LOS (Delay)	B (12.0)			B (12.6)			B (10.9)		B (18.1)			B (13.8)
	Synchro 95th C	20'	109'	-	27'	122'	-	29'	74'	25'	#150'	-	
2028 Background	LOS (Delay)	C (21.3)			D (35.2)			D (40.5)		B (17.8)			C (28.1)
	Synchro 95th C	60'	245'	24'	149'	#413'	20'	94'	#399'	83'	280'	37'	
2028 Build-out	LOS (Delay)	C (21.5)			D (43.9)			D (53.9)		B (18.8)			C (33.5)
	Synchro 95th C	63'	252'	24'	147'	#444'	20'	99'	#411'	85'	286'	39'	
Background Storage		350'		100'	200'		125'	300'		250'		150'	
# 95th percentile volume exceeds capacity, queue may be longer													

95th percentile volume exceeds capacity, queue may be longer

Table 6.1 shows that the overall intersection currently operates at LOS A during the AM peak hour and LOS B during the PM peak hour. As noted in Section 4.2, the following improvements are planned at this intersection prior to 2028 as part of approved off-site developments:

- Westbound right-turn lane along Barberville Road with 125 feet of storage
- Second eastbound left-turn lane along Barberville Road to create dual eastbound left-turn lanes with 350 feet of storage each
- Second northbound receiving lane with a minimum of 1,000 feet of storage
- Southbound right-turn lane with 150 feet of storage
- Eastbound right-turn lane with 100 feet of storage
- Extension of the northbound left-turn lane to include 300 feet of storage
- Extension of the southbound left-turn lane to include 250 feet of storage
- Implementation of permitted-protected phasing on the southbound left-turn movement and protected-only phasing on the eastbound left-turn movements

With these improvements in place under 2028 background and build-out conditions, the overall intersection is expected to operate at LOS C during both peak hours. Since the proposed development is not expected to have a significant impact on overall intersection operations, no developer improvements are recommended at this intersection.

6.2 BARBERVILLE ROAD AND PETTUS ROAD

Table 6.2 summarizes the LOS, control delay, and 95th percentile queue lengths at the unsignalized intersection.

Table 6.2 - Barberville Road and Pettus Road						
Condition	Measure	EB	WB		SB	Intersection
		EBLT	WBT	WBR	SBLR	LOS (Delay)
AM Peak Hour						
2022 Existing	LOS (Delay)	A (0.0)	A (0.0)		C (15.3)	-
	Synchro 95th Q	0'	0'	-	3'	
2028 Background	LOS (Delay)	A (0.0)	A (0.0)		C (21.9)	-
	Synchro 95th Q	0'	0'	-	3'	
2028 Build-out	LOS (Delay)	A (0.1)	A (0.0)		C (24.2)	-
	Synchro 95th Q	0'	0'	-	25'	
2028 Build-out IMP WBR	LOS (Delay)	A (0.1)	A (0.0)		C (24.0)	-
	Synchro 95th Q	0'	0'	0'	25'	
PM Peak Hour						
2022 Existing	LOS (Delay)	A (0.2)	A (0.0)		C (15.9)	-
	Synchro 95th Q	0'	0'	-	3'	
2028 Background	LOS (Delay)	A (0.1)	A (0.0)		C (23.4)	-
	Synchro 95th Q	0'	0'	-	3'	
2028 Build-out	LOS (Delay)	A (0.4)	A (0.0)		E (38.6)	-
	Synchro 95th Q	3'	0'	-	33'	
2028 Build-out IMP WBR	LOS (Delay)	A (0.4)	A (0.0)		E (36.8)	-
	Synchro 95th Q	3'	0'	0'	30'	
2028 Build-out IMP Traffic Signal	LOS (Delay)	A (5.1)	A (5.6)		B (15.1)	A (5.7)
	Synchro 95th Q	201'	250'	-	31'	

As shown in Table 6.2, the stop-controlled southbound approach of Pettus Road currently operates with short delays during both peak hours and is expected to continue to operate with short delays during both peak hours under 2028 background conditions. When the proposed site traffic is added to the 2028 background conditions, the stop-controlled southbound approach is expected to operate with short delays during the AM peak hour and moderate delays during the PM peak hour.

Per Lancaster County guidelines, LOS C or better should be maintained for collector or local streets. Given the expected drop in southbound approach LOS below Lancaster County's identified standard during the PM peak hour, identification of mitigation improvements is required. The following improvement was considered to potentially mitigate the impact of the proposed site:

- Construction of a westbound right-turn lane along Barberville Road with 100 feet of storage.

With this improvement in place, the stop-controlled southbound approach delay is expected to decrease while continuing to operate beyond the identified LOS standard during the PM peak hour. In the 5-21-21 TIA, the addition of a westbound right-turn lane caused the background LOS C to drop to a LOS D (from build-out LOS E) since the 2027 build-out delay was closer to the 35-second delay demarcation point between LOS D and LOS E. However, in the 2028 build-out improved

scenario with the westbound right-turn lane in place, the southbound approach is expected to continue to operate at LOS E due to the additional 4% increase in volumes in moving from the 2027 to 2028 horizon year. Therefore, consideration was given to the addition of a southbound right-turn lane as well to further reduce the impact of the proposed site during the PM peak hour. With both turn lanes in place, the stop-controlled southbound approach delay would be expected to improve to LOS D during the PM peak hour; however, with a minimal delay decrease by approximately four seconds and only 15 right-turning vehicles during the PM peak hour, the addition of a southbound right-turn lane is not recommended.

A change in operational control, such as a traffic signal, would be needed to improve operations at this intersection to the LOS C target. With a traffic signal in place, the overall intersection would be expected to operate at LOS A with each approach operating LOS B or better during the PM peak hour. However, based on a preliminary peak-hour signal warrant assessment (Warrant 3), neither peak hour is expected to satisfy the warrant criteria. Therefore, a signal is not recommended as mitigation for the Pettus Farm development.

The westbound right-turn lane is also recommended as a warranted auxiliary lane based on Section 7. Its storage length of 100 feet is based on Synchro 95th percentile queues, SimTraffic maximum queues, and SCDOT ARMS manual minimums.

6.3 BARBERVILLE ROAD AND SC 160 (FORT MILL HIGHWAY)

Table 6.3 summarizes the LOS, control delay, and 95th percentile queue lengths at the signalized intersection.

Table 6.3 - Barberville Road and SC 160 (Fort Mill Highway)									
Condition	Measure	EB		WB		NB	SB		Intersection
		EBL	EBTR	WBLT	WBR	NBLTR	SBL	SBTR	LOS (Delay)
AM Peak Hour									
2022 Existing	LOS (Delay)	A (6.6)		B (12.3)		A (0.0)	B (15.6)		A (9.9)
	Synchro 95th Q	117'	237'	346'	8'	0'	75'	0'	
2028 Background	LOS (Delay)	B (11.5)		C (27.2)		A (0.0)	B (16.4)		B (17.7)
	Synchro 95th Q	255'	385'	#775'	29'	0'	133'	0'	
2028 Build-out	LOS (Delay)	B (12.9)		C (29.0)		A (0.0)	B (18.0)		B (19.3)
	Synchro 95th Q	283'	391'	#750'	27'	0'	139'	17'	
PM Peak Hour									
2022 Existing	LOS (Delay)	A (6.8)		B (14.3)		A (0.0)	B (18.2)		B (12.0)
	Synchro 95th Q	84'	218'	466'	10'	0'	106'	13'	
2028 Background	LOS (Delay)	B (17.6)		F (111.5)		A (0.0)	C (21.9)		D (51.3)
	Synchro 95th Q	381'	423'	#1169'	44'	0'	165'	80'	
2028 Build-out	LOS (Delay)	C (23.4)		F (103.8)		A (0.0)	D (35.7)		D (54.0)
	Synchro 95th Q	#567'	514'	#1054'	21'	0'	159'	240'	
Existing/Background Storage		250'			200'		225'		
# 95th percentile volume exceeds capacity, queue may be longer									

As shown in Table 6.3, the intersection currently operates at LOS A during the AM peak hour and LOS B during the PM peak hour.

Under 2028 background conditions, the overall intersection is expected to operate at LOS B during the AM peak hour and LOS D during the PM peak hour. When the proposed site traffic is added to the 2028 background conditions, the overall intersection is expected to continue to operate at LOS B during the AM peak hour and LOS D during the PM peak hour. It should be noted that in order to achieve an overall LOS D in the PM build scenario, a six-second adjustment to the splits to provide additional green time to the westbound through movement was made.

Since the proposed development is not expected to have a significant impact on overall intersection operations, no developer improvements are recommended at this intersection.

6.4 PETTUS FARM ROAD AND CAMP COX CIRCLE/SITE ACCESS

Table 6.4 summarizes the LOS, control delay, and 95th percentile queue lengths at the unsignalized intersection.

Table 6.4 - Pettus Farm Road and Camp Cox Circle/Site Access					
Condition	Measure	EB	WB	NB	SB
		EBLTR	WBLTR	NBLTR	SBLTR
AM Peak Hour					
2022 Existing	LOS (Delay)	A (8.2)	A (0.0)	A (7.2)	A (6.7)
	SimTraffic Max Q	64'	0'	32'	47'
2028 Background	LOS (Delay)	A (8.2)	A (0.0)	A (7.2)	A (6.7)
	SimTraffic Max Q	66'	0'	32'	53'
2028 Build-out	LOS (Delay)	A (8.3)	A (7.5)	A (6.9)	A (6.8)
	SimTraffic Max Q	65'	52'	52'	48'
PM Peak Hour					
2022 Existing	LOS (Delay)	A (7.5)	A (0.0)	A (7.4)	A (7.0)
	SimTraffic Max Q	59'	0'	56'	18'
2028 Background	LOS (Delay)	A (7.5)	A (0.0)	A (7.4)	A (7.0)
	SimTraffic Max Q	50'	0'	54'	18'
2028 Build-out	LOS (Delay)	A (7.7)	A (7.6)	A (7.2)	A (7.1)
	SimTraffic Max Q	49'	51'	63'	23'

As shown in Table 6.4, all of the stop-controlled approaches currently operate with short delays during both peak hours and are expected to continue to operate with short delays during both peak hours under 2028 background conditions. When the proposed site traffic is added to the 2028 background conditions, all the approaches are expected to continue to operate with short delays during both peak hours. Since the proposed development is not expected to have a significant impact on overall intersection operations, no developer improvements are recommended at this intersection for capacity purposes.

Based on the SCDOT ARMS Manual, the minimum throat length of unsignalized intersections with one exit lane is 30 feet. The SimTraffic maximum queue length is expected to be 52 feet. Therefore, a 55-foot internal protected stem (IPS), along with the installation of a stop sign, is recommended along the Site Access.

7.0 Auxiliary Turn Lane Warrants

Warrants for additional turn-lane improvements for unsignalized intersections beyond those necessary for capacity were determined based on a review of the figures 15.5A and 15.5G found on pages 15.5 (3) and 15.5 (9) in the *2003 SCDOT Highway Design Manual*. The results of the warrants for left and right-turn lanes under 2028 background and build-out conditions are summarized below and included in the **Appendix**.

The following turn lanes are warranted under 2028 background conditions:

Barberville Road and Pettus Road

- Eastbound left-turn lane should be considered

The following turn lanes are warranted under 2028 build-out conditions:

Barberville Road and Pettus Road

- Eastbound left-turn lane should be considered
- Westbound right-turn lane should be considered

As noted in Section 6.2, a westbound right-turn lane with 100 feet of storage is recommended for capacity purposes at this intersection.

Since the eastbound left-turn lane is warranted under both background and build-out conditions, the turn lane is not recommended to be constructed as part of the Pettus Farm development.

8.0 Conclusions

Based on the analyses contained herein, the following transportation improvements are recommended as developer mitigation:

- Construction of a westbound right-turn lane along Barberville Road at Pettus Road with 100 feet of storage.
- Construct the Site Access with a 55-foot IPS and stop sign.
- Per prior coordination with SCDOT, improvements to Pettus Road will be necessary to bring the pavement width and asphalt depth to an acceptable standard, along with the installation of a stop sign.

The recommended developer mitigation is shown in **Figure 8.1**. The transportation improvements for the study intersections are subject to approval by SCDOT and Lancaster County. All additions and attachments to State and County roadway system shall be properly permitted, designed, and constructed in conformance to standards maintained by the agencies.

LEGEND

Existing Lane

X' Storage Length

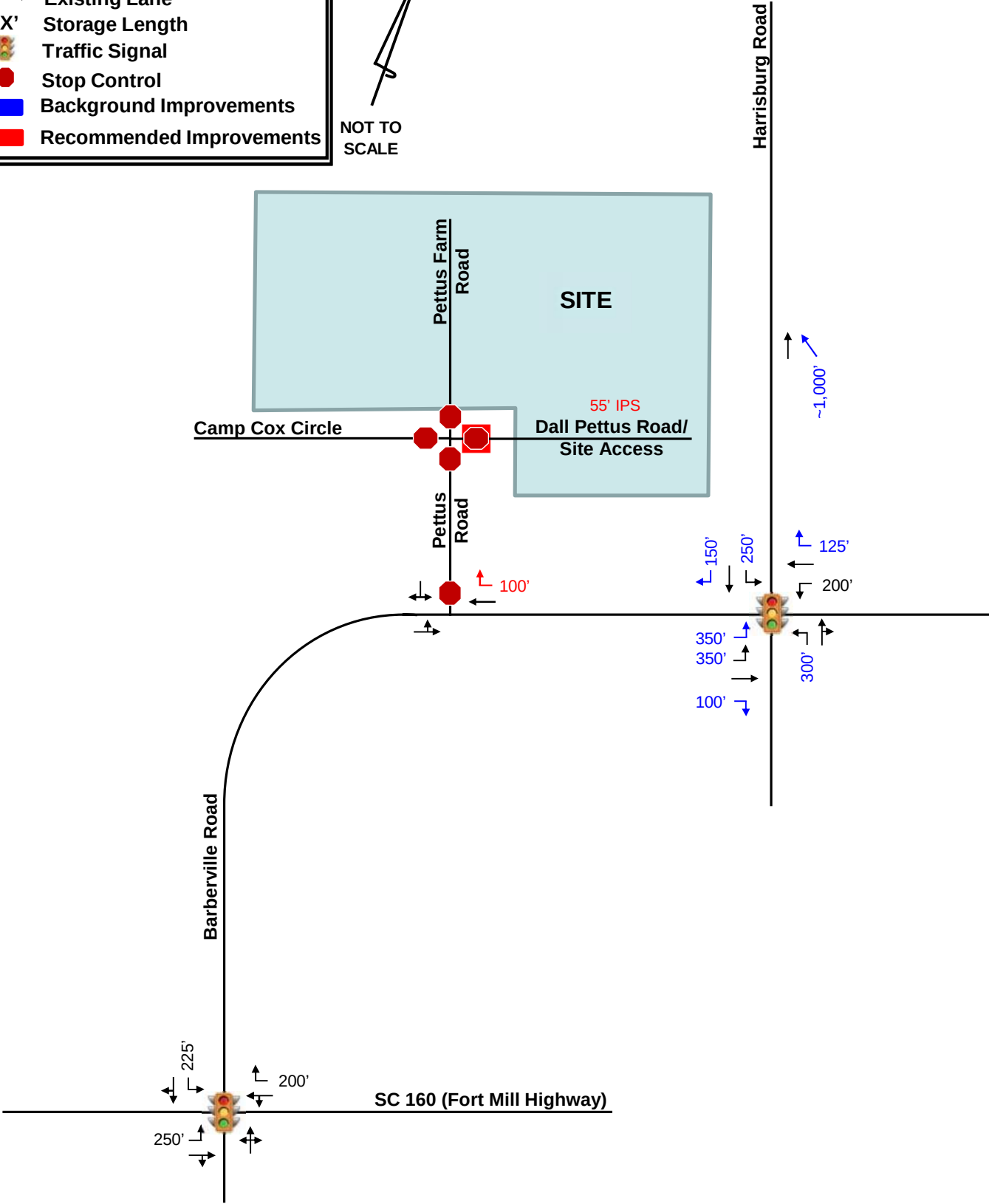
Traffic Signal

Stop Control

Background Improvements

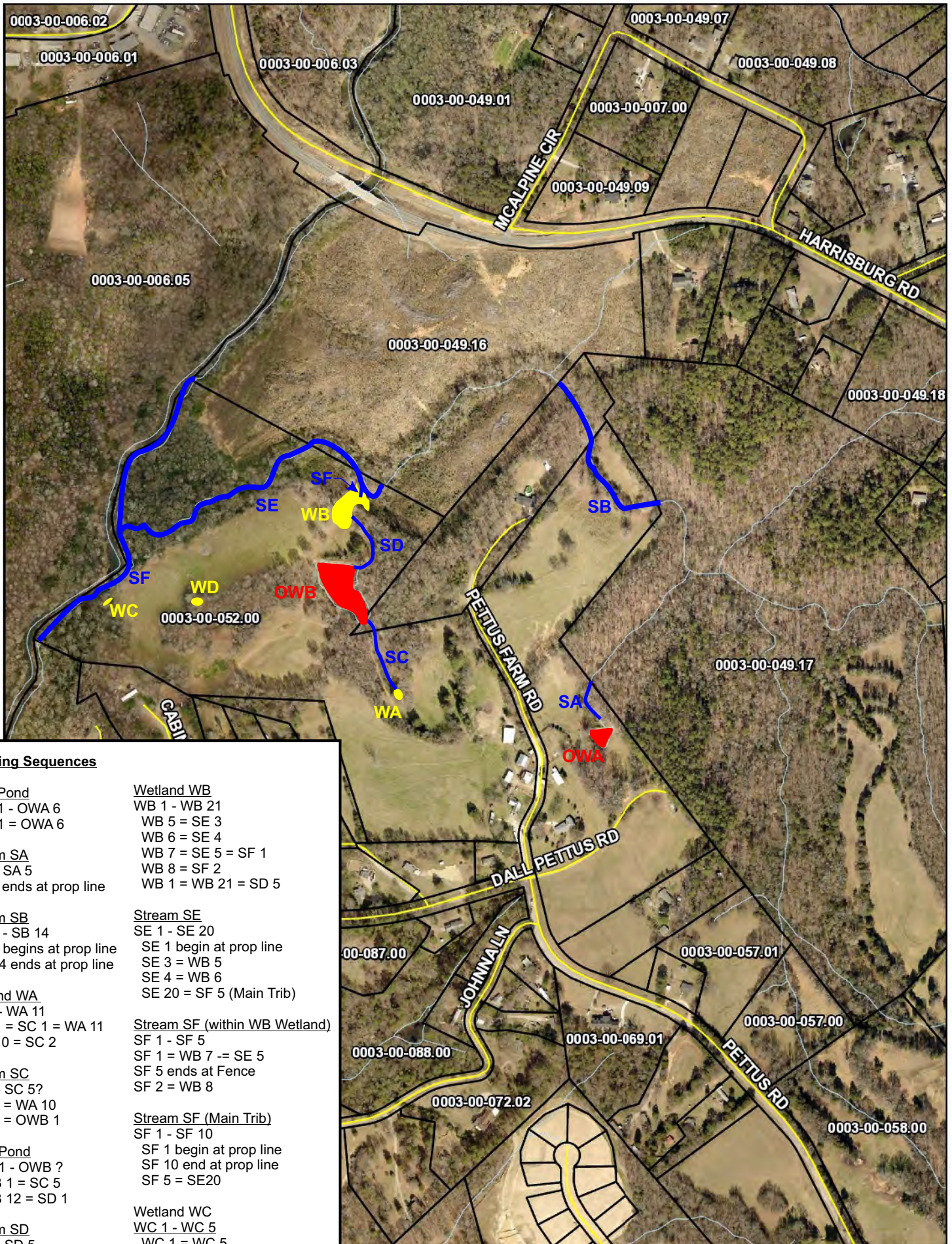
Recommended Improvements

NOT TO SCALE



Appendix

Pettus Farm Site Flagging Sequences



Flagging Sequences

OWA Pond
OWA 1 - OWA 6
OWA 1 = OWA 6

Stream SA
SA 1 - SA 5
SA 5 ends at prop line

Stream SB
SB 1 - SB 14
SB 1 begins at prop line
SB 14 ends at prop line

Wetland WA
WA 1 - WA 11
WA 1 = SC 1 = WA 11
WA 10 = SC 2

Stream SC
SC 1 - SC 5?
SC 2 = WA 10
SC 5 = OWB 1

OWB Pond
OWB 1 - OWB ?
OWB 1 = SC 5
OWB 12 = SD 1

Stream SD
SD 1 - SD 5
SD 1 = OWB 12
SD 5 = WB 1 = WB 21

Wetland WB
WB 1 - WB 21
WB 5 = SE 3
WB 6 = SE 4
WB 7 = SE 5 = SF 1
WB 8 = SF 2
WB 1 = WB 21 = SD 5

Stream SE
SE 1 - SE 20
SE 1 begin at prop line
SE 3 = WB 5
SE 4 = WB 6
SE 20 = SF 5 (Main Trib)

Stream SF (within WB Wetland)
SF 1 - SF 5
SF 1 = WB 7 -- SE 5
SF 5 ends at Fence
SF 2 = WB 8

Stream SF (Main Trib)
SF 1 - SF 10
SF 1 begin at prop line
SF 10 end at prop line
SF 5 = SE 20

Wetland WC
WC 1 - WC 5
WC 1 = WC 5

Wetland WD (Excluded)
WD 1 - WD 6
WD 1 = WD 6

Pettus Pond Preliminary Comments
Response to Comments
Date of Comments: November 9, 2021
Date of Response: December 7, 2021

County Engineer - Stephen Blackwelder - 8035482406
sblackwelder@lancastersc.net

General Comments:

1. We appreciate the level of detail provided in this sketch plan. Obviously more detailed comments can be provided once the construction documents are developed. The preliminary nature of this plan does not provide adequate detail to formally comment, but the following are items of note from the information given and a visit to the site to determine existing conditions.

2. A Traffic Impact Analysis (TIA) will be required.

[The TIA is included with this Preliminary Plat submittal.](#)

3. Is there a plan to improve any of the roadways leading to this development? Pettus Road, Camp Cox Circle, and Tillman Steen Road

[Pettus Road will be widened per the TIA that is included with this submittal. We've submitted a preliminary plan to SCDOT and have received verbal approval on a widened cross section.](#)

4. Per Lancaster County Water and Sewer District policy- this subdivision cannot be approved for construction until downstream sewer infrastructure is in place and the notice of capability and capacity from the LCWSD is obtained.

[Noted.](#)

5. A wetlands delineation study needs to be conducted. We suspect several springs exist in the area of the existing ponds.

[Wetland delineation map is included with this submittal.](#)

6. Any impacts to wetlands and/or stream crossings will need to be permitted through the US Army Corp of Engineers. This can be a lengthy process.

[Permits will be applied for in any case of wetland/stream crossing impact.](#)

7. The minimum lots area is stated to be 10,000 sq. ft. There are two lots under that amount if the parcel area table.

[Lot 47 and 53 have been updated to the minimum area requirement.](#)

8. There is no turnaround on the terminus of Hayfield Terrace. Does this stub out toward the adjacent parcel 0003-00-049.17 line up with any proposed streets on that property?

Pettus Pond Preliminary Comments

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A temporary turnaround has been put in place.

9. Does the stub out toward the adjacent parcel 0003-00-049.16 line up with any proposed streets on that property?

There is no current plan for development of this parcel that we are aware of. This stub was requested by Robert Taft during the pre-submittal meeting to serve as a potential future development connection.

E911 Address - Sandra Burton - (803) 416-9325

sburton@lanc911.com

Review Comments:

Road names approved are:

Roseberry Ct
Whisnant Way
Gumbranch St -Is Gumbranch one or two words?
Cottonwood St
Mazzetti Way

Road names not approved:

Sweet Briar Dr (already exists)
Hay Field Terr (Reserved for another subdivision)
Pond View Ln (already in Fort Mill off N Dobys Bridge Rd)

Gumbranch is one word.

Hay Field Terr will be connecting to Patterson Preserve.

Goldenrod Ct and Avens Drive have been approved for the replacement of Sweet Briar Dr and Pond View Lane.

There are currently 2 road names on Parcel # 0003-00-052.00, Dall Pettus Rd and Pettus Farm Rd. Road closure orders will be needed to remove them from the County Map.

1. Addresses will be issued to developer upon receipt of an approved civil plat, and CAD file.

Noted.

2. Addresses must be on the Final Plat for recording.

Noted.

3. Upon receipt of a recorded Final Plat, addresses will be officially released to all county offices, utility companies, etc.

Noted.

Pettus Pond Preliminary Comments

Response to Comments

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4. A CAD file, in the State Plane Coordinate System of 1983, needs to be submitted to addresser@lanc911.com. Please send in a version around 2010 and no 3D.

This will be sent.

Fire Marshal - John Magette - 8032838888

jmagette@lancastersc.net

Review Comments:

1. All buildings must be within 500 feet of a fire hydrant. Show hydrant locations on plan.

Circles with 500' radii have been added at each hydrant to show that all buildings are within 500' of a hydrant. Hydrant locations have also been called out on PP-4.

Planning - Robert Tefft - 803-416-9394

rtefft@lancastersc.net

General Comments:

1. There would appear to be a connectivity problem with regard to utilities and, as such, this will very likely impact your ability to have a Preliminary Plat approved.

We understand that LCWSD will not accept this project for review of until such time that the downstream improvements are brought online. We would request that the preliminary plat be allowed to move forward with conditional approval from LCWSD.

2. Please be advised that the roads providing access to the subject property from Barberville Road (Pettus, Tillman Steen, Camp Cox) may not have satisfactory paved widths and/or right-of-way. This will need to be examined and possible improved as a part of this project.

Understood. This is included as a required improvement associated with the TIA that is being submitted with this preliminary plat.

3. Extend sidewalk along the east side of Hayfield Terrace to connect to adjacent parcel.

Sidewalk has been extended along the east side of Hayfield Terrace.

4. Lancaster County is not currently accepting any new roads. All proposed roads will be private roads built to County standards. Please provide a note to this effect on the plans.

Note has been added to overall site plan.

5. There would appear to be overhead utilities, as well as an overhead easement within the buildable area of Lot 95. Please clarify how this conflict will be remedied.

Pettus Pond Preliminary Comments

Response to Comments

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We will seek abandonment/relocation of these utilities as part of the construction documents.

6. The landscape plan provides of figure for the number of required trees, but does not indicate the number of proposed trees.

Proposed number of trees is now shown on the landscape plan.

7. While the maximum spacing for street trees is 50 feet on center, it may be more effective to provide the trees at 40 feet on center or as close as possible to that spacing given the locations of driveways, light poles, and fire hydrants.

Spacing has been updated.

8. Provide a lighting plan as part of the Preliminary Plat submittal.

Lighting plan will be provided with civil submittal per 11/10 email

9. Provide a detail for the proposed walking trail as part of the Preliminary Plat submittal.

Detail R19 has been added on the site plan details.

Technical Comments:

1. Pursuant to UDO Section 2.3, within the MDR District the minimum lot area is 10,000 square feet. Lots 47 and 53 do not meet this requirement.

Lot 47 and 53 have been updated to the minimum area requirement

2. Pursuant to UDO Section 2.3, within the MDR District the minimum lot width is 70 feet as measured at the front setback. The proposed plan denotes the lot widths as measured at the frontage line. As such, it is not possible to determine whether many of the lots meet this requirement. In some instances this can be determined based upon the lot width at the rear of the lots, but not in all cases. Provide specific lot width dimensions at the front setback for the following lots: 1-4, 6-9, 11-12, 20-24, 35, 37, 39, 55, 63, 67, 75-77, 87-90, 93-94, and 96-97.

Table showing lot widths at the front setbacks of these lots has been added to overall site plan.

3. Pursuant to UDO Section 6.8, a Traffic Impact Analysis (TIA) will be required for any subdivision where more than 50 peak hour cumulative trips per day will be generated at full occupancy, according to most current versions of the ITE Trip Generation Informational Report. This will be required to be provided with the submittal of the Preliminary Plat.

TIA is included with this submittal

Pettus Pond Preliminary Comments

Response to Comments

Date of Comments: November 9, 2021

Date of Response: December 7, 2021

4. Pursuant to UDO Section 6.1.4.1.D, minimum sight distances are required at intersections. Provide for the required sight visibility triangles on the Preliminary Plat (Overall Site Plan).

Sight triangles based off 25 mph design speed have been added to the site plan and hatched where they extend past the right of way.

5. Pursuant to UDO Section 7.1.3.A, within the MDR District, one canopy street tree is required for every 40 feet of street frontage. The Landscape Plan notes that the total street frontage is 6,037 feet (but performs a calculation using 6,734 feet); however our calculations suggest that there would be a total street frontage of approximately 12,700 feet. How was the street frontage calculated (i.e. both side of street rather than centerline only)?

Street frontage calculations have been updated to reflect both sides of the road.

SCDOT - David Gamble - (803) 385-4280

GambleDD@scdot.org

Review Comments:

Provide final draft of TIA. This review is a general access location review only and does not include required driveway widths, radius returns, pavement design or any other details. A full review for compliance with the SCDOT ARMS manual will be conducted when the SCDOT

TIA is included with this submittal

Impact Fee - Chanda Kirkland - 803-416-9390

ckirkland@lancastersc.net

Review Comments:

This project is located in the greater panhandle Pleasant Valley Fire District, the following impact fees apply: The Impact fee for each housing unit is \$1,777.00. The total fee for all 99 units are estimated to be \$175,923.00. Fees will be collected at the time of building permit issuance. Should you wish to arrange prepayment that can be coordinated after you receive final plat approval. If you have any questions or would like further information on the Development Impact fee you can contact me.

Pettus Pond Preliminary Comments

Response to Comments

Date of Comments: November 9, 2021

Date of Response: December 7, 2021

LCSWD Reviewer- James Hawthorne

james.hawthorne@lcwasd.org

Comments:

1. LCWSD cannot review or accept this development as an official project until the downstream sewer infrastructure is placed in operation, in which this project is depending on for a sewer connection (Upper Sugar Creek Pump Station & Forcemain)

[Noted.](#)

2. Show a 30' SSE connecting to the proposed 40' SSE along the southern property line to the adjacent properties:

- Parcel 0003-00-052.05
- Parcel 0003-00-052.11

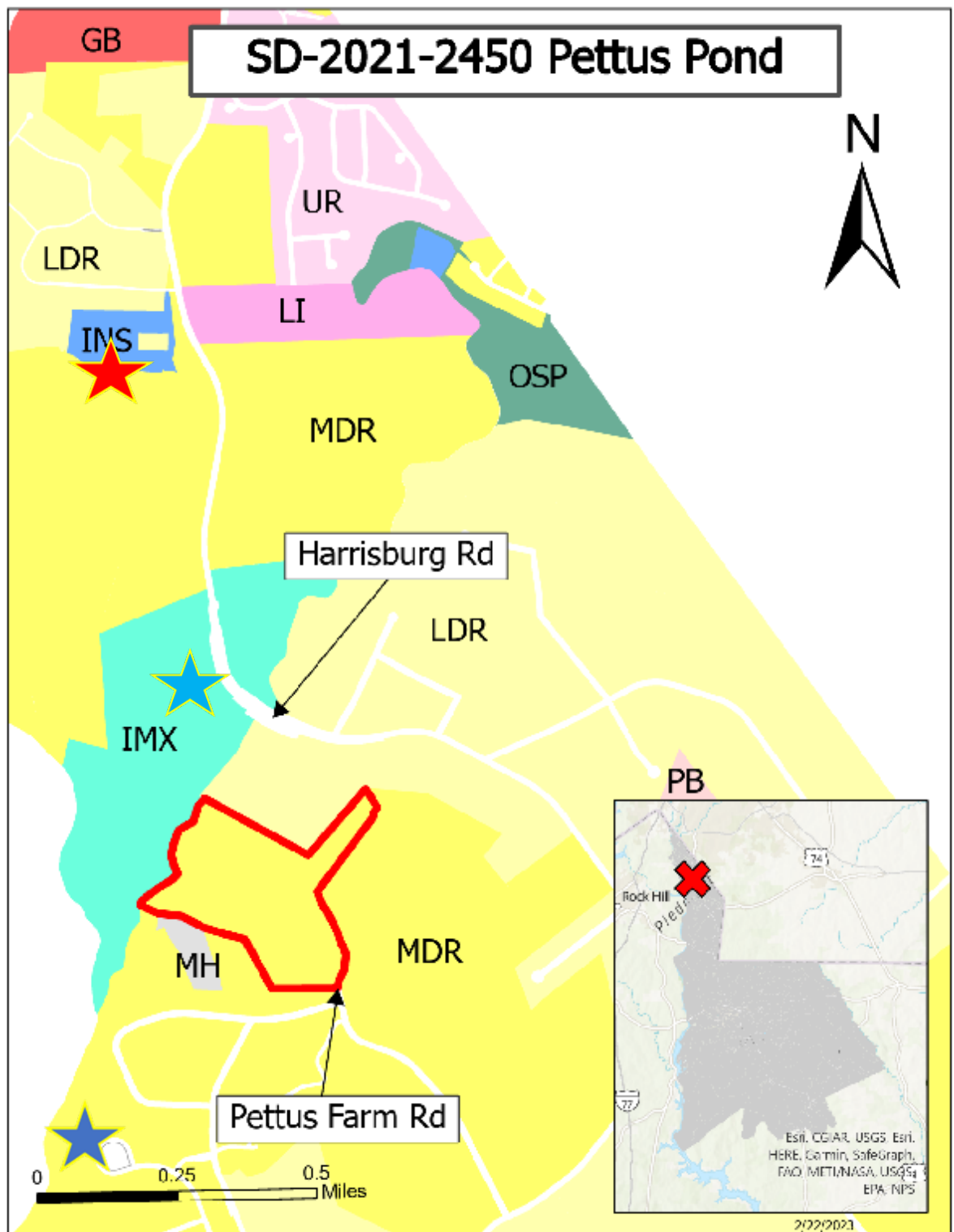
[A 30' SSE connecting to the proposed 40' SSE has been added for noted adjacent properties.](#)

3. LCWSD has existing 2.5" waterlines along Pettus Farm Rd. and Camp Cox Circle, and an existing 4" waterline along Pettus Rd. between Barberville Rd. and Camp Cox Circle. This development will need to extend a larger waterline(s) to the site, to supply domestic and fire demand needs to the site. The Preserve at Barber Rock development, located along Barberville Rd. is constructing a 12" waterline along Barberville Rd., which will end just south of the Pettus Rd. intersection. A larger waterline along Pettus Rd., Pettus Farm Rd., and Camp Cox Circle will be needed to get to the site. The offsite improvements (for both water and sewer) will need to be a part of the preliminary plan for this development.

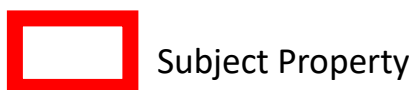
[This extension is now shown.](#)

4. Sewer access needs to be investigated to not "land-lock" the site for adjacent parcel 0003-00-051.00

[This parcel is included as part of the proposed development.](#)



Lancaster
County
South Carolina



Proposal:
Preliminary Plat: 99 lots

Regions at Bretagne
Islamic Community Center
of S. Charlotte
Sugar Creek Development